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
# THE GARDENERS' CHRONICLE.

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 **NOTICE TO SUBSCRIBERS.**  
With this Number is issued, *Gratis*, a  
**COLOURED ALMANAC for 1885.**

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**THE GARDENERS' CHRONICLE,**  
Volume XXII, JULY to DECEMBER, 1884.  
W. RICHARDS, 41, Wellington Street, Strand, W.C.

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NOTICE IS HEREBY GIVEN, that the ANNUAL GENERAL MEETING of the members of this Society will be held at the Bedford Hotel, Covent Garden, on WEDNESDAY, the 14th of January next, for the purpose of receiving the REPORT of the COMMITTEE and the ACCOUNTS of the Institution for the present year, and electing officers for the ensuing year; also for the ELECTION of SIX PENSIONERS on the funds. The Chair will be taken at 4 o'clock precisely, and the Ballot will close at 7 o'clock precisely.—By order, EDWARD R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden, December 30, 1884.  
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" <i>mujus</i>	<i>Masdevallia Veitchii</i> grandiflora
" <i>Chaunton</i>	" <i>flora</i>
" <i>Dauheri</i>	" <i>ludibunda</i>
" <i>Crossanum</i>	" <i>xanthochoris</i>
<i>Dendrobium crassinede</i> , fine specimen	" <i>Rozeli</i>
" <i>Ain-worthi</i>	" <i>Chestertonii</i>
<i>Aëdis maculatum</i> , true	" <i>chumara aurea</i>
" <i>viridis</i> Dayana	" <i>Harryana</i> , Bull's blood original variety
" <i>odoratum</i> purpurascens	" <i>Winniana</i>
<i>Coccygine Ma-sangana</i>	<i>Odontoglossum coradicei</i>
<i>Angul</i> a Ruckert	" <i>baphicatum</i>
<i>Cattleya Skinneri</i> alba	" <i>bapheose album</i>
" <i>Loneleyana</i>	" <i>nebulosum album</i>
" <i>Acklandiae</i>	" <i>luckerianum</i>
<i>Præmetia microphylla</i>	" <i>Hullii</i> xanthoglossum
<i>Saccolabium Harrisonianum</i> album	<i>Oncidium nigratum</i>
<i>Cattleya Turneri</i>	<i>Vanda gigantea</i> , grand specimen
<i>Lælia purpurata</i> alba	

On view morning of Sale, and Catalogues had.

## Wednesday Next.

**LILIAM AURATUM, ROSES, &c.**  
**MESSRS. PROTHEROE AND MORRIS** will **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT**, January 7, at half-past 12 o'clock precisely, 10,000 splendid Bulbs of *LILIAM AURATUM*, just received from Japan; 1000 *MILIA BIFLORA*, 1000 *TIGRIDIAS*, in three varieties; 2000 crowns of *LILY of the VALLEY*, 1000 English-grown *LILIES*, the best sorts in cultivation; 400 Standard and other *ROSES* from an English Nursery, and other **PLANTS and BULBS**. On view morning of Sale, and Catalogues had.

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**MESSRS. PROTHEROE AND MORRIS** will **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, January 9, by order of Messrs. Shuttleworth, Garder & Co., imported **ORCHIDS** in very fine condition, including *Odontoglossum crispum* (*Alexandria*), extra fine masses; *O. citrosum*, *Epideum dumanemorale*, *Masdevallia Harryana*, *Cattleya Trianae*, *Popayan* variety; *Lælia*, &c. On view morning of Sale, and Catalogues had.

## Friday Next.

**MESSRS. PROTHEROE AND MORRIS** will **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, January 9, at half-past 12 o'clock precisely, by order of Mr. G. Marriott, a grand lot of imported **ORCHIDS**, the finest possible condition, comprising *Lælia anceps* (large masses), *Cattleya cirina*, *Lælia alba*, *L. majus*, *Odontoglossum Rosii majus*, *O. maculatum*, *Epideum vitellinum majus* and others. Together with an importation of *CATTLEYA AMETHYSTOGLOSSUM*. On view morning of Sale, and Catalogues had.

## Fulham, S.W.

In the High Court of Justice, Chancery Division. *Re* The General Horticultural Company (John Wills) Limited.

## UNRESERVED CLEARANCE SALE.

**MESSRS. PROTHEROE AND MORRIS** will **SELL BY AUCTION**, on the Premises, the Nursery, Fulham Palace Road, Fulham, S.W. (close to Hammersmith Station), on **THURSDAY**, January 15, at 12 o'clock precisely, by order of the Hon. Mr. Justice Chitty, the Judge to whose Court the matter is attached, the contents of Twelve **GREENHOUSES**, containing together about 20,000 feet super of GLASS and WOODWORK, span-roof, SHOW HOUSES, 500 feet run of 4-inch hot-water PIPING, 1200 feet of 3 and 4 inch, thousands of good BRICKS, SLATE, SLAB, and WOOD STAGING, GUTTERING, TWO BOILERS, and other items.

On view two days prior to the Sale. Catalogues had on the Premises; of Mr. A. J. JOVEY, Solicitor, 18, Orchard Street, W.; of F. WHINNEY, Esq., Chartered Accountant, 8, Old Jewry, E.C.; and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

## Wood Green, N.—Clearance Sale.

**MESSRS. PROTHEROE AND MORRIS** are instructed by the Proprietor to **SELL BY AUCTION**, on the Premises, The Vineries, Nightingale Road, Wood Green, N., on **TUESDAY**, January 20, the whole of the STOCK and UTENSILS in TRADE, 10,000 *Masdevallia* Ferns, Pony Cart, &c.

Further particulars will appear next week. The valuable FREEHOLD NURSERY, of about an acre, with Five large GREENHOUSE, PITS, DWELLING-HOUSE, &c., is FOR SALE, on very moderate terms. Full particulars of Messrs. Protheroe & Morris.

## Flowering Orchids.

**MESSRS. PROTHEROE AND MORRIS** beg to announce that their **NEXT SPECIAL SALE OF ORCHIDS IN FLOWER** will take place on **TUESDAY**, January 27, and they will be glad to receive notice of Entries as soon as possible.

## Monday Next.—(Sale No. 6810.)

5000 *LILIAM AURATUM*, from Japan, in splendid condition. 5000 extra fine *TUBEROSES*, from South Africa.

**MR. J. C. STEVENS** will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY**, January 5, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

## Monday, January 5.—(Sale No. 6810.)

## LARGE LILY SALE.

1000 *LILIAM SZOVITZIANUM*.

500 *ENORMOUS LILIAM AURATUM*.

Hundreds of the best *JAPANESE LILIES*, including *Coridon*, *concolor*, *Hansonii*, *Leichtlinii*, &c., unusually large and in finest possible condition, have been for the last two months in England, and having been specially prepared for planting are equal to home-grown Bulbs. Also a small COLLECTION of other rare *LILIES* *CYPRIPEDIUM JAPONICUM*, a few choice *LILIAS* just received from the Cape, with other rare *BULBS* and *ROOTS*.

**MR. J. C. STEVENS** has received instructions from the New Plant and Bulb Company, to **SELL** the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY**, January 5, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

## Wednesday Next.—(Sale No. 6812.)

**ROSES, FRUIT TREES, BULBS, &c.**

**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT**, January 7, at half-past 12 o'clock precisely, first-class Standard, Dwarf and Climbing *ROSES*, *Pyramidal FRUIT TREES* of sorts, *CARNATIONS*, *PICOTEES*, *PINKS*, and other **HERBACEOUS PLANTS**; several hundred lots of *DUTCH* and other Hardy *BULBS*, *SPIRÆAS*, *LILY of the VALLEY*, *DIELYTRAS*, &c.

On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6813.)

**IMPORTED ORCHIDS, ARAUCARIAS, TUBEROSES, &c.**

**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, January 8, at half-past 12 o'clock precisely, an importation of *ODONTOGLOSSUM CRISPUM* (*ALEXANDRIA*), finest type, in splendid masses; *CATTLEYA DOWIANA*, *C. TRIANA*, *Popayan* variety; *MASDEVALLIA HARRYANA*, *TRICHOPIA COCCINEA*, *EPIDENDRUM PARKINSONIANUM*, and *BLETIA SPICIFERA*, from Mexico, from Messrs. Shuttleworth, Garder & Co.; Hardy *CYPRIPEDIUMS*, in variety; five Cases of *ARAUCARIAS*, as received, containing an immense number of plants; 2000 South African *TUBEROSES*, &c.

On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6813.)

**IMMENSE IMPORTATIONS FROM JAPAN.**  
5000 *LILIAM AURATUM*,  
2500 *LILIAM LONGIFLORUM*,  
1500 *LILIAM KRAMER*,  
1000 *LILIAM THUNBERGIANUM*,  
1000 *LILIAM SPECIOSUM ALBUM*,  
1000 *LILIAM SPECIOSUM ROSEUM*.

**MR. J. C. STEVENS** will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, January 8.

On view morning of Sale, and Catalogues had.

## TO BE SOLD, A FREEHOLD FARM,

comprising House, Barn, Stables, and other Outbuildings, and 6 Acres, containing about 20 acres of good Land, suitable for a Fancy Farm, Hunting Stables, Nursery Grounds, or Building Sites for good Villages. Prettily situated on the south side of Rugby, and about a mile from Rugby School. A bargain for a practical Market Gardener. Apply to the owners, Messrs. ABEL AND SON, Alexandra House, Harrogate.

## A Rare Opportunity for Nurserymen.

**TO BE SOLD**, by Private Treaty, owing to the death of the owner, **ELM GROVE NURSERIES**, Newry, Ireland. These well-known Nurseries are at present well stocked, and for nearly fifty years the proprietors (Messrs. M. Grant & Co.) carried on a splendid business.

For particulars apply to THOS. J. MARRON, Solicitor, Newry, Co. Down.

## To Market Gardeners and Nurserymen.

**TO LET**, with Possession, about 6½ Acres of LAND with a House, Stabling, and Sheds, at Kingston Vale, on the main road from Kingston to London, and about 2 miles from Putney. For particulars apply to Messrs. CLUTTON, 9, Whitehall Place, S.W.

## PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN AND ESTATE AUCTIONEERS AND VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E.

Monthly Horticultural Register had on application.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

**MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER** contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

**T. MILLINGTON AND CO., ENGLISH and FOREIGN SHEET and PLATE GLASS, WHITE LEAD, MILLED LEAD, OILS, and COLOUR MERCHANTS,** 43 Commercial Street, E.

**JOHN KENNARD'S HORTICULTURAL SUNFRIES, PEAT, LOAM, SAND, and Berkshire Pottery Depot.** Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

## New Raspberry.

**BAUMFORTH'S SEEDLING.**

PLANTING CANES, 20s. per 100, 3s. 6d. per dozen. FRUITING CANES, 30s. per 100, 5s. per dozen. Price to the Trade on application.

E. P. DIXON, The Nurseries, Hull.

**STEPHEN BROWN, deceased.**—Pursuant to Statute 22 & 23 Victoria, caput 35, NOTICE IS HEREBY GIVEN that all persons having any CLAIM AGAINST THE ESTATE OF STEPHEN BROWN, late of Weston-super-Mare, in the county of Somerset, Seedsman, Nurseryman, and Florist, who died on the 25th day of November, 1884, and whose Will was proved on the 17th day of December, 1884, in the District Registry attached to the Probate Division of Her Majesty's High Court of Justice at Wells, by Henry Brown, one of the Executors named in the said Will, are requested to SEND IN WRITING the PARTICULARS of THEIR CLAIMS to the undersigned on or before the 31st day of JANUARY, 1885, after which date the said Executor will distribute the assets of the said deceased, having regard only to the Claims of which he shall have had notice.

WM. SMITH, Solicitor to the Executor.

Dated this 18th day of December, 1884.

## HERBACEOUS and ALPINE PLANTS.

Now is the season to plant and insure success. Write for R. H. VERTEGANS' Pocket CATALOGUE, and make your choice from his unrivalled Collection. Chad Valley Nurseries, Edgbaston, Birmingham.

## SPECIAL CHEAP OFFER.

**ALDER, ASH, BIRCH, ELM, Austrian PINE, MAPLE, OAK (English), PRIVET ovalifolia, PRIVET Evergreen.** All the above good stout stuff, from 2 to 4 feet. **POPLAR** in variety, from 4 to 10 feet; **THORN QUICK**, 3, 4, and 5 feet; **YEW**, extra strong; **SYCAMORE**, 3 to 6 feet; **BERBERIS AQUIFOLIA**, 1½ to 2 feet; **CUPRESSUS**, various, 2 to 10 feet; **Golden ELDER**, **Ribes CURTANIS**, **Sweet BRIBES**, **HOLLIES** in variety, from 1 to 9 feet; splendid stuff, all recently transplanted, **IVIES** in variety, **LAURELS** in sorts, 2 to 4 feet; **LILACS**, 3 to 5 feet; **RETINOSPORA**, in sorts, 1 to 6 feet; **English YEW**, 2 to 4 feet, fine stuff; **AZALEA PONTICA**, 1 to 3 feet; **RHODODENDRONS**, for covert and other planting, from 1 inch to 3 feet; several hundred thousand choice named **RHODODENDRONS**, in good sized plants; **Cunningham's White CAUCASICUM PICTUM JACKSONIANA**, &c. Double Yellow and White **PRIMROSES**. For price and particulars apply to ISAAC MATTHEWS AND SON, The Nurseries, Milton, Stoke-on-Trent.

## Fruit Trees of fine quality

offered to the Trade by

## HUGH LOW AND CO.

**APRICOTS**, Dwarf Maidens, Moor Park, and others, 60s. per 100, £7 10s. per 1000.  
Dwarf-trained, 24s. and 30s. per dozen, £9 per 100.  
**CHERRIES**, Dwarf Maidens (except May Duke), 40s. per 100.  
Dwarf-trained, 18s., 21s. per dozen.  
2 year, feathered, 60s. per 100.  
**DAMSON**, Farleigh Prolific, Dwarf Maiden, 50s., 60s. per 100.  
**NECTARINES and PEACHES**, Dwarf Maiden, 60s. per 100, £7 10s. per 1000.  
Dwarf-trained, 24s., 30s. per dozen, £8 10s. per 100.  
**PEARS**, Dwarf Maiden on Pear and Quince, 40s. per 100.  
Dwarf-trained, 21s., 24s. per dozen.  
Pyramids on Quince, 50s., 60s. per 100.  
2 year, feathered, on Pear stock, 50s. per 100.  
**PLUMS**, Dwarf Maiden, 40s. per 100.  
Dwarf-trained, 18s., 21s., 24s. per dozen, £7 per 100.  
2 year, feathered, 50s., 60s. per 100.  
Clapton Nursery, London, E.

## Lilium auratum, Cypripedium japonicum,

Lilium Szovitzianum, L. Hansonii,

And others from Japan, all in magnificent condition: **L. MARTAGON ALBUM**, very large; **North American LILIES**, **CALCHORTI** in variety, **CYPRIPEdia** to hand, **IRIS**, **NARCISSI**, **GLADIOLI**, **ORCHIDS**, **BULBS** for Spring Planting &c. **NEW ZEALAND SEEDS**, **Filmy FERNS**, and others. The NEW PLANT and BULB COMPANY, Colchester.

## PRIZE COB FILBERT TREES.

Gentlemen desirous of obtaining the true

## WEBB'S PRIZE COB FILBERT TREES

for Autumn and Winter Planting, should send their Orders as early as convenient to

**Mr. COOPER, F.R.H.S.,**

**CALCOT GARDENS, READING, BERKS,** of whom alone the various sorts can be obtained.

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## NEW, RARE, and CHOICE FLOWER SEEDS.

This most comprehensive and interesting CATALOGUE is in hand, and will be ready in a few days. It includes one of the finest Collections of NOVELTIES and RARITIES ever offered, a splendid assortment of the finest **HARDY BORDER PLANTS**, and such as come freely from Seed—a Catalogue every one should possess. Post-free upon application.

## DAHLIA TUBERS.

A grand lot of strong, healthy tubers, consisting of Double, Show and Fancy. All the best Double Pompons—a unique collection. Cactus and Semi-Cactus varieties—a splendid group. Singles—the finest collection in the world. Priced Descriptive LIST upon application.

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**HALE FARM NURSERIES, TOTTENHAM, LONDON.**



**SPECIAL OFFER.**  
ROSES, Standard, Half-Standard, Gloire de Dijon (dwarfs), Général Jacqueminot (dwarfs).  
LARCH, 1 to 5 feet.  
SPANISH, 2 to 6 feet.  
ALDER, 2 to 4 feet.  
HAZEL, 2 to 4 feet.  
FIR, Scotch, 1 foot.  
MANETT STOCKS.  
WOOD'S GARLAND STOCKS.  
Prices on application.  
WILLIAM FLETCHER, Mersham Nurseries, Chertsey.

**Aquatics.**

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New CATALOGUE now ready.  
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**To the Trade.****SEED POTATOS.**

**H. AND F. SHARPE'S** Wholesale Priced LIST of SEED POTATOS is now ready, and can be had on application. It comprises the best kinds in cultivation, and the prices are very reasonable.

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**CHRYSANTHEMUMS.**—Speciality.—420 varieties, guaranteed true to name. One of the largest and cheapest Collections in the Trade. Plants, purchaser's selection, 2s. 6d. per dozen, 16s. per 100; cuttings, 1s. 6d. per dozen, 10s. per 100; W. E.'s selection, cheaper. For the new English and Continental varieties see CATALOGUE, with Essay on Cultivation, one stamp. Inspection invited.

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**To the Trade only.**

**CHAS. KERSHAW** offers strong Crowns of his PARAGON RHUBARB at 25s. per 100. Strong plants with several crowns—price on application.

**DECIDUOUS SHRUBS** in variety, fine transplanted stuff, 4s. per 100.

He can still supply extra strong plants in pots of MARECHAL NIEL, GLOIRE DE DIJON, BELLE YVONAISE, REINE MARIE HENRIETTE, and other ROSES.  
The Slead Syke Nurseries, Brighouse.

**Grape Vines—Grape Vines.**

**IRELAND AND THOMSON** have a large and thoroughly ripened stock of the above in Planting and Fruiting Canes. CATALOGUES on application.

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**H. AND F. SHARPE** have Posted their GENERAL TRADE LIST, and will feel obliged if those houses who have not received it will inform them, so that one may be forwarded.

Seed Growing Establishment, Wisbech, Cambridgeshire.

**SPECIAL OFFER.**—Extra fine Dwarf-trained APRICOTS, fruiting trees, 5 to 6 feet high, and 4 to 5 feet wide, will remove with good fibrous roots, 5s., 7s. 6d. to 10s. 6d. each. Extra fine Dwarf-trained Royal George PEACH, fruiting trees, 5s. to 7s. 6d. each. Elcombe's Improved PARSNIP: this very popular variety was sent out by us some years since and has proved a great success (see *Gardener's Chronicle* for Nov. 29, 1884, p. 694). We offer True Stock Seed from selected roots: trade price on application.

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**THE LIVERPOOL HORTICULTURAL CO.** (John Cowan), Limited, have this season a grand stock of Grape Vines, suitable for Fruiting in Pots and Planting in Vines. CATALOGUES free on application. The Trade supplied.

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**BRUSSELS SPROUTS, MAY'S** NORTHAW PRIZE, the variety that has been successfully exhibited by him and admired. Seed direct from the grower, 1s. 6d. per packet.

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**PAUL AND SON, The "Old" Nurseries,** Cheshunt, hold very fine stocks of the undermentioned:—STANDARD TEA ROSES, best kinds.  
STANDARD HYBRID PERPETUAL ROSES, vigorous kinds.

DWARF TEA ROSES, on Brier only.  
STRONG CLIMBING ROSES, very large plants.  
STRONG CLIMBING ROSES, in pots, 8 to 9 feet high.  
STRONG DWARF ROSES for Hedges.  
STRONG DWARF ROSES for Beds.  
POT ROSES, of all sorts and sizes.  
STRONG STANDARD APPLES, 5 to 6 feet stems.  
STRONG STANDARD PEARS, extra fine heads.  
STRONG STANDARD PLUMS, including Victorias.  
EXTRA FINE HORIZONTAL TRAINED APPLES and PEARS.

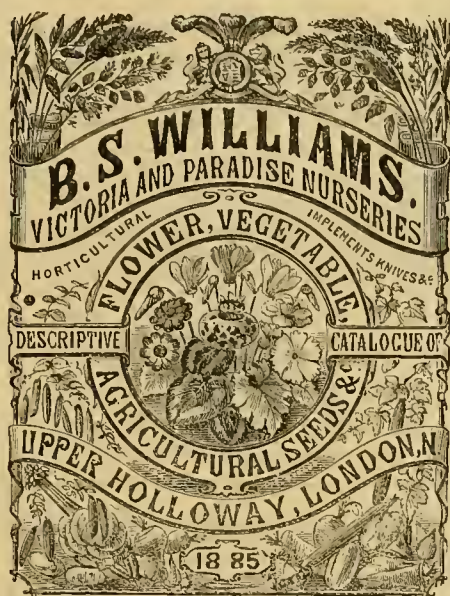
EXTRA FINE FAN TRAINED PLUMS and CHERRIES.

STRAWBERRIES, in large and small pots.  
GOOSEBERRIES, fine, on 1 foot stems.  
CURRANTS, particularly fine Red and White.  
CONIFERS, EVERGREENS, and AVENUE PLANTS.  
HOLLIES, Green and Variegated, 10 acres at High Beach.  
CATALOGUES post-free.

**ASH**, common, 2 to 3 feet, clean, 17s. per 1000; 3 to 4 feet, 20s. per 1000. ELMS, 1½ to 2 feet, 14s. per 1000; 2 to 3 feet, 17s. per 1000; English, 3 feet, 25s. per 1000. CHESTNUT, Spanish, 2 to 3 feet, 22s. per 1000; 15 to 20 inches, 16s. per 1000. LARCH, 14 to 21 inches, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 4 feet, 18s. per 1000; 4 to 5 feet, 24s. per 1000. SPRUCE FIR, 1 to 1½ foot, 12s. per 1000; 1½ to 2 feet, 13s. per 1000; 2 to 2½ feet, bushy, 16s. per 1000. SCOTCH FIR, 1-yr., 2-yr. transplanted, 12s. per 1000; 2 to 2½ and 3 feet, 18s. per 1000. SILVER FIR, 4-yr. transplanted, 22s. per 1000. HAZEL, 2 to 3 feet, 20s. per 1000. OAKS, 18 to 20 inches, 16s. per 1000; 2 feet, 20s. per 1000. FRUIT, Evergreen, 2 feet, 15s. per 1000; 1 to 1½ foot, 12s. per 1000; OVALIFOLIUM, 2 to 2½ feet, 20s. per 1000; Oval, 1 foot, 20s. per 1000. SYCAMORE, 1½ to 2 feet, 14s. per 1000. THORN, 1½ to 2 feet, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 3½ feet, 18s. per 1000.

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GARLIES MITCHELL, Nurseryman, Stranraer, N.E.



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The following letter, selected from many hundreds of similar ones, is, I trust, a sufficient proof that the plants are of the best quality:—

"Hill Side, 203, Richmond Road, Putney, Nov. 26, 1884.

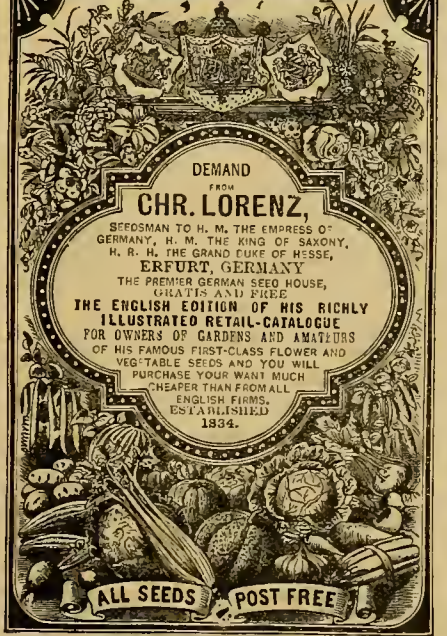
"Sir,—I am much pleased with the fine healthy plants you have sent me. Both the Dwarfs and Standards are specimens of skilful cultivation. They are particularly well rooted, and are in every respect all that a Rose-grower can desire.—I am, yours faithfully,

"To Mr. FRANK CANT, Rose-grower, Colchester."

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ACACIA ARMATA, splendidly budded, 9s., 12s., doz.

ARECA LUTESCENS, 48-pots, fine, 18s. per dozen.

RUBRA, graceful Palm, 1 foot, 10s. per 100.

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Single white, just opening flowers, 12s. per dozen.

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ERICA GRACILLIS, in flower, strong, 18s., 24s. per dozen.

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GARDENIA RADICANS, in bud, 9s., 12s. per dozen.

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PELARGONIUMS, Zonal, unnamed, in flower and bud, 30s. per 100.

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**ABIES DOUGLASII**, 1½ to 2 feet, 25s. per 100; 2 to 2½ feet, 35s. per 100; 3 to 4 feet, 60s. per 100; by the thousand, finely finished and rooted, ARAUCARIA IMBRICATA, 18 to 20 inches, 24s. per dozen; 2 to 2½ feet, 42s. per dozen; 3 feet, extra, 6s. per dozen; each size by the thousand. CEDRUS DEODARA, 4 to 5 feet, 30s. per dozen. CRYPTOMERIA ELEGANS, 2 to 2½ feet, 60s. per 100. CUPRESSUS LAWSONII, 2½ to 3 feet, 60s. per 100; C. GRACILIS, distinct, 1½ foot, 12s. per dozen; C. STRICTA, 2 to 2½ feet, the finest upright, 12s. per dozen; C. FUNEBRIS, scarce, 1½ foot, 12s. per dozen. PICEA NOBILIS, 3 to 4 feet, 60s. per dozen; P. NORDMANIANA, 1 foot, fine, 5s. per 100; 1½ to 2 feet, 15s. per dozen; 6 feet, extra, 84s. per dozen; P. LASIOCARPA, 4 to 4½ feet, 70s. per dozen; P. WEBERIANA, 3 to 3½ feet, true, 84s. per dozen. PINUS EXCELSA, 2 feet, 8s. per dozen; P. INSIGNIS, 1 foot, 30s. per 100; 6 to 8 inches, 16s. per 100. THUJA LOBBII, 10 to 15 inches; special by the 1000, the best substitute for Larch. THUOPSIS DOLABRATA, extra, 60s. per dozen. RHODODENDRON PONTICUM, 1 to 4 feet, each size in thousands.

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**HARRISON AND SONS,**

Royal Nurseries, Leicester, have to offer:—

10,000 Strong GOOSEBERRIES, mostly Warringtons.

6,000 IVIES, mostly Irish.

7,000 POPLARS, 6 to 12 feet.

1,000 Standard Horse CHESTNUTS, fine.

20,000 Bushy Evergreen PRIVET, 2 to 3 feet.

2,000 AMERICAN ARBOR-VITÆ.

2,000 Common LAURELS, 3 to 4 feet, extra.

1,000 Paul's Crimson THORNs, standards.

1,000 Pyramid APPLES, PEARS, and PLUMS.

1,000 Standard PEAKS.

All well grown. Special quotations and samples free.

**To the Trade Only.**

**FERNS — FERNS — FERNS.**

—Adiantum cuneatum, A. trapeziforme, A. gracillimum, Lomaria gibba, Lastrea aristata variegata, Pteris serrulata cristata Cowani, P. serrulata: nice plants in 60s., 20s. per 100.

—Adiantum cuneatum, A. gracillimum, A. trapeziforme, in 4 and 4½ inch pots, 40s. to 50s. per 100, according to size; Adiantum Facottii, in 60s., 30s. per 100; ditto, in 4 and 4½ inch pots, 50s. per 100.

THE LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, The Vineyard and Nurseries, Garston, Liverpool.

**Forest Trees.**

**IRELAND AND THOMSON** have an extensive and healthy stock of Seedling and Transplanted Forest Trees, including Ash, Alder, Birch, Elm, Austrian Pine, from 6 in. to 2½ ft.; Scotch Fir, Larch, Spruce, Black Spruce, Laricio, Beech, Thorus, Maple, Oak, Poplars, Thorn Quick, Chestnuts, Hazel, &c. Special offers on application.

Nurseries: Craigleith, Comely Bank, and New Golden Acre, Granton Road, Edinburgh.

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**ANT. ROOZEN & SON,**

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*The amount received by the conductors of the "Gardeners' Chronicle" up to December 23, 1884, is £214 18s. 6d., which has been handed over to the Secretary of the Institution. A further sum of £34 3s. 6d. has been received since the above date, which has also been paid to the proper authorities.*

*Any further Contributions should be sent direct to the Secretary,*

*Mr. E. R. CUTLER,*

*14, Tavistock Row,*

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*by whom their receipt will be acknowledged in the usual way.*

*No further acknowledgments can be made in these columns.*

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THE

# Gardeners' Chronicle.

SATURDAY, JANUARY 3, 1885.

THE EXTREME NORTH OF SCOTLAND.

JOHN O' GROATS.

"I THINK we shall have time enough, sir; this mare's the fastest in the stable, and a rare one for pace," says our driver, as we dash across the little bridge which spans the Thurso river. There is need for haste; we have 40 miles to drive before dinner, with horse-baiting midway, and the clock has already struck two. So away we go, between the acres of Oats and Rye, and in a short while are rattling through Castletown. What a change! We have left the bleak North, and can almost fancy ourselves in a Sussex village, so thick and strong grow the trees here—planted, it is true, in a favoured spot—but none the less lending that charm without which something seems wanting to all but grand scenery. However, we are soon beyond the trees, careering across the heather-clad moor, here and there broken by cuttings for the brick-like masses of stacked peats the stalwart peasantry are busily carrying to their cottages. The view is continually shifting; now we are close to the sands of Dunnet Bay, now clattering through some hamlet or a village, with its prim kirk; now out again in the open, with the wide wet moor on either hand, not desolate this afternoon, but gleaming coldly in the glorious sunlight. Yet though the day is cloudless and almost windless, one look at the cottages is enough to tell us a tale of the utter ruin that would overtake them but for the huge stones, suspended at the ends of ropes, passing over the thatch. Poor and comfortless seem these homes of the people, but what delicious contrasts of form and colour in gable and wall and outhouse they give, thrown up in fine relief on the background of moor and frith and distant cliff. Verily, when the sun is upon it, this is a land such "as would select some artist that his skill might never die," were he rash enough to admit the possibility—so fresh seems everything—so buoyant upon the flood of light which beats upon it without cessation.

Everybody knows the John o' Groat legend. How Johnny, the brother of a large and contentious family—laughing, doubtless, in his sleeve at the silly punctilios of life—dextrously hit upon a plan by which matters were brought to a friendly issue, by suggesting that the house in which the brethren met to discuss their concerns should have as many doors as visitors, whereby they would no longer be under the necessity of playing the game of follow my leader—a very unpopular one with these gentry, and one which there is reason for believing to have caused heartburnings at times in places less remote from centres of refinement than Caithness. In proof of this story you are shown a mound, now covered with grass, said to be the ruin of this house of peace; hard by we descend at the polygonal hotel built in imitation of the house, but entered in the ordinary manner. The hotel is at the verge of, and but a few feet above, the shore of the frith, yet, though there is no cliff here worth calling a cliff at all, we find ourselves at the bottom of a



gently sloping lofty down, battered on by sheep, except where there are counter-changes of narrow swamp, in which the pretty blossoms of the Bog Pimpernel (*Anagallis tenella*) may be pulled. Climb the down and a noble and never-to-be-forgotten prospect opens. A lofty growth of cliff facing the North Sea, which has wrenched away from it many scarred and furrowed columns of rock or "stacks;" round these the clear green water is lazily working itself into foam; no keel is ploughing any of the myriad acres of sea, but far away upon the horizon stand the bare masts of scores of fishing-boats gathering in the bountiful herring harvest. Northward across the frith glimmer the cliffs of Hay and the low coast-line of South Ronaldsha; further on frith and main sea meet round the huge headland of Duncansbay, upon one of whose crags a solitary eagle can be made out with the aid of the glass; landward there are miles upon miles of rolling moor flanked by the mountains bordering Caithness and Sutherland.

Very pleasant in the warm afternoon is a stroll along the northern shore, where one may revel in the deliciously pure white sand, or watch the advancing tide gently absorbing in the frith the coralline-studded pools of clear water: pleasant, too, as, after hastily remounting, we find ourselves whirling homewards, the sun still high in the heavens. But before reaching Thurso we are reminded, by the intense cold of the July evening, that this is a country where man has to barricade himself against Nature, and can gain a subsistence only at the cost of constant warfare against her inhospitable rigours.

#### THURSO.

We have left the mountains far behind, and have just been hurrying across a chilly moorland country, the sombreness of whose desolation is relieved by an occasional stretch of culture, in the midst of which stands some farmstead, jealously protected from the northern wind by a grove of stunted trees. The sea was lately caught sight of, and dim cliffs beyond; and now, the journey at length over, in front of us the waves of the North Atlantic shimmer in the sunlight, while at our feet, upon the verge of its bay, nestles the northernmost town on the mainland of Britain. And a fine bay it is, and well worth coming so far to see—large, well sheltered, its wide entrance guarded by two bastions of noble cliff—Holborn Head on the west, on the east the escarpment forming part of the long promontory of Dunnet. In the frith outside a strong current is running, but its impulse is scarcely felt within the bay by the tiny wavelets that gently seethe upon its white sands and lap a schooner or two anchored near the shore. An old man sunning himself, some children making sand-castles, a solitary bather in the distance—these are the only signs of life. Within the town all is quiet, no roll of cart or carriage through either of the two main streets breaks the monotony of silence, and the lanes leading from them seem almost as devoid of movement as the figures adorning the modern gewgaw structure which has taken the place of the ancient home of the Sinclairs. It is not the castle, however, that we feel interest in, nor even the town, as we stand in Wilson's Lane and notice the mean buildings on either side, for here, in one of the smallest of them, lived a more remarkable person than Thurso is likely to see for many a day—Robert Dick, baker and man of science.

With Mr. Smiles' biography well in remembrance, we may step inside and inspect the bakehouse, upon whose walls this singular genius exhibited his skill in drawing, and the little room, which served as a museum, and was always carefully locked against the profane dustpan. We may, in fancy, see him, having set his "batches" of dough, start off late at

night, or in the early morning, at a swinging pace, for forty or, perhaps, fifty miles have to be covered before he will return to set the next "batch," and his best speed will allow him but two short hours to search at his destination for a rare and long-wanted specimen, or to collect evidence in solution of some geological problem. Or, again, we may see him wearily walking homewards for the last time, conscious that the hand of death is upon him, and that the days to dawn can bring him but fortitude in suffering—suffering borne, let us be thankful to think, not without the consolation of a faithful and long-tried servant. How devoted, indeed, must that service have been when the mere mention of her employer's name suffices, after the lapse of nearly twenty years, to bring tears to her eyes, and sobs which drown her testimony to the virtues of her "good maister." Unhappily that service has had but scanty pecuniary reward—from the extreme humbleness of the room in the cottage close to Wilson's Lane, which Annie Mackay occupies, it is plain that her life is a desperate conflict with poverty.

We walk round the bay, past the ruins of the Bishop's Palace, and climb Holborn Head. The vegetation here is grass and such plants as spotted Orchis and Thrift in abundance, and, prettiest of all, the Scotch Primrose (*Primula scotica*), with its lovely trusses of dark purple flowers. The face of the sandstone cliff falls away vertically from the plateau upon which we stand; down below the green waves are swirling and gently lashing the "clett," a small rock island covered with a cloud of sea birds, its steep sides looking as if cut out by some gigantic chisel. Turning inland a short way we come upon a deep chimney-like opening, which widens out further down, and receives the confused splash of waves confined within bounds, for the rock here is twofold, soft sandstone and hard flag, and the sea, having quarried away the yielding stone, runs up the narrow breaches it has made—quietly, indeed, and as if caressingly now, but with such fierceness in storm time that the chimney, or "gyoe," will then smoke with the cast-up foam. In the far distance, embossed upon the southern sky, are Morven and its fellow mountains, the scene of much of Dick's wandering. Westward we can trace the dreary coast-line as far as Cape Wrath, knowing that this expanse of sea which beats against it rolls shoreless as far as the still more dreary headlands of Labrador. Across the frith the cold pale blue cliffs of Orkney stand like wardens of the northern world beyond; and beneath our feet, buried in their rocky grave, are the remains of scores upon scores of Darwinian fish. Here, then, where one cannot but feel doubly impressed with the eternities of space and time, the poor baker's lot was cast; and a happy one in many respects it must have been—shut up, as he was, in seclusion almost monastic, face to face with the great problems of man and Nature. But how that eager spirit must have beaten its mortal bars as it looked out upon lives that were not all labour, and thirsted while snatching knowledge amid the turbulent calls of self-preservation, for leisure to grasp it more securely than it could expect its utmost ardour ever to enable it to do. Filled with these thoughts we retrace our steps, carrying a handful of Primroses, which will, we trust, gladden for a day or two the home of her who through long years served the lonely philosopher and lightened, as far as she was able, his dark and rugged pathway.

HURST & SON.—We are informed that Mr. D. Webster, who for many years past has represented the Lawson Seed Company, will in future be connected with Messrs. Hurst & Son, of Houndsditch, London.



#### FLORISTS' FLOWERS FROM SEED.

OUTDOOR CARNATIONS.—For some years past I have been successful in raising a batch of seedlings in February from seed supplied by a leading London firm. There is infinite interest in watching the progress to the flowering stage of florists' flowers, and a certainty that a package of seed will contain many varieties, differing more or less. I have almost invariably found this to be the case, and the wonder to me is that every grower of florist flowers is not also a raiser of seedlings. You may not get, in the case of the Carnation for instance, a chance seedling better than those raised by Messrs. Douglas & Dodwell, but from a respectable firm you are morally certain to get some good double flowers well worth perpetuating. This has been my experience, and of thirty-five seedlings, *e.g.*, raised from a package of seed in 1883 that bloomed this year, all were double but two. Some were certainly worthless in colour, and about half-a-dozen were semi-double or with but two rows of petals—very floriferous, and no doubt would be useful for cutting. Some were very peculiar colours—shades of amber, cinnamon, and maroon. Curious enough, not more than one or two were noticeably sweet-scented. As showing the variety a packet of seed may contain I may also mention I had among them two tree Carnations—one a dark red, or purple, rose, of immense size, and so full of petals that in expanding the blooms always burst. The vast majority were, however, "sells," and most pleasing shades of pink, crimson, or rose, with one or two closely approaching deep scarlet. Rarest of all to find in this way from seed are yellow ground Carnations. I have, however, got three, but, like all yellow grounds, they seem of comparatively delicate constitution. Seemingly delicate, however, planted out in even such a fine year as 1884, is no guarantee that they would not be robust as pot plants under glass, and the coming year I shall further test them, but in the first instance I plant out all my seedlings on trial to see what they may come to. Coming to the crimsons their robust, free-blooming and warm colours tempt one to speak of them in the most glowing terms. They commence to bloom in a warm southern border the beginning of July, and persistently since have never ceased doing so—indeed this morning I see two blooms progressing rapidly, so much so that I may have them ready by Christmas eve to send in lieu of the customary greeting. Two come up to the *beau idéal* of the florist, and have smooth petal-margins; the remainder are "fringed" or serrated. I must confess I am so obtuse or unorthodox as to have a great liking for those fringed Carnations, especially if they happen to be sweet-scented. I have on a bright purple-pink, and another a warm flesh colour with a shade of maroon, I got as cuttings from Mr. Burbridge, Trinity College Botanic Gardens, some years since; both are "fringed," and I should be very reluctant to part with either. The present year I have been even more successful in raising seedlings, put in, in January, 1884, thinned where I could lay hold of them, and transplanted in a box in a cold frame, slightly heated with tan-bark, and ultimately transplanted to the open border, if I remember aright, in June last, or about that time. I consider it of immense consequence to have such seedlings out early in the borders. They grow firm and robust, get thoroughly hardened and matured, and lay the foundation of a fine "stool" for the following season. Out of about fifty of the present year's seedlings, all are pictures of health now with three exceptions, and this delicate trio are probably yellow grounds, "bizarres," or possibly good "flakes"—they can hardly be "sell" colours, as they are generally the most robust. Well, it will be a source of zest and pleasurable anticipation to look forward to, for the next six or seven months, and this is one of the real sources of gratification in raising seedlings, I might almost have said, of gardening generally. The pleasure is all the greater when you are discussing what the humblest can do—what the humblest can have. It only remains to add that at this season a mulching, say of horse droppings, around the neck of the plants, I have found very desirable for several reasons. *W. J. M., Dec. 23.*



## ROOTS.

**STRAWBERRY ROOTS.**—A plant of *Triomphe de Gand* Strawberry, the roots of which were examined by Mr. Goff, at the New York Agricultural Experiment Station, had roots extending nearly vertically downwards to the depth of 22 inches. The horizontal roots were few and short, the longest being traceable but 6 inches. The greater part of the roots extended nearly perpendicularly downwards, and nearly all of the fibrous roots were found directly beneath the plant. The new roots appeared growing out about an inch above the old ones. The longest of these had attained at this time a length of 6 inches. They were white, and were tipped at their extremities with a thickened point, in which respect they resembled the underground stem of the Potato. It would seem from these observations that as the roots cover an area scarcely larger than the leaves, there is little danger of injuring the roots of Strawberry plants by cultivation between the rows, even if the soil is disturbed to a considerable depth. The fact that the new roots grow out above the old ones each year explains why Strawberry plants appear to lift themselves upward as they become old, and suggests the importance of drawing earth toward the plants in hoeing them after the bearing season.

## TOMATO ROOTS.

The roots of the Tomato plant are, in their manner of growth, opposite to those of the Strawberry plant. In a plant examined at the New York Agricultural Station on August 13 last the greater part of the roots appeared to extend horizontally, and were about 8 inches below the surface. The horizontal roots were traced a distance of 24 inches on one side of the plant, and 30 inches on the other. From this it appears that the plant drew its nourishment from a circle about  $4\frac{1}{2}$  feet in diameter, or from an area of about 16 square feet. A single root was traced downward to the depth of  $2\frac{1}{2}$  feet. The tap-root was clothed with a multitude of fibrous roots to the depth of 8 inches, where it separated into many branches.

## CAULIFLOWER ROOTS.

The Cauliflower is a deep rooting plant, as appears from observations made at the New York Agricultural Station. Roots were traced downward to the depth of 3 feet, and many roots reached a depth of  $2\frac{1}{2}$  feet. The roots also extend horizontally about  $2\frac{1}{2}$  feet. It thus appears that the Cauliflower draws its sustenance from a greater area and depth than the Tomato plant. The fibrous roots, however, are less numerous in the upper layers of the soil.

## PINUS LAMBERTIANA.

THE accompanying sketch (fig. 1) is an attempt to convey an idea of the port and aspect of a *P. Lambertiana* (the Sugar Pine), about 230 feet high, as seen from a distance of a quarter of a mile or so. In so far as it shows a straight trunk, a very lanky contour, and a sparse ramification, it may convey a fair impression of that stupendous tree, which from a distance wants the picturesqueness of *P. ponderosa*, the bulk in proportion to height of a Sequoia, and the beautiful green colour of the *P. concolor*. In one striking character, however, it surpasses these and all other Pines known to me, and that is in the size and exceeding beauty of the living cones. It is impossible to give any idea in a reduced figure such as that of this woodcut of the appearance of these as they hang on the tree without grossly exaggerating them; the simple reason being that the observer must be near a tree of such proportions to see them at all, and then only a small portion of the trunk and branches comes within the area of vision. Then, indeed, the effect of these huge cones, which are, on the average, 12 to 18 inches long, and hang from the very tips of the branches, is strikingly beautiful, especially in sunshine, when they sparkle like pendants of diamonds, owing to the high refractive power of the resin that copiously exudes from them and hangs in drops to the scales.

The history of the discovery of *P. Lambertiana* by Douglas is too well known to require a notice here. It is one of the two Western United States representatives of the Weymouth Pine, *P. Strobus*, of the Eastern States, the other being its near ally, *P. monticola*, and it is not always easy to distinguish young specimens of these three in European arboreta.

In point of colour the Lambert and Weymouth are both dark, and the common form of *monticola* is a light green, but there is a dark variety of the latter. A better character is the more drooping attitude of the tassels of leaves towards the underside of the branches of the Lambert Pine near their tips, which is a very obvious distinction when the plants are side by side, but is difficult to carry away in one's memory. The cones, of course, distinguish them, but, singularly

posed to be, and will want extended observation previous to confirmation.

The timber of the Lambert Pine is described by Professor Sargent as heavier, coarser, stronger-grained, and probably less easily worked than that of the Eastern White Pine, *P. Strobus*. Its meridional range is very extensive, but its latitudinal one is restricted. Commencing in the North, in the mountains south of the Columbia River, lat.  $45^{\circ}$  N.; it runs along first the Cascades and then the coast ranges to  $33^{\circ}$  S., and along the Sierra Nevada throughout the length of the State of California. Its nearest Rocky Mountain ally is *P. flexilis*; in Mexico it is replaced by *P. Ayacahuite* and *P. Buonaparte*; in the Old World, proceeding westwards, *P. parviflora* is its comparatively insignificant representative in Japan; in the Himalayas *P. excelsa* takes its place, and resembles it much more closely; it extends into Afghanistan; and, lastly, this form of *Pinus* terminates in the isolated *P. Penke* of a few mountains of Macedonia, which has the cones of *P. excelsa* and the habit and dark colour of *P. Strobus* and *Lambertiana*.

The specimen here drawn grew near the hotel at Calaveras, and within a short distance of the grove of Wellingtonias. J. D. Hooker.



FIG. 1.—LAMBERT'S PINE.

(From a sketch taken from a native specimen by Sir Joseph Hooker.)

## LORD CATHCART ON THE POTATO DISEASE.

THE current volume of the *Journal of the Royal Agricultural Society*, 1884, vol. xx., p. 266, contains an essay from the pen of Earl Cathcart on the cultivated Potato. The paper is brightly written, and highly readable. There is a good deal of quiet humour throughout the essay, which sometimes develops into joking; for instance, the author says the authorities on the *Alert* were certainly not on the alert. The paper contains many new (or till now overlooked) historical facts. At several points it will provoke a smile, or even a hearty laugh, for Earl Cathcart has a keen eye for the amusing side of the subject. Throughout the paper there are none of the acrimonious examples of hyper-criticism so common in the writings of persons who set themselves up as great scientific authorities. No one in future who writes on the Potato disease can overlook this paper. The writer quotes many authorities, and he is careful to give foot-note references to all; some of these are possibly not accessible to the general public, as, for instance, the diary of the eighth Lord Cathcart.

After a few preliminary remarks the author gives De Candolle's historical account of the Potato, with a notice of Sir Walter Raleigh; he then gives us references to Gerard, Shakespeare, Bacon, and Buckland in the publications of the Royal Society in 1663; the Potato is in the latter position termed "food for swine, cattle, and poor people." He then refers to the Duchess of Buccleuch's *Household Book*, and says the cause of the Scotch people being at this time (1701) averse to the Potato was possibly because there is no mention of it in the Bible; and this fact, "in the strong language of those days, was 'damnable uncanny.'" The author goes on to mention a Potato farm of 50 acres near Edinburgh in 1734, and at this point mentions the comparative nutriment found in Potatoes, and gives a description of the "curl" as first noticed in 1764, and which after seventy years' experience was at length described as a hereditary disease. Referring now to the *Gentleman's Magazine* for 1764, Earl Cathcart quotes a precocious Jensenite, who at that time wrote, "Mould your Potatos up monthly—continue moulding-up," and elsewhere, "mould-up fortnightly." Earl Cathcart says, "moulding-up" or "earthing-up," sometimes called Jensen's system, is no novelty, and "earthing-up" appears rather in favour than otherwise, but should not be overrated." Experiments at Bedford in 1771 are quoted, and then the writer treats of the Potato in France in 1785, and conclusively shows that Parmentier in 1789 accurately described the effects of the now too familiar fungus of the Potato disease, even to "et ils exhalent une odeur infecte." The cultivation in Scotland is here returned to, and wet rot, dry rot, curl, taint, scab, and other maladies referred to, with numerous references. He now arrives at the disastrous year 1845, when the course becomes clearer, and *Peronospora*, *Fusisporium*, &c., are adverted to; the author, however, wisely declines to write at length on the fungi of Potatoes, but he gives, from his own point of view, a sketch of Potato physiology, and refers at some length to fungus spores



and germs, which are ever present in the air, with views derived from his own observations on the "balance of vegetation." He points out that in 1846 Poland escaped the great wave of the Potato blight. Here he describes the work of Professor De Bary, and correctly points out that dogmatism is found not so much with De Bary himself as in the "School of De Bary." No man has greater cause to wish to be "saved from his friends" (?) than the respected Professor of Strasbourg. The author makes a great point of the habits and nature of the Potato plant in a wild state, and laments our want of information on this head. He tells us, however, as much, or almost as much, as is known of the wild state of the Potato, although one or two of the more recent essays on this part of the subject have been overlooked. Lord Cathcart describes the re-introduction of the Potato from Europe to America, and adverts to its cultivation in the latter country at the present time. He tells us a good deal about *Solanum Maglia* and other species of *Solanum*, and criticises the action of the House of Commons and their decision in reference to disease-proof Potatoes, &c. He points out that in the *Admiralty Manual of Scientific Inquiry*, published by the Lords Commissioners of the Admiralty, whilst inquiry is suggested in South America as to sarsaparilla, balsam of copaiva, ipecacuanha, and the Cow-tree, not a word is printed about the grand old Potato plant. Earl Cathcart hopes that some day a competent person will be found on board one of Her Majesty's ships bound for South America ready to note and describe *Solanum tuberosum*, *S. Maglia*, &c., in their native haunts. The author speaks of the possible (or impossible) degeneration of the Potato through over-cultivation, and refers to the trial grounds and experiments of the Messrs. Sutton, of Reading.

Amongst the numerous works mentioned by Earl Cathcart no reference is made to Mr. Alfred Smee's work, *The Potato Plant*. This book was published in 1846, and is full of information. Mr. Smee considered that an insect called by him *Aphis vastator* was the inciting cause of the Potato disease. When the pantomime was produced at Drury Lane theatre at Christmas, 1846, an enormous Potato was brought in with an abnormally inflated insect upon it. The Potato was inscribed "*Aphis vast-tater*."

I do not say that the physiological points mentioned by Earl Cathcart will be accepted, but the essay has the one great advantage of showing how an unbiased mind has been influenced by facts. The observations of an original thinker, even if wrong, are better than the writings of a copyist—the former exhibits new mental impressions, whilst the latter is a mere imperfect reflection of some one else's impressions.

At p. 279, Earl Cathcart says, "Scab is a disease of the tuber, a fungus, *Tubercinia scabies*." Here we find a note which tells us how Fischer de Waldheim has altered the name to *Sorosporium*. No one wants to know about this party (like the pirate in Gulliver) and his new name. A note should have indicated the important fact that it is a mere popular error to suppose that scab is caused by *Tubercinia scabies* at all, as pointed out by Berkeley in his original description. The specific name *scabies* perhaps started the error. Berkeley, whose species it is, wrote "often confounded with the true Potato scab." *Tubercinia scabies* is the cause of the black Potato smut, a close ally of the familiar black smut of Oats and other cereals.

On p. 286 Earl Cathcart says, "The Potato fungus" (quoting from the *Journal of the Royal Agricultural Society*) "appears on *Lilium lancifolium* three weeks before the Potato is affected. This passes unchallenged, but a note would have been useful here to point out that the fungus on Lilies is most likely the destructive ally of *Peronospora* named *Oenularia elliptica* by Mr. Berkeley, and not *Peronospora infestans*. The disease described as occurring in South America, on p. 289, where the margins of Potato leaves take the "colour of tobacco with a whitish border," is probably due to *P. infestans*. The mould which causes the "snuff-dusted appearance" in South America, and which spreads to Lucerne (p. 289), and is termed "red-rust fungus" on p. 288, is undoubtedly *Rhizoctonia violacea*; the fungus has exactly the same habit in Europe, it sometimes extends to Asparagus. A note to this effect would also have been useful. At p. 285, where Earl Cathcart mentions Professor De Bary, and says that he (the author) had read the evidence of the writer of these lines with "particular pleasure," Mr. Baker inserts an astounding note to

this effect:—"The principal point at issue between the two is, that De Bary thought what he called *Pythium vexans* was a distinct organism, whilst Smith regarded it as a dimorphic form of the *Peronospora*." No statement could be more contrary to fact. Professor De Bary's *Pythium vexans* has never specially concerned me, and I have not gone out of my way to explain it. It has nothing whatever to do with *Peronospora infestans* or any other *Peronospora*. I cannot help thinking some one must have hoaxed Mr. Baker on this point.

If the essay is republished in book form the annotations should be dispensed with altogether or made more complete and correct. I entirely disagree with Mr. Baker's idea that the Potato in its present tuber-bearing state is in a disorganised, unhealthy condition, a fitting subject for the attacks of fungi and aphides. Parasitic fungi and aphides do not attack "disorganised and unhealthy plants." *W. G. Smith.*

## BEGONIA SOCOTRANA.

THE most attractive stove-plant in flower at Kew just now is this *Begonia*, which was introduced to Kew some three years ago, and which has since then annually proved itself of more than ordinary merit. It is grown in a loamy soil, the bulbs being shaken out of the old soil and potted into small pots about the end of July (this species goes to rest in summer). After being started in the propagating house the plants are removed into a greenhouse, where they are allowed plenty of light and moisture both overhead and at the root. This treatment induces the plants to make sturdy growth and large foliage of good substance. In October they are removed into a house with an intermediate temperature, where they soon push forth flowers which remain in beauty for six or eight weeks. Apart from the singular shape of its foliage, and the remarkable manner in which it reproduces itself by means of bulbils, this *Begonia* is possessed of characters of considerable beauty; the flowers are large, of the brightest rose-pink, and are produced in abundance by healthy strong plants. Moreover, they are extraordinary in that they last, both when left on the plant and when cut and placed in water, a much longer time than any other *Begonia*. In my opinion the plant has only to become better known to ensure its wide popularity as a winter flowering plant. At Kew there are several groups of it in the T-range, where they have been in beautiful flowering condition for about a month, and there is promise of quite as good a display for some weeks to come. This *Begonia* is also interesting in that it comes from an isolated corner of the world, far removed from the homes of other *Begonias*, and remarkable for its ugly gouty stemmed plants, rather than for those of beauty, such as is seen in this *Begonia*. A figure of the plant was given in these columns, p. 8, Jan. 1, 1881. *W. R.*

## THE NOMENCLATURE OF COLOURS.\*

THE subject of colour names is so vast and intricate that in the following paper I have confined myself to the consideration of those only which occur in Fries' description of the Agaricini in his *Hymenomyces Europæi*. Even in this restricted field I have found nearly 200 names of colours, although, with one or two exceptions, I have avoided reference to compound names; if I had considered the complete list that I originally made I should have had to describe about 840. Perhaps I have omitted some few as it is, for I have had to go over some 20,000 lines of concisely-written Latin to find those that I have gathered together for examination here.

In so long a list of names it is fortunate that not every one requires separate consideration. I have enumerated not only the colour-names used for descriptive purposes by Fries himself, but also most of those used as specific. And in making specific names there is a natural tendency to use a colour-name absolutely synonymous with another, simply from the fact of the most obvious one having been already used. For instance, a describer wishes to

name a white species *Agaricus albus*; but when he finds that name is preoccupied he names his species *A. candidus*. Still, we need not conclude that he had the strict classical Latin differences of the two words in his mind's eye; he probably never thought that *A. albus* was so named because it was of a dead white, nor in speaking of *A. candidus* need he have meant to imply that it was of a glistening white, as Cicero might have done. This exigency has lured the list of colour-names with a good deal of useless lumber, but the principle is one that, in the interpretation of specific names, must never be forgotten.

Another difficulty that constantly presents itself is the indistinctness with which colour-names were used in classical times. Perhaps the best instance of the vague way in which the ancient Romans used the names of colours is to be found in a line by Albino-vanus, a Latin poet contemporary with, and a friend of, Ovid's, who flourished about A.D. 28; he describes a woman's arms as whiter than the "purple" snow:—

"*Brachia purpurea candidiora nive.*"

Of course, "purple" here only means "glistening" or "dazzling," but such a use of words does not accord with modern ideas.

Much of the difficulty that surrounds the nomenclature of colours is also due to there being no authoritative code. In each branch of art or knowledge at the present day different names are used for the same colours. The "purple" of the cardinal is crimson; the "pink" of the huntsman is scarlet. An artist calls his colours by the names under which he buys them of his colour-man; but a milliner wants to invent a fresh name with each change of fashion, and the words we get from the fashionable journals are veritable marvels—*couleur de crapaud mort*, *eau de Nil*, *elephant-grey*, *London smoke*, *Mushroom-colour*, being specimens. Fortunately "they have their day, and cease to be." An amusing instance was given me lately by an omnibus-driver. One of his passengers had been much struck by a pair of horses he had been driving—a dun and a strawberry-roan, in the horsey man's language; the passenger, a tailor, described the one as "drab," and the other as a "claret-mixture."

Perhaps the only wonder is that there is such a limited number of colour names, after all. If we have a clear idea of a dozen colours we must remember that we can get 479,001,600 permutations out of them, by mixing each with every other, even in similar proportions. For our names to be of any use we must group around each one those shades which most closely assimilate to the named type, and indicate their differences as far as we can by compound words, or qualifying adjectives, or suffixes, or affixes. We all have an idea of the colour of gold, for example, but look at a sovereign, together with a dozen pieces of jewellery made at various times and places, and you will soon see what a very comprehensive, or, as the logicians say, extended, signification such a colour-name may have. And if a bright and definite colour may be so varied, how much more variable may a less pronounced one be!

Much has been written on the science of colours, but I know no book that deals at all exhaustively with their nomenclature. Field's *Chromatography* has a wide reputation among artists, but it is of little use to us. Neither is the classical work of Chevreul, the oldest professor in the world, who still, in his ninety-ninth year, lectures on chemistry in Paris.

We need not be much troubled about classification, for a very simple method is sufficient for our purposes. But it is as well to know how chromatographers ordinarily classify colours; and to this end I copy the following from one of the many editions of Field's book:—

Neutral colours ..	White, black.
Primary colours ..	Yellow, red, blue.
Secondary colours ..	Orange, green, purple.
Tertiary colours ..	Citrine, russet, olive.
Semi-neutral colours ..	Brown, maroon, grey.

I propose to group the whites and blacks with the greys that come between them; to range the oranges, citrines, and browns after the yellows; to include the russets and maroons as subordinate to the reds; to take the purples as variations of the blues; and to comprehend the olives under the greens. Sombre colours dominate so conspicuously among fungi that we understand their coloration best by regarding their lowly hues as variants from types that owe their names to their very brilliancy. Their complications are so

\* Read before the Woolhope Naturalists' Field Club, October 23, 1884, and reprinted from *Grevillea*, in view of the discussion upon this subject now going on in our columns.



great that it is often difficult, even as it is, to refer them to their proper types; a trouble that was ever present to me when I preliminarily essayed to classify them.

I would begin with the whites and the blacks, and their intermediate greys; I at once discard the trammels that the chromatographers lay down for our deception, when they say that these, in their extremes, are no colours at all.

#### WHITES.

And first of the whites. My list shows nineteen distinct terms for these. But most of them are made up on the principle that I have already laid down as of constant occurrence, viz., that they owe their appearance to the natural and obvious terms having been already used. The classical distinction of albus meaning a dead white, and candidus a shining white, has little prominence in Fries' description. To Fries albus is white, and perfect whiteness admits of no qualification. If albus, as a specific name, is preoccupied, albellus, albescent, albidus, albidus, and albescens, can only express the idea of whiteness, but seem used rather for "whitish." Albicans and candidans should strictly mean "becoming white." Argenteus and argyræus are a silvery-white, silvered. Dealbatus, white-washed or plastered—cerussatus, coloured with white lead—and argillaceus, like wild clay—seem to connote texture or surface along with whiteness. Eburneus, ivory-white; ermineus, ermine-white; niveus, snow-white; and virgineus, virgin or pure white, have no more distinction than the English terms by which they are naturally translated.

#### GREYS.

Between the extremes of white and black there may be great varieties of greys, and the pure greys run into the blues and browns, so that they are best studied in three groups. Of the pure greys canus and incanus are the nearest to white; just as we call white hair or a white horse "grey." Cineræus is the grey of wood-ashes, cinerascens is becoming such a grey; griseus seems to be a little darker, and lividus is darker still and inclining to brown. Cretaceo-pallidus is a pale chalky-grey. Nigrescens and nigricans do not mean so much dark grey as a grey that turns black with age.

Of greys that incline to blue caesius is the palest; it was the classical term for the blue-grey of the eye. Glaucus is a grey that inclines to green, and glaucescens denotes a paler shade of the same colour. Liveus and lividus are bluish or leaden-grey, much like molybdeus and plumbeus. Ardosiacus is a dull lead colour. Agaricus (Collybia) tylicolor and A. (Omphalia) oniscus seem to owe their specific names to their likeness in colour to a kind of cod-fish, known as oniscus, and so mean rather a light grey, and not the dark slate-grey of the woodlouse we describe under the name of Oniscus. Chalybaeus is a steel or iron-grey; Fries, under Cortinariæ sciophyllus, explains it as ocreo-fuscus, dusky blue.

Of the brown-greys, murinus, mouse-colour, is the palest (cf. Paxillus extenuatus, Fries, p. 402). Mycæus should have the same signification, but is used by Fries for a dusky umber. Argillaceus is a light brownish-ash colour. Fuscus, dusky, is rather a vague term, but it is almost too brown to be classed under the greys at all; fuscescens means becoming dusky. Ravus is a dark grey. Fumosus, fuliginæus, and fuliginosus are best translated smoky, and not, as the latter might be, sooty-black.

#### BLACKS.

Pure blacks, fortunately, do not admit of much variation, although since an absolute black is rarely seen, several terms occur. Ater is strictly a lustreless black, and niger is a glistening black; piccoater, black as pitch, and furvus, swarthy, come into the former category; coracinus, raven-black, with a tinge of blue, into the latter. Atratus and pullatus mean simply "clothed in black." Denigratus, "blackened," is used for a dark dusky brown, and not black at all. Nigerrimus, "black as black can be," seems rather pleonastic, but Fries uses it in his descriptions (Agaricus Panæolus hypomelas, p. 313).

#### YELLOWS.

The next group, the yellows, under which I range the oranges, citrines, and browns, presents the greatest difficulties of all, and it is hard to get them into satisfactory order. Canon Du Port, in the interesting paper which we had the pleasure of

hearing him read last year, cleared up many doubtful points; but his range was more limited than that which I set myself here.

The type of pale yellow seems to be luteus, like the flowers of the plant Wood (Isatis tinctoria). Paler than this are luteolus and sulphureus, sulphur-yellow. Stramineus, straw-coloured, denotes a paler and less pure yellow, Naples yellow, of which a deeper, duller shade is cerinus, croceus, saffron-yellow, being a fuller shade. Citrinus is our lemon-yellow, yellow of wax.

The type of full yellow is flavus, gamboge-yellow, which at its fullest brilliancy is flavissimus. Flavidus is a paler yellow, purer and richer than luteus. Vitellinus, like the yolk of an egg, is used by Fries, as the Canon reminded us last year, to describe the Chantarelle (Cantharellus cibarius). Not far off flavus is aureus, gold-coloured, which seems to me most like the Cadmium-yellow of artists; its diminutive, aureolus, does not seem to be a very different shade. Galbanus, the colour of the gum galbanum, is a greenish-yellow.

The orange-yellows, made up of yellow and red, not brown, are typically two—aurantius being a full orange, Cadmium-orange; and aurantiacus a paler orange, containing less red. Igneus and flammeolus, denoting the colour of flame; and fulmineus, that of lightning, come in this place, but seem to have no very certain application.

(To be continued.)

## NOTES ON THE CULTIVATED ASTERS.—VI.

(Continued from vol. xxvii, p. 681.)

SUBGENUS 1. EUASTER.—Bracts of the involucre dry at the base, furnished with distinct green leafy points. Heads copiously panicle, and stems abundantly leafy. The largest subgenus, confined to America.

Group IV. IIETEROPHYLLI.—Pubescence of the stem neither tomentose nor viscid. Lower leaves of the stem cordate, distinctly petioled.

26. *A. undulatus*, Linn. *A. paniculatus*, Nuttall.—Stems 3–4 feet long, pubescent from low down. Lower stem-leaves distinctly petioled, cordate ovate acute, subentire, with a blade 3–4 inches long, those of the panicle ovate or oblong lanceolate, sessile. Heads middle-sized,  $\frac{3}{4}$ –1 inch diameter, arranged in an ample deltoid panicle. Involucre campanulate,  $\frac{1}{2}$  inch long, well imbricated; bracts with short acute adpressed green tips. Ligules about twenty, lilac, oblanceolate, obtuse. Achene finally glabrous; pappus dirty white, flexuose,  $\frac{1}{2}$  inch long.

Canada to Kentucky, Arkansas, and Florida. *A. diversifolius*, Michx. (*A. asperulus* and Baldwinii, T. and G.), is a Southern variety with longer virgate branches bearing fewer laxer heads, beset with small rigid lanceolate leaves. *A. anomalus*, Engelm., a distinct Western species, not in our collection, has leaves most like those of *undulatus*, but much fewer larger heads, with long spreading tips to the bracts of the involucre, and about forty bright violet ray-flowers. It would be a desirable plant to have introduced now, when public attention is so much turned to the genus.

27. *A. Shortii*, Hook. — Stem slender, erect, 3–4 feet long, pubescent upwards. Lower stem-leaves cordate-ovate, acute, subentire, 4–6 inches long, hairy all over beneath; those of the panicle sessile, or nearly so, oblong-lanceolate. Heads  $\frac{3}{4}$ –1 inch in diameter, forming a lax deltoid panicle with subcorymbose branches. Involucre campanulate,  $\frac{1}{2}$  inch long; bracts well imbricated, with short adpressed deltoid green tips. Ligules about thirty, bright lilac,  $\frac{1}{2}$  inch long. Achene glabrous; pappus brownish-white, flexuose,  $\frac{1}{2}$  inch long.

Ohio to Georgia, Kentucky, and Illinois. Flowers with us early in October.

28. *A. aureus*, Lindl.—Stems slender, erect, 3–4 feet long, finely pubescent upwards. A few lower leaves cordate-ovate, with long petioles, with an acuminate blade 3–4 inches long, rough on both surfaces, pubescent beneath; leaves of the panicle and its branches small, sessile, lanceolate, rigid. Heads middle-sized, about  $\frac{3}{4}$  inch in diameter, forming a very lax panicle with corymbose branches. Involucre obconic,  $\frac{1}{2}$  inch long, well imbricated, the bracts with small deltoid erect foliaceous tips. Ligules 20–30, bright violet-blue,  $\frac{1}{2}$  inch long. Achene glabrous; pappus dirty white, flexuose,  $\frac{1}{2}$  inch long.

New York and Ohio to Minnesota, Arkansas, and Texas.

29. *A. cordifolius*, Linn. *A. paniculatus* and *heterophyllus*, Willd.—Stems 3–4 feet long, flexuose, finely pubescent upwards. Lower stem-leaves distinctly petioled, conspicuously cordate-ovate, sharply toothed, thin in texture, acuminate, 3–4 inches long; upper stem-leaves ovate or oblong, sessile. Heads small, not more than  $\frac{3}{8}$ – $\frac{1}{2}$  inch in diameter, arranged in very dense ample panicles. Involucre campanulate,  $\frac{1}{2}$  inch long, well imbricated, the bracts with short deltoid erect green tips. Disc-flowers purple. Ligules 10–12, pale lilac,  $\frac{1}{2}$  inch long. Achene glabrous; pappus white, flexuose,  $\frac{1}{2}$  inch long.

New Brunswick to Georgia, and westward to Wisconsin and Missouri. The commonest species of this group in cultivation, and one of the most floriferous of all the Asters. Flowers with us late in October.

30. *A. Drummondii*, Lindl.—Stem slender, pubescent, 3–4 feet long. Lower leaves petioled, cordate-ovate, serrated, thin, pubescent on both surfaces; upper small, ovate sessile, entire. Heads middle-sized, arranged in a lax panicle. Involucre campanulate,  $\frac{1}{2}$  inch long, well imbricated; bracts with lanceolate erect green tips. Ligules about twenty, pale lilac,  $\frac{1}{2}$  inch long.

Illinois and Minnesota to Texas. Scarcely worth separating as a species from *A. sagittifolius*.

31. *sagittifolius*, Willd., *A. paniculatus*, Muhl. *A. hirtellus* and *A. urophyllus*, Lindl.—Stems 2–3 feet long, erect, finely pubescent upwards. Lower leaves petioled, cordate-ovate, acute, but not so cordate or so much toothed as in *A. cordifolius*; central stem leaves narrowed gradually or suddenly into a short, often winged, petiole, not cordate; upper leaves sessile, lanceolate. Heads middle-sized, about  $\frac{1}{2}$  inch diameter, arranged in a dense deltoid panicle. Involucre campanulate,  $\frac{1}{2}$  inch long, well imbricated, the bracts with green lanceolate erect tips. Ligules about twenty, pale lilac,  $\frac{1}{2}$ – $\frac{3}{4}$  inch long. Achene glabrous; pappus dirty white,  $\frac{1}{2}$  inch long.

Canada and New York to Missouri, Dakota and Florida. Flowers with us at the end of September.

This concludes the series of the true Asters. *J. G. Baker.*

(To be continued.)

## BEANS.

THE different varieties of Bean ordinarily grown may be referred to seven more or less well-marked species belonging to the natural order Leguminosæ [omitting the Broad Beans, *Faba vulgaris*]. They may be somewhat popularly distinguished as follows:—

1. *Phaseolus vulgaris*, L.—The ordinary kidney Bean, either dwarf or running. Leaves trifoliate, leaflets triangular, ovate, more or less hairy, flowers axillary, single or in clusters of two or three, white running through the various shades of dark purple. Pods of medium size, slender, smooth.

2. *Phaseolus multiflorus*, Lam.—The Scarlet Runner. In many respects similar to the last, distinguished by its tuberous roots, tall running habit of growth, well-developed racemes of scarlet or white flowers and large rough pods. The cotyledons do not appear above ground in vegetation.

3. *Phaseolus lunatus*, L.—The Lima Bean, always running, leaflets narrower, more halberd-shaped, often mottled in two shades of green, smoother than *P. vulgaris*, flowers white, small, pod very broad, flat, leathery, Beans rather large, with peculiar lines radiating from the eye.

4. *Dolichos sesquipedalis*.—The Asparagus Bean, always running, leaflets plainly halberd-shaped, nearly smooth, flowers yellowish-purple, very large, pods in pairs, cylindrical, very long, 18 inches or more, Beans small, kidney form, very distant in the pod.

5. *Dolichos (sinensis) ?*.—The Southern Cow Pea, similar to the last, but distinguished by its dwarf form and shorter pods, with the Beans crowded in them.

6. *Vigna (—?)*.—The Chinese Bean, dwarf in appearance, resembling dwarf forms of the Kidney Bean, flowers yellow, pods small, cylindrical, straight, seeds small, hilum elongated.

7. *Soja hispida*, Mench.—The Soja Bean, not running, 18 inches to 2 or more feet high, leaflets broadly oval, whole plant, including pod, covered with rusty brown hairs, flowers axillary, very minute, white or purple pods short, straight, rarely containing more than two Beans. The cotyledons, after vegetation, develop into leaves.

The varieties of the ordinary garden or Kidney Bean are so numerous as to make the advantages of



some system of classification very apparent. The characters which seem to us to be of most use in forming such a classification are those obtained from the variation in size, shape, and colour of the ripe seed. This is a basis of the classification made by Martens in Germany, which we have to some extent followed. The colour of the edible pods, and the presence or absence of a climbing habit, are also of use in separating varieties. *New York Agricultural Station Report.*

## ON POTATO DISEASES.

(Continued from p. 788, vol. xxii.)

WET ROT (NASSFÄULE) has been known as a tuber-destroying agency for a great number of years, long before the *Phytophthora* appeared in Europe. Mr. Jensen informs me that in 1815 a well known and reliable agricultural writer, Mr. J. C. Drewson,\* says "that the Potatos ought to be preserved above-ground for he had more than once seen Potatos stored in holes in the ground completely rotten, probably on account of water having found its way into the pits." Mr. B. F. B. Ronne, in the same periodical, in the same year, says that "in 1813 the Potatos in the pits had rotted to a great extent, not only with him, but with some of his neighbours. He thinks this due to water having percolated into the pits from the snow that year having been unusually deep." In the following year, 1814, 240 bushels of Potatos rotted in one pit, which constituted the half of its total contents.

This affection of Potatos was described by Schacht,† as well as by other writers. It is one of the most important affections to which Potatos are subject. It attacks and destroys them while they are still in the ground in wet seasons, as well as after they have been lifted and stored in pits. The whole interior of a tuber affected with wet rot is rapidly converted into a fetid watery pabulum. The odour is quite characteristic, it is offensive and sourish. On the exterior appear various fungi, but these are the effect of the diseased condition into which it has passed, not the cause of it. Notably amongst these fungi are *Fusisporium solani*, a well known fungus, which Reinke and Berthold‡ have shown is not an autonomous species, but the conidia of one of the *Sphæriaceæ*, called by them *Hypomyces solani*, but which belongs rather to the genus *Lisea* of Saccardo. Another very common fungus is the *Spicaria solani* of Harting (fig. 5, D), figured and described by him as well as by De Bary,§ Schacht, and others, which Zopf|| has shown to be the conidia of a *Nectria*, *N. solani*, Zopf (fig. 5, A, B, C). Zopf also found a *Chaetomium*, to which he gave the name *C. bostrychodes*.¶ *C. crispatum*, Fekl.,\*\* also occurs here as well as many other species.

Wet rot is caused by one of the *Schizomycetes*, namely, *Bacillus amylobacter*, Van Tieghem (figs. 2, 3).†† This is the *Clostridium butyricum*, Praz.,‡‡ and is considered to be the ferment of butyric fermentation, the *vibron butyrique* of Pasteur. Reinke and Berthold§§ describe and figure two *Bacteria*, which they consider to be the cause of wet rot, namely, the *Bacillus subtilis* of Cohn and *Bacterium navicula*, but Prazmowski has shown that these are not two species, but only conditions of the same, which is not *B. subtilis* at all, but *B. amylobacter*. *Bacillus amylobacter* in the presence of water first attacks the parenchymatous cell walls, and by destroying them permits the starch cells to escape. These in their turn are attacked and disintegrated by the action of the *Bacillus*, the result of which is that the solid tuber becomes converted into a diffuent mass. The starch grains float about in this creamy offensive pabulum, resisting, as they do, longest the influence of the *Bacillus*, but eventually they become disorganised (fig. 4). The development of *Bacillus amylobacter*, as observed by Prazmowski, is given in fig. 3.

During the past winter (1883-84) I had ample

opportunities for becoming acquainted with wet rot while experimenting with *Phytophthora*. If conidia of this fungus be placed upon Potato slices, in the course of a few days, depending upon the temperature at which the culture is made, the slices become diseased; but it very often happens that, as well as being affected with the *Phytophthora*, they are

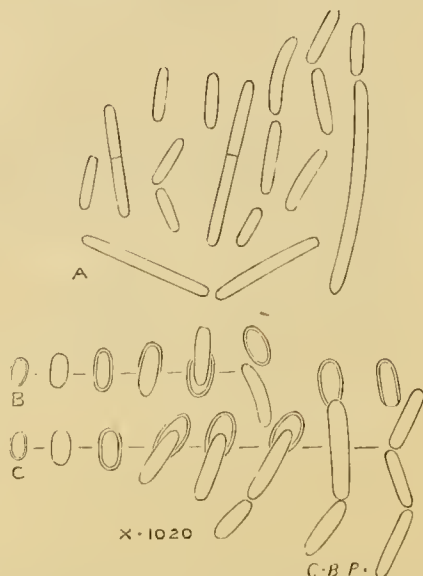


FIG. 2.—*BACILLUS AMYLOBACTER*.

A, various forms of the Bacillus; B, germination of the spores produced in three-quarters of an hour; C, other spores after one hour and three-quarters.

attacked by wet rot. It is often a race between the *Phytophthora* and the wet rot; if the former has had time to establish itself a crop of conidia is obtained, but if the wet rot gains the upper hand no conidia are developed. After several failures from this cause Mr. Jensen informed me how I could obtain a pure culture of *Phytophthora*. To infect fresh slices of Potato

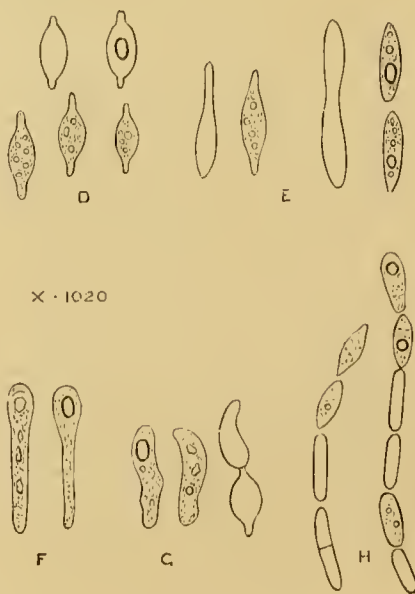


FIG. 3.—*BACILLUS AMYLOBACTER*.

o, spindle-shaped; e, elongated and ellipsoidal forms; f, capitulate forms; g, vibrio-like forms; h, two linear series with separate swollen joints. (Figs. 2 and 3 after Prazmowski.)

the best plan is to shake up the conidia-bearing slices in a small quantity of water, and to dip the slices you wish to infect into this spore-charged water. It is obvious that when once wet rot gains admission into your material, which it is sure sooner or later to do, you will fail in obtaining conidia. In this case a pure

culture may be obtained by availing yourself of the fact that *Phytophthora* conidia can withstand a greater amount of desiccation without being killed than the organism or organisms causing wet rot can. It is only a question of degree, for when once the conidia are thoroughly dried they are killed. Having, then, dipped the fresh slices into washings of the old ones which contain both conidia and Bacilli, instead of at once placing them under a bell-glass, allow them to be exposed to the air until they are just dry on the surface, so that no fluid can be seen upon them. Of course the length of time necessary for this depends upon the temperature of the room in which the experiment is made; generally they will require to be turned over, so that both sides may be equally dried. They may be then placed under a bell-glass; the conidia will be alive, but the Bacilli dead, or, at any rate, in a state of quiescence, and a pure culture of *Phytophthora* will be obtained. If the precaution of drying be not taken, the slices in a few days will become soft and pasty, and eventually diffident, like cream, and horribly fetid. Hence it is obvious that there is nowhere for the mycelium of the fungus to grow, for it cannot develop amongst a mass of starch granules, and so it is that the wet rot is fatal to the *Phytophthora*. But this is not all; the presence of the mycelium of *Phytophthora* in a tuber predisposes it to wet rot. We know, as a matter of experience, that diseased tubers rapidly become soft and pass into a loathsome mass of sour-smelling offensive pulp. The mere presence of *Phytophthora* mycelium does not cause this, but it results from the advent of wet rot.

Wet rot is highly infective, one tuber will affect contiguous ones, provided always there is a sufficiency of moisture, especially if this be stagnant, as when they are in the damp ground. Wet rot takes place largely in Potato graves, and annually destroys immense numbers of tubers.

## DRY ROT (TROCKENFÄULE, OR STOCKFÄULE).

This condition is described and figured by Schacht.\* According to Kühn† it first appeared in Germany in 1830, when it caused much apprehension on the part of the Potato growers. Kühn met with it in 1841—42 in Saxony, where it occurred with such virulence that the attention of the Government was drawn to it, and measures were taken to obtain accurate information concerning it. Since 1842 it has been more or less common in Germany. It always makes its first appearance at the time the Potatos are lifted. Externally the affected tubers appear at first to be quite normal, but traces of the disease are to be found in their interior upon cutting them open. They soon, however, present a dead looking appearance externally, and upon section show in their centres brownish or bluish musty stains. They become hollowed, the cavity or cavities are surrounded by a brownish or blackish corky formation, which gives to the interior of the tuber a leathery consistence. By degrees the whole interior of the tubers becomes attacked with the dry rot; the surface then gets shrivelled, and various moulds appear upon it, which impart to the interior a variously coloured mottled look. The affected tubers have a disagreeable sweetish mouldy odour, and when the dry rot has advanced to this stage they are friable. The disease, Kühn says, "always spreads from the interior outwards, and may thus always be distinguished from the disease caused by *Phytophthora*, which spreads from without inwards." So that a tuber affected with dry rot may be quite decayed and mouldy inside, while the exterior shows no signs of disease. This affection must not be confounded with the *Phytophthora* diseased tubers which have been kept in a dry place, for although these may be "rotten and dry, yet they are not affected with dry rot." Reinke and Berthold‡ describe the dry rotted tubers as being internally spongy, and dry to the touch like tinder, having a marbled or spotted appearance. They are lighter than sound tubers. In the most advanced state the proper substance of the tuber is replaced, by a yellowish-white, friable, pulverulent, or a floccose, tinder-like substance. On section the affected tuber has a whitish, yellowish, reddish, or brownish marbled appearance. It does not appear that dry rot, as a distinct disease of the Potato, has been recorded hitherto in England, but the descriptions given above seem to recall to my

\* Schacht, Bericht über Kartoffelpflanze und deren Krankheiten, Berlin, 1856, pp. 19, 20, l. viii.

† Kühn, loc. cit., pp. 202—206.

‡ Die Zersetzung der Kartoffel durch Pilze, pp. 10—12.

\* Landwirthschaftliche Tidsender, 1815.

† Schacht, Bericht über Kartoffelpflanze und deren Krankheiten, 1856.

‡ Reinke and Berthold, in Zersetzung der Kartoffel durch Pilze, 1879, pp. 27, 28, t. i. and ii.

§ De Bary, Die gegenwärtig herrschende Kartoffelkrankheit, 1861, t. i., f. 13.

|| Zopf, Ueber Chaetomium, Sitzungsber. der Bot. Vereins der Provinz Brandenburg, 1878.

¶ Zopf, Entwickelung der Chaetomium, p. 81, t. iv., f. 14—28.

\*\* Fückel, Symbol. Mycol., p. 90.

†† Van Tieghem, Bull. Soc. Bot. France, vol. xxiv., 1877.

‡‡ Prazmowski, Entwickelungsgeschichte einiger Bacterien Arten, 1880, pp. 24—37, t. ii., f. 1—4.

§§ Reinke and Berthold, loc. cit., pp. 15—25, t. vii., f. 7—14.



mind certain diseased tubers which I have from time to time seen. I find upon conversation with horticulturists that they, too, have noticed it, although never having their attention specially directed to it, have regarded it as a form of the Potato disease (Phytophthora).

Since the above was written I have had the opportunity of personally examining a true specimen of dry rot. The affected tuber was externally perfectly normal, showing no indication whatever of disease. It was cut in halves, however, for another purpose, and is represented at fig. 135, C, p. 788, vol. xxii. This figure, however, scarcely gives a correct idea of its appearance. The central part was rather darker than the sound part of the flesh, but not so much as the figure shows. It was surrounded by an inky-black marginal zone, the outer border of which was sharply defined, but towards the interior this became shaded off. One half of this tuber was exhibited to the Scientific Committee, the other half I sent to Prof. Kühn, who informed me that it was a typical specimen of dry rot in its early state.

(To be continued.)

## BRITISH APPLES.

I QUITE agree with Mr. Miller in his recognition of the value of Mr. Barron's book on British Apples, and I hope that, following another exhibition, those who may contribute information, both on the varieties cultivated and the soils from which have produced them, will enter more fully into particulars by giving an intelligent geological description of their local formations, and thus enable Mr. Barron to prepare an improved and more comprehensive edition of his useful work. There are doubtless many who, like myself, are desirous of obtaining more explicit information concerning the direct action of geological formations, of marked character, on fruit trees and fruit generally. These are circumstances that tend to modify the influence of soil, climate, elevation, and rainfall, amongst others, and these have to be accurately estimated and described. The effects of soil possessing in its composition those constituents of fertility necessary to the perfect growth of a fruit tree are demonstrated in the Apples exhibited by Mr. Fairgrove and grown in the Dunkeld Gardens, which are situated as far north as Perthshire and near the great Highland Pass. I have also seen very fine Apples grown in Lord John Manners' garden at Birnam, showing what vigour, induced by good soil, will do to counteract climatic influences. The soil here is river drift and loam, is derived from granite, Gneiss, Trap, and Old Red Sandstone; and not only fruit trees, but deciduous forest trees and Conifers, demonstrate its fertility.

The exceedingly varied character of the geology of the British Isles, the disturbance of formations by eruptive forces, the denudation to which each has been subjected, and the extensive deposits of displaced rocks and soil, the accumulation of glacial drifts, morasses, alluviums, make the determination of a local soil somewhat difficult; but these are not insuperable. It would convey but a partial idea of existing circumstances to say that an orchard is situated on the Triassic or New Red Sandstone formation. Subterranean forces may have thrown up the laminated sandstones of the Keuper, or denudation exposed the red marls, while in another case the beds of gypsum common to the formation may be found near the surface; all these, though marked generally by the presence of sulphate of lime, differ materially in structure and in working. Taking another division of the same formation, the Bunter, a very considerable difference exists between its several divisions—the conglomerates pebbly, poor, and siliceous; the marls deep, compact, and retentive; the sandstones warm, poor, receptive, and readily manageable. These are all New Red, but yet widely different, and calculated to affect the cultivation of fruit trees. The drifts and loams derived from this formation, and partaking of its mineral characteristics, also exhibit variations which deserve to be signified.

I may, perhaps, by way of illustration, mention another formation with which I am familiar—that division of the great Oolitic system styled the Lias, of which the Vale of Belvoir largely consists. Generally, I might say that my orchards are on the Lias; but that information would only imperfectly convey the circumstances it is desirable to communicate. I may be so low down in the lowest bed of the

Lower Lias as to be within reach of the Rhaetic, a rich and highly fossiliferous shell deposit between the Lias and the Red Marl; or higher up denudations may have given me a district, still Lias, but on the plain of Ammonites Bucklandi, with beds of rich fossiliferous limestone a few feet below the surface; or, still ascending, a plateau is obtained, the surface of which is still blue clay, but the plain of Ammonites

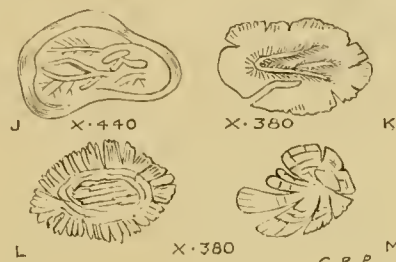


FIG. 4.—STARCH GRAINS ATTACKED BY BACILLI.

J, K, L, M, Starch grains in various degrees of disintegration. Magnified. (After Reinke and Berthold.)

semicostatus and Gryphea incurva, has been reached, and beds of these with other fossil shells within compass of the roots of plants, give advantages which the next plain, 50 feet higher, with its deep unbroken beds of pure clay, fails to offer. The Liassic series affords another and very striking illustration of my argument; the middle division being distinguished, not by clay and limestone, but by



FIG. 5.—NECTRIA SOLANI. (AFTER BERTHOLD.)

A, Slightly enlarged; B, Asci with sporidia, magnified 600 diameters; C, Sporidia, isolated; D, Spicaria solani, magnified 400 diameters (after De Bary.)

ironstone. This, although between the upper and lower clays of the series, differs in colour as in character, affords a light, easily worked soil—a substratum of stone, and is altogether highly ferruginous. The illustrations I have offered serve to show the necessity of precision in the reports of the soil and

position from which Apples or other fruits are produced.

Leicestershire was very indifferently represented at the Apple Congress. The show was early for our orchard fruit. I can scarcely agree with Messrs. Harrison, who say in their report that this is a county in which the Apple crop is not considered of much importance, and that the trees are allowed to grow without either manure or management. To show what the cold clays of this county can produce I propose to send a collection of Apples to be inspected by Mr. Barron and the gentlemen composing the Fruit Committee of the Royal Horticultural Society. William Ingram, Belvoir, Dec. 15, 1884.

## JAPANESE TEA.

TEA is one of the principal productions of Japan, and a large quantity of it is exported to the United States from the ports of Yokohama and Kobe. In Japan the use of Tea dates back to very early times, and at present it is more than ever a popular beverage. Whenever a guest presents himself at a person's house a cup of tea is at once offered him; the omission to do this is a breach of politeness. It revives the spirits, it allays the ennui incidental to old age, and promotes sociability. In most houses it is the leaf of the Tea plant called Sencha that is used, and not the powdered leaf at all. Powdered Tea, Matcha, is usually used only in the houses of nobles and of the rich. A ceremonious system of drinking tea has existed in Japan from very ancient times. A gathering of friends is held in a certain small room of fixed dimensions, in which ground or powdered Tea is served to them. This room is called *sukiya*, and is generally detached from the dwelling-house. Outside and about the room curious and valuable stones and plants are arranged, and inside old Tea utensils are displayed, also old scroll pictures and other paintings. At the time of a gathering various kinds of prepared dishes are placed on low stands before each guest. The host himself prepares Koicho (thick tea) in the presence of his guests, and offers a cup of it to all the guests (always five), to be taken in turn, after which *usucha* (weak tea) is handed to them. The great point about this tea-room is, not that it be gaudily decorated, but that it be neat and thoroughly clean.

The process of making tea for everyday use does not differ materially from that adopted in England, but in the matter of ceremonious tea-drinking it is necessary that great attention be paid to the selection and preservation of Tea, the selection of the water, the arrangement of the utensils, observation of the temperature of the water, and care in the washing of the utensils.

## The Arboretum.

ARAUCARIA IMBRICATA.—I send you for publication dimensions of a specimen *Araucaria imbricata*, that might compare favourably with one noted [at p. 492 of vol. xxii.] It stands in the grounds at Lough Fea Castle, the residence of S. E. Shirley, Esq., Co. Monaghan. The height is 34 feet 10 inches, girth at the base 8 feet 6 inches, and at 6 feet from the ground 5 feet 6 inches. It was with no small amount of difficulty these measurements were taken, from the fact that the bottom boughs are lying on the ground, covering a diameter of 34 feet, and all the way to the top they are literally heaped on each other. The healthful appearance of this truly noble specimen is rarely met with in one of its kind, but is sufficient proof that it is at home with soil and situation. R. McK.

## RETINOSPORAS.

The past season seems to have been particularly destructive to these much-admired and popular coniferous plants. The great heat and dryness, judging from our somewhat extended observations in many private gardens, as well as in several nurseries where these plants have been grown rather extensively, would seem to have very materially injured them; so much so that the greater number will have to be rooted up. As decorative plants in a small state they—especially the *plumosa aurea*—are extremely handsome and invaluable, but as specimen Conifers beyond a certain stage they seem to be utterly useless—excepting, it may be, in some moist sheltered situations. This result is extremely disappointing, so much having been expected of these plants. They are, in a sense, perfectly hardy,



although in some cases it has been noted that the stems of the plumosa and plumosa aurea have been severely affected by frost, causing them to split, and ending ultimately in the death of the plants. *R. pisifera* and *R. obtusa* may be said to be perfectly hardy, but the plants as they grow up become very naked. How much inferior these plants are to *Cupressus Lawsoni* and its endless variety, which no kind of weather seems to affect! As a golden Conifer there is nothing to equal *Cupressus Lawsoniana lutea*, excepting Young's Juniper, *Juniperus chinensis aurea*, which, as we noted them last autumn, were perfect pillars of gold, and perfectly hardy. This is, without doubt, the best golden Conifer in existence.

#### EUCALYPTUS COCCIFERA.

While looking round the Coombe Wood Nurseries of Messrs. J. Veitch & Sons a few weeks ago, in their trial ground I came across a plant of the *Eucalyptus coccifera*. I recognised it as being identical with the specimen we have growing here, which is now 63 feet high, with a girth of stem 9 feet at 3 feet from the ground; diameter of the branches, 45 feet. This specimen is nearly fifty years old, and was figured in your columns on July 26, 1879, and on March 27, 1880. At Coombe Wood it has proved quite hardy, and is now strong and healthy. My object in drawing attention to this variety, which has proved itself more hardy than any other, is to make known to those interested in the *Eucalyptus* family that in the same nurseries I saw a fine batch of strong healthy plants in pots of the true *coccifera variegata*. I have met with several kinds stated to be the true *coccifera* in the hands of others, but wrongly named; therefore, I trust my remarks as to where a true stock can be procured may be useful to some of your readers. *D. C. Powell, Powderham Castle.*

#### FRUIT NOTES.

**APPLE GOLDEN SPIRE.**—The plate, tab. 624, of the last number of the *Florist and Pomologist* has a double interest—it is the last of the series in that periodical to whose cessation we have elsewhere alluded, and it is the faithful representation of a very handsome and useful Apple. It is a large, conical, somewhat angular, fruit, with a shoot-stalk and deep set open eye, skin pure golden-yellow, flesh white, tender, acid. In season from October to Christmas. It is not much known about London, but we doubt not that the publicity now given to it, and the brave show it made at the Apple Congress last year, will induce a demand for it.

**MÈRE DE MÉNAGE APPLE.**—There are two Apples of the above variety exhibiting in the window of Mr. Coomber, of this town, which weigh 1 lb. 5 oz. each. Is not this an unusually large size? Both are well coloured, and of good form. *Harrison Weir, Tunbridge Wells.*

#### WHY DO OUR WOODS NOT PAY?

BECAUSE we are too late in beginning to thin them, and continue the work beyond the period when it should have stopped. It will be found on carefully examining the growing trees in the forest that from one or other of these two causes the value of the mature crop is much less, sometimes immensely so, than it otherwise would or should have been. The delay in commencing to thin is accounted for on various grounds, but the most common are first in order to be able to derive profit from the thinnings. This profit, though much talked of, and bulking largely in the minds of many proprietors, is little more than a vision or mirage in the desert. Having made several fair and impartial experiments of thinning in different parts of the country, and when and where the thinnings realised as high prices as they are ever likely to do again there or anywhere else, and we never in any case received as much for the first thinnings as paid the work. We have generally put the cost of thinning a Pine or Fir plantation done at so early an age that no profit was looked for, or expected, at 5s. to 6s. per acre, and this, as must appear self-explanatory, is simply adding that sum to the cost of forming the plantation. If not actually doing so, it practically is so, for it must be years yet before any profitable return ought to be obtained from the plantation. What is earnestly desired to be made plain is, that while there is an apparent loss incurred by thinning Pine and Fir plantations before they are capable of yielding profitable returns, there is yet actually less loss by this than by the other and more common

practice of delaying thinning till a certain amount of revenue is derived for the thinnings. The reason of this is that in thinning a plantation ten to fifteen years old a great number of the trees (even Larch) have to be cut, and yet nothing in the shape of money can be obtained for them. Some of them are necessarily dead, and consequently as hard as bones, and very difficult to cut; many more are crooked, and some too short for net or other stakes. Another adverse circumstance presents itself in the difficulty of handling the thinning axe. The trees had been planted at about 4½ feet apart, and if grown to fifteen years old, or even ten years in some cases, the tallest will be 15 to 20 feet high, and the side branches of the adjoining trees twisted and interlaced with each other; if quite dead they are easily broken off, at least in the case of Scots Pine, but if only partially dead, and the crop is Larch or Spruce, they are tough and wiry, and consequently entail much toil and labour in performing the work. The laborious, disagreeable, and expensive work of this first thinning is not yet over, for the thinnings, whether pruned out or taken out of the plantation with the branches on, require to be carried through a dense thicket of spray. The crop as now thinned stands at about 600 trees per acre of Scots Fir or Spruce, and about 1200 if Larch; but the trees have not yet shed their branches, nor are they to be pruned off by artificial means, not yet having fulfilled the end and purpose Nature designed by them.

It is thought by some to be bad economy, if not actual waste, to plant trees, allow them to attain a certain size, and yet cut them down before they are of any money value. A tree at six, eight, or even ten years' growth, is found to be of no actual money value at these ages, whereas if allowed a few years' more growth, say four to six additional years at most, they would be worth something approaching the cost of labour of cutting them. Now if the farmer were to reason and act thus in regard to his Turnip crop, Carrot, Mangel Wurzel, and suchlike, he certainly would fail in his efforts to grow profitable crops. It is needless to say there is a great and wide difference between agricultural cropping and that of forest trees; but while there are lines of difference there are also those of agreement and coincidence. The ideal commercial tree is a branchless trunk of cylindrical form—tall, clean, straight, and free from knots and blemishes. A branchless trunk, however, though a subject to be longed for, especially as a commercial product, is neither easy to secure nor to be regarded other than a prodigy equally rare and costly. It will be seen by any one who takes notice of it, that in a forest composed of trees of different sizes, but of nearly the same age, such as are common in the Pine forests and woods of Strathspey, Deeside, Morayshire, Inverness-shire, Ross-shire, and other parts of the country both north and south, that clean grown trees with fewest branches are soonest ripe and mature, but fall an early prey to disease. It is no rare thing to find a fine clean tree clear of branches to near the top, of 100 years' growth, containing only 10 cubic feet of timber, or even less, ripe and ready to cut, growing at the rate of a quarter of a cubic foot annually, and depositing layers of wood scarcely one-sixteenth of an inch thick, literally adding a quarter of a foot to the surface, and losing as much or more from natural internal decay, and worth only 5s. Beside this tree grows another, well branched, containing over 50 cubic feet, and still making wood; growing at the rate of 1½ cubic foot yearly, and depositing annual layers about one-eighth inch thick, and worth at least 25s. each. The large trees in order to be larger than the others must be well furnished with roots and branches, and these again must be provided in early life, otherwise they never can be established in any tree. The well rooted and branched tree not only grows faster than the imperfectly branched one, but it remains sound, and grows to older age than the other. Again it should be observed that owing to the surface of the large tree being so great, the annual deposit of woody matter (if the tree is healthy and of vigorous growth) is correspondingly great. Therefore the tree and consequently the forest or plantation pays best towards old age and maturity. The forester's problem to solve is, which class of trees pays best—the clean, fine trunk without branches, save a tuft on the top, or the less smooth and branchy one? The mean between the two extremes here is certainly that to make choice of. Fine grown, but profitless trees are the result of a paucity of roots and branches

[That is, of leaves. Ed.], while rough, coarse-grained fast-grown ones are the result of too many. The question therefore is, as already said, what is the due and proper quantity of branches the tree should have upon it, so as neither to be too fine grained and profitless, nor too coarse grained and worthless. By way of solving this difficulty, I selected in different parts of the forest what I regarded as good specimen trees grown on different soils, situations, &c., of which the following are examples in tabulated form, and from which deductions may at pleasure be made:—

Species.	Age.	Height of Tree.		Girth near the Ground.		Girth at Middle of Tree.		Weight of Stem.		Weight of Branches.		Total Weight of Trees.
		Ft.	In.	In.	In.	Lb.	oz.	Lb.	oz.	Lb.	oz.	
Scots Fir.	7	4	5	5½	2½	2	8	14	3	31		
"	10	15	10	13½	7½	38	8	28½		67		
"	10	11	4	11	6½	23	0	27		50		
"	19	23	0	16	12	126	0	99		225		
"	20	15	5½	13	5	14	12	14		28½		
"	26	20	4½	22½	9½	8	4	89½		175½		
"	36	27	8	30	13½	14	0	171½		335½		
"	38	31	0	37	10	238	0	121½		359½		
Larch	7	4	4	3½	1½	1	8	1		2½		
"	10	16	0	13½	6	29	0	20½		49½		
"	10	13	6	14	6	23	0	18		41		
"	19	27	0	10	10	91	0	25		116		
"	7	6	2	5½	10	2	1	3	12	5½		
"	5	4	6½	4	15½	1	10½	1	10½	2½		

It may be observed that in very young trees the stem is heavier than the branches, and by degrees to a certain age the branches bulk more and weigh heavier than the stem does; again the scale turns in favour of the trunk, and continues to gain and increase to the end of life. Not having actually weighed the branches of any full grown and matured Pine or Fir timber trees, the nearest I can indicate in regard to them is the result of what took place in connection with fifty extensive wood sales on different parts of the estate. In Scots Pine plantations of thirty-five to forty-five years' growth, the average results were 1½ ton or cartloads of branches to every ton or cartload of wood, which includes tops and a few inferior growths. With regard to full-grown timber trees of eighty to a hundred years' growth the results were about 10 cwt. of branches to every ton or cartload of timber; the branches here include also the rough and worthless tops, but no trees. *C. Y. Michie, Cullen House, Dec. 17, 1884.*

(To be continued.)

#### BEDDING IN SMALL GARDENS.

THE liberal employment of hardy plants in carpet-bedding has helped in some degree to reduce the cost of propagating and preparing the necessary stocks; but owing to the necessity for planting thickly, the numbers of plants more or less tender are very large in proportion to the area of the beds, and even the hardy subjects must have considerable attention paid to them to ensure their being in the best possible condition for filling the spaces assigned them. But the cost does not end with the planting of the beds, for, from the time the occupants commence to make new growth till the more tender of them are destroyed by the frost, they must have frequent attention. Probably the strongest argument that could be urged against the system is the large amount of labour required during the summer to keep the plants in proper trim. Not only must they be kept down to the desired height and within the allotted spaces, but the needful stopping must be done before they have grown far beyond the assigned limits which necessitates the pinching at frequent intervals. This point should be well considered by all classes of cultivators, and more especially by those who have charge of gardens in which the labour allowed is not in proportion to their area.

The uniformity in the appearance of the beds must not be overlooked; and it should be borne in mind that arrangements which produce a very pleasing impression on the mind when seen once or twice in the course of the season may, when constantly under the eye, become unpleasantly monotonous before the end of the season. With these facts before us it may be safely said that carpet-bedding should not in any



case be out of proportion to the labour available for keeping the beds in order, or leaf plants occupy a position otherwise than subordinate to those grown for their flowers. In small gardens it is particularly desirable to limit this style of garden decoration to a few beds, as there is necessarily not room enough for the production of many distinct features, and in gardens of all classes it is most important that it should be well done. "*Garden Oracle*" for 1885.

## HOW SOIL IS MADE FERTILE.

THE current number of the *Journal of the Chemical Society* contains a valuable communication from Mr. R. Warington on the subject of nitrification, being the result of five years' patient investigation in the laboratory of Sir J. B. Lawes at Rothamsted. We append an abstract of those portions of the paper which have a direct bearing upon the question of horticultural chemistry.

The author, in giving a brief history of what has already been done by others, says:—It is now shown for certain that the nitrifying organism is a member of the great family of Bacteria. Dehérain and Maquenne have proved that the reduction of nitrates in soils is due to the action of Bacteria; and to Gayon and Dupetit we owe the proof that the reduction of nitrites in sewage is accomplished by the same agency, and that this, as well as so many of the other transformations within the soil, is a result of life.

One substance indispensable to all life is phosphoric acid, and from numerous experiments made by Mr. Warington it would appear that the presence of phosphates is an essential condition for nitrification, and in this fact our author affirms we have corroboration of the theory which ascribes nitrification to the action of a living organism.

Nitrification in soils and water is found to be strictly limited to the range of temperature to which the vital activity of low organisms is confined. The action is also dependent on the presence of plant-food suitable to organisms of low character. It has been established by a variety of evidence that the special organism which nitrifies ammonia exists in abundance in the surface soil of all fertile land, but from examination of some subsoils taken from the experimental fields at Rothamsted in the autumn of 1883, Mr. Warington is disposed to conclude that in our clay soils the nitrifying organism is not uniformly distributed much below 9 inches from the surface. At the depths from 2 feet to 8 feet there is no trustworthy evidence to show that clay contains a nitrifying agent.

It is, however, probable that the organism may occur in the natural channels which penetrate the subsoil at a greater depth than in the solid clay. In the case of sandy soils it is assumed that the organism will be found at a lower depth than in clay. This shows that the nitrates found in the subsoil or in sub-soil drainage waters have really been produced in the surface soil, and have passed down by diffusion, or in a descending column of water.

Evidence of the nitrifiability of Rape-cake when applied to land as manure is afforded by the analysis of the drainage waters from the experimental Wheat field at Rothamsted. Each plot in this field has a drain-pipe 2 to 3 feet from the surface, running down the middle of it. On one plot coarsely-powdered Rape-cake is sown broadcast and ploughed in towards the end of October. On fifteen occasions during the last six years the winter drainage waters from the Rape-cake plot, and from two unmanured plots, have been simultaneously collected and analysed. The mean amounts of nitrogen in the drainage from the two unmanured plots were respectively 5.3 and 5.1 per million, while in that from the Rape-cake plot it amounted to 13.7 per million: proving clearly that vegetable substances are susceptible of nitrification, and that the amides and albuminoids of plants do not differ as to their capacity for nitrification from the same substances present in the animal body. It is, however, freely admitted by the author that in a given time ordinary vegetable tissue will yield far less nitric acid than animal tissue, partly from the obvious reason that it contains less nitrogen, but partly also because the excess of carbonaceous matters in the vegetable tissue has also to be oxidised. The available oxygen is thus shown in the case of vegetable tissue to be largely consumed in the production of carbonic acid, whilst in the case of animal tissue a much larger pro-

portion is devoted to the oxidation of nitrogen. There can be no doubt that the extremely rapid nitrification which certain nitrogenous matters undergo in cultivated soil is largely due to the immense mass of nitrifying organisms with which this matter is brought in contact.

As far as information goes at present, Mr. Warington thinks it probable that ammonia is, strictly speaking, the only nitrifiable substance, and that ammonium carbonate is the material from which nitric acid is in all cases produced. With this idea before him, he considers it safe to assert that all nitrogenous bodies are nitrifiable which yield ammonia when attacked by the organisms present in fertile soils.

The prejudicial influence of caustic lime on nitrification was noticed long since by Boussingault, and Mr. Warington deduces from his experiments that a heavy dose of lime applied to land will probably retard, or even suspend for a time, the process of nitrification in the surface soil, but that this action will soon cease as the lime unites with carbonic acid, and the final result will be favourable to nitrification if the land were originally deficient in lime.

It would further appear that nitrifying organisms find a difficulty in multiplying in very strong solutions, and in a series of experiments instituted to prove the amount of nitric acid produced in diluted urine of various strengths seeded with surface soil, May 6, 1884, it was found that nitrification commenced in a 1 per cent. solution of urine in eleven days, in a 5 per cent. solution in twenty days, in a 10 per cent. in sixty-two days, and in a 12 per cent. in ninety days. But in solutions of greater concentration than this no nitrification appeared.

### PRACTICAL INFERENCES.

The practical conclusions from these important results are obvious. The experiments clearly point out why liquid manures should always be applied to plants in a state of great dilution. The effect of liming soils will also be better understood. Further, when rich stable or farmyard manure is left exposed on the surface of the land, there is undoubtedly in dry weather a considerable loss of ammonia or plant-food, as the fermented urine in the dung is in a condition too concentrated either for nitrification or the retention of the ammonia by the soil. A similar loss of plant-food would occur in very dry weather when sheep or cattle are fed on the land.

## THE VICTORIA REGIA.

Extraordinary success has attended the culture of this rare and wonderful water-plant in the gardens belonging to Abraham Dixon, Esq., this year, at Cherkeley Court, Leatherhead. His magnificent plant, apart from the interest which must always belong to the Victoria as one of the wonders of the vegetable kingdom, has other claims to our notice by reason of the circumstances connected with the importation of the seed, and their sowing, and subsequent growth, until unusual perfection was attained on Mr. Dixon's own plan. It is also supposed that the Cherkeley Court variety is distinct from that hitherto grown in this country, it being brighter in the rose tint of its flowers, and more robust in its constitution. This may well be; as, since M. D'Orbigny sent the first account of it with specimens from Corrientes on the Rio de la Plata to the Museum of Natural History in Paris in 1828, the descriptions of the different travellers who noted the plant seemed to point to the fact that there were distinct varieties of it; indeed, M. D'Orbigny in 1835, in his *Voyages dans l'Amérique Méridionale*, himself mentions one which he considered different from that previously seen by him. Be that as it may, it may safely be asserted that Mr. Dixon's plant of the last season was one of the finest in foliage and in flower that has ever been produced in this country. The seeds were obtained from a friend on the Lago Grande, one of those large sheets of water for which the River Amazon is remarkable, the one in question being about 1000 miles up that river. On January 9, 1884, the seeds were planted directly into the soil in the heated tank, the usual method of sowing them in pots and afterwards transplanting them being departed from, and with advantage, for on germinating the plant grew with great freedom and increased rapidly in size and strength and without exhibiting that tardiness of growth which is usually the case after transplanting out of pots. On February 12 the first leaf appeared, and on May 1 five large

leaves were developed, so rapid had been its progress. Since May from sixty-five to seventy leaves have been produced, many of them measuring 6 feet to 7 feet in diameter, and having the raised border to the leaf standing up 6 inches or more, and thus in this particular quite eclipsing the 2-inch high raised edge which one of the travellers records of a plant which he saw growing wild on the Paraná. Reference to our illustration (fig. 6, p. 19) will serve to give a good idea of the marvellous strength of these leaves when in vigorous condition, as at Cherkeley Court. The secret of their great buoyancy is to be found on the under-side, where a wonderful provision of Nature for sustaining the gigantic leaves even in troubled waters is arranged along the entire system of ribs and nerves. Strong cellular structures, as in *Euryale ferox*, follow every nerve of the leaf, being thickest near the stalk and gradually tapering off to the edge of the blade, acting like continuous cork floats all along the ribs, the greatest sustaining power being placed exactly where most needed—near the leaf-stalk, so as the better to counteract or break the force coming from any sudden rise or fall of the water level. Indeed the whole plant, from the root to the flower, is a study of Nature's engineering. Altogether about sixty immense blooms, some of them 11 inches in diameter, have been produced by the plants in 1884, the first one having opened on May 21, and the last on December 15. On first opening they are white, but at the end of the first day the centre becomes pale pink, and after two days are completed the whole of the flower changes in two hours with an almost perceptible blush to clear rose-pink. During the whole of the time they are open they are delightfully fragrant. These data seem to prove that whilst but few gardens can boast of the luxury of a Victoria tank in their tropical-house, and but still fewer of those who have it can claim to have made it such a success as Mr. Dixon has done with the aid of his diligent gardener, Mr. John Page, who is a plantsman of the old school, but fertile in invention, and well up to date in practice, very many of our gardens have spaces devoted to, and elaborate contrivances for, some less worthy plants than the Victoria regia. The Cherkeley Court plant will be grown on for another year; already it has started into new and vigorous growth; but not content with these proofs of its vigour it has secured its perpetuity by spontaneously produced seedlings which are now coming on well. The tank is heated by hot-water pipes to a minimum of 75° in winter, and 80° in summer. Our illustration shows Mr. Dixon's adaptation of an old contrivance for keeping the water moving without much waste. It consists of a trough divided in the middle, with sloping sides swung on a pivot, with a dripping tap just over it. Each half of the trough is alternately presented for filling. After the tap has dripped into the end under process of filling long enough to destroy its equilibrium it tips over, and thus brings the other end under to be filled and tipped over in a like manner. The disturbance caused by the fall of the water at regular intervals seems to be of much benefit to the plant, and greatly to be preferred to a steady flow, which would not agitate the water so much. In the side tanks in the Victoria-house at Cherkeley Court all the obtainable Water Lilies are well grown, and give their harvest of lovely white, crimson, yellow, and blue flowers, even yet being good in foliage, and *N. dentata* is still in bloom. Later on they will be removed from the water, and only just kept moist, like any other plant requiring rest, until the time comes round to start them anew. The *Nelumbiums*, as will be seen by the leaf in the hand of the youthful navigator of the Victoria leaf in our illustration, are very fine at Cherkeley Court, where lovely white and pink varieties are grown, their beautiful flowers being succeeded by those curious capsules, like children's rattles, which contain the "Sacred Beans" of tradition. To such a size do the leaves grow here that they are often 30 inches across, and are borne on stalks 7 feet in height. There is a character about both leaves and flowers of *Nelumbium* which renders them pleasant objects wherever they may be. For the rest of the water-plants at Cherkeley Court it may be said that it would be difficult to name a cultivated species which would not be found there in superb condition, even the lovely blue *Pontederia* (*Eichornia*) *azurea*, which is reputed to be a very risky plant in winter, being there in the most vigorous condition. As a general embellishment to the house, festoons of *Allamanda*, *Stephanotis*, *Bougainvillea*, and other climbing plants run along the chains round the tanks and over the roof, and having a most charming effect.



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Jan. 5	Sale of Lilies in great variety, at Stevens' Rooms.
TUESDAY,	Jan. 6	Sale of the Fallowfield Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY,	Jan. 7	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.
THURSDAY,	Jan. 8	Sale of Liliun auratum and Roses, at Protheroe & Morris' Rooms.
FRIDAY,	Jan. 9	Sale of Imported Orchids and Lilies, at Stevens' Rooms.
SATURDAY,	Jan. 10	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
		First Meeting of the Royal Botanic Society, 3-45 P.M.
		Sale of Plants and Bulbs, at Stevens' Rooms.

A GLANCE through the list of the "NEW PLANTS" of the past year, although it may not reveal anything of a startling or sensational character, will show that some really useful acquisitions have been secured in the several departments of the garden, a fair number of which seem likely to hold their place in public estimation for some time to come. The number of new things is probably as large as ever, the collector being now, to a very great extent, aided by the hybridiser, especially amongst the choicer class of subjects, such as Orchids. We cannot in this summary note down a tithe of the actual additions made to our garden lists; all we propose to do is to point out the plants which appear to us to be the most worthy of attention amongst those which have been exhibited or figured, or have in other ways occupied a prominent position.

## ORCHIDS.

This group is the most numerous amongst the novelties of the year, and no doubt contains the greater number of choice plants. At the head of the list we should place *Aërides Sanderianum*, a grand plant of the odoratum section, and remarkable for its vigorous habit, its short, broad, retusely bilobed leaves, and its long drooping racemes of large and handsome blossoms, which are coloured after the usual style, white, more or less deeply tipped and spotted with magenta-purple. The large three-lobed lip has a spur fully half an inch wide, with clear yellow dolabriform side lobes, crispy and toothed at the edge, the middle lobe also crispy and toothed, of a rich purple-magenta, and closely folded upwards between the side lobes, in which position it has the appearance of a brilliant purple crest, and comes into strong contrast with the bright yellow of the side lobes and the greenish-yellow of the tip of the spur. We are told it comes from Eastern Asia, which we may presume in this case means the Eastern Archipelago; and it is certainly the finest *Aërides* of this type that has as yet appeared. We have several other *Aërides* to record, namely, *A. Emerici*, from the Andaman Islands, a neat and pretty species, with rather small flowers; *A. Robbelinii*, a Philippine Islands plant, with the habit of *A. quinquevulnerum*, the rosy-lipped flowers of which have the side lobes yellow; and *A. Rohanianum*, another species from Eastern Asia, which has long dense spikes of rosy white-margined flowers with a yellow spur. Associated with these are the *Saccolabiums*, of which we have to record *S. giganteum illustre*, a very fine variety, in which the flowers are not only larger and more closely set, but the purple spotting is more definite, and the lip is of a deeper richer purple than in the type. *S. miniatum citrinum* is also a choice and distinct plant, with lemon-coloured flowers, having a dark centre.

The splendid group of *Cattleyas* and *Lælias* has been somewhat freely replenished with good things, beyond the acquisition of such admirable subjects as *C. Percivaliana*, *Gaskelliana*, *Whitei*, *Sanderiana*, &c. Thus *C. Eldorado ornata* adds to all the charms of the typical form the presence of petals having a large dark purple blotch at the tip; *C. Trianae splendissima* is quite a first-class form of this favourite species, the contrast between its white sepals

and petals and the rich magenta-purple lip being very strong and very striking; *C. Mossiae Arnoldiana* is a fine light coloured variety of that species, having the lip beautifully striate-veined with dark purple and orange, the front part sulphur, with a few purple lines; *C. speciosissima regina* is a splendid variety of the labiata set, with rich purple broad-petalled flowers, having a dark mauve-purple lip marked with eye-like yellow spots, and a reddish ferruginous line between the light rosy side lobes. A very fine hybrid *Cattleya* has to be recorded in *C. triophthalma*, raised between *C. exoniensis* and *C. superba*. It has the sepals and petals purplish-rose, the side-lobes of the lip whitish-yellow, purple at the end, the front lobe with a central transverse and two lateral areas of whitish-yellow, with the side angles and front margin rich purple, the three pitted areas suggesting the name. Amongst *Lælias* we must note the handsome and distinct *L. elegans alba*, with pure white sepals and petals, the front lobe of the lip of a carmine-magenta, and the incurved side lobes white. It is a product of St. Catherine's, Brazil. Here again we have *L. Crawshayana leucopetra*, a lovely plant, comparable to a small-flowered *L. autumnalis*, having the sepals and petals of a light rose colour, and the lip of a fine mauve-purple, with white side lobes, and sulphur crests on the disc. *L. Amesiana* is a fine hybrid novelty, raised from *L. crispata*, fertilised by *Cattleya maxima*; in this the sepals and petals are white, the three-lobed lip of the richest magenta, continued backwards between the pale mauve side lobes, the rest of the lip being yellow. Another lovely hybrid is *L. bella*, a cross between *L. purpurata* and *C. labiata*, the habit being somewhat intermediate, the flowers light lilac, with the broad, wavy front lobe of the lip of a very rich purple, varied by two oblong ascending zones of a light ochraceous white at the base, and two similar spots midway, the disc purplish, broken up by pale-coloured lines. Both these hybrids are due to the efforts of Messrs. VEITCH & SONS and their intelligent staff.

Another gem of the season is *Odontoglossum crispum Veitchianum*—so named, we believe, at the request of Baron SCHRÖDER, now the fortunate owner of the plant—a superb variety, which won high honours at the Regent's Park show under the name of *O. crispum mirabile* which was then attached to it; the flowers are individually large, collected into a bold raceme, the sepals and petals being unusually broad, the petals deeply toothed, and the margins strongly crisped, the ground colour white, freely blotched with purple-brown, but having within the margin a zone of dilute mauve-purple, leaving the extreme edge white; it comes from New Grenada, as also does *O. Dornianum*, a species forming a connecting-link between *O. crocidipterum* and *nævium*, and bearing dense racemes of stellate flowers with white sepals and petals marked with dark sepia-brown spots, and a lip tipped with a large brown spot, and marked with yellow (or yellow with red stripes) at the base. Amongst the figures published has occurred that of *O. Edwardi*, remarkable for its panicles of dark purple flowers, relieved only by bright yellow calli on the disc of the lip. Of another type are *O. Wilckeanum sulphureum*, and *O. Vuylstekeanum*, the first of which is a very fine thing, with sulphur coloured flowers, having one or two reddish-brown blotches on the lateral sepals, and a few similarly coloured spots and lines on the lip; the second is a natural hybrid in the way of *O. mulus sulphureum*, the sulphur-yellow flowers having the dorsal sepal, the petals, and the dilated lip blotched with the deepest orange, the lateral sepals being orange-coloured, except at the base. Both appear to be very fine things. Finally, of this group we have a very distinct and beautiful novelty in *O. Edithæ*, apparently a hybrid *crispum*, in which all the central

part of the sepals and petals is of a rosy tint, with an even edging of pale yellow and the usual spotting of rich brown; the flowers come in racemes.

One or two *Calanthes* are deserving of notice. *C. porphyrea*, a garden hybrid, is an exquisite plant, the product of *C. vestita rubro-oculata*, the mother, crossed with pollen of *Limatodes labrosa*; its hairy peduncle bearing a zig-zag raceme of very showy flowers, of which the sepals and petals are of the most dazzling purple, and the three-lobed lip of a fine purple in the anterior part, yellowish at the base, with small purple spots; it has the constricted pseudobulbs of *C. vestita*. It may also be mentioned that *C. sandhurstiana*, a hybrid of Mr. GOSSE's, has reappeared with much éclat. *C. Curtisii*, from the Sunda Isles, is a welcome addition, its racemose flowers being white inside with rosy borders, and rose coloured on the outer surface, the lip yellow with a purple callus. Another species, *C. proboscidea*, a near ally of *C. furcata*, has white flowers which change to ochre-coloured. This also comes from the Sunda Islands. *Brassia* is not a very popular genus amongst the growers of these plants, and yet it contains some strikingly showy plants, in proof of which, *B. Lawrenceana longissima* may be cited. We have a novel species to record here in *B. antherotes*, which is a really handsome plant, with erect racemes of long narrow-petalled yellow flowers heavily blotched with purple-brown, the bright yellow lip marked with smaller spots of purple and having an orange coloured crest on the disc; though narrow in their parts these flowers are very effective, since they measure about 6 inches in their longitudinal diameter. *Cœlogyne Dayana*, in the way of *C. tomentosa*, is a welcome addition to its genus, its flowers, which grow in drooping racemes, being of a pale ochre-yellow, the three-lobed lip marked on the side lobes with longitudinal stripes, and on the middle lobe with a crescent-shaped blotch of very dark brown. It comes from Borneo, the home of some of the finer species of this genus. *Oncidium Jonesianum*, from Paraguay, is a very pretty small-growing species, with terete subulate leaves, and racemes of prettily spotted flowers of a pale ochre-yellow, marked with numerous sepia-brown blotches, the lip having small bright yellow spotted auricles, and a broad subreniform bilobed white lamina, marked near the base with a few brilliant purple blotches. The colours and marking are very effective, and the general character of the plant distinct, so that it becomes a desirable acquisition. *Phalænopsis Reichenbachiana* is said to be a lovely plant, and one easy of recognition, partaking of the characteristics of both *P. speciosa* and *P. Luddemanniana*. The flowers are cream-coloured, strongly marked with ocellate reddish-crimson blotches, while the lip is rose-coloured, with an orange base, woolly, as in *P. tetraspis*. In *P. Veitchiana brachyodon* we have a variety with slightly mottled leaves, and an erect branched stem bearing white flowers, the lateral sepals, which are tinged with sulphur, have brown spots at the base on the inner upper side; the side lobes of the lip are purple at the tip, white at the base, and the whitish-ochre front lobe is spotted with purple, its retuse apex dark purple. Like most of the Moth Orchids, it is well worth growing. The *Trichocentrum porphyrio* is an extremely pretty bulbless plant, producing large flowers of a brownish-red, edged with yellow, the broad obconate emarginate lip being porphyry-red, edged with white in front, the disc bearing a sulphur-coloured blotch, and three purple lines at the back of it. Another very pretty though scarcely a showy plant, is the *Zygopetalum Burkei*, the flowers being of unusual colours; they are produced in racemes, the sepals and petals greenish-yellow, heavily barred with deep chocolate-brown, the broadish lip pure white, with a ruff or collar at its base, consisting of



about thirteen rosy-purple plaits; it comes from British Guiana.

To the popular genus *Dendrobium* a few useful additions have been made, but nothing very strikingly novel. Thus *D. superbum* Burkei is a fine white-flowered variety of that well-known species, the yellowish-white lip having two blush rose spots, one on each side the disc. This species, it will be remembered, is that which bears rhubarb-scented flowers, and formerly bore in gardens the name of *D. macrophyllum*, which really belonged to another plant. *D. profusum* is an elegant species with the general habit of *D. superbum*, only con-

popular favour, as they well deserve to do, from their free habit and the beautiful colour of their blossoms. We especially allude to those of the Schlimii and Sedeni race, *Cypripedium calurum*, *C. cardinale*, and *C. Schröderæ*, which have won golden opinions wherever seen in public. To these we have to add two more hybrids, *C. grande*, and *C. Leeaunum*. The first is one of the most robust of the whole race, 3 feet or more in height, with great shining green leaves and branching flower stems bearing several large flowers in which the dorsal sepal is yellowish-green with olive-green veins; the petals are pendulous, ribbon-like, 9 inches

oval dorsal sepal is white, with a base of emerald-green, and the centre marked by a bold dotted bar of purplish-red; the petals are decorated by reddish-brown longitudinal stripes, and the lip or pouch is of a shining brownish-red. Among the imported acquisitions we have a floral gem in *C. Godefroyæ* from Cochinchina, a species closely related to *C. niveum*, having the same dwarf compact habit, and flowers of similar form, white, heavily blotched and striped with rich chocolate-brown. The *C. Robbelinii*, from the Philippine Islands, is another good thing in the way of *C. philippinense* (*levigatum*), which has the dorsal sepal



FIG. 6.—THE VICTORIA LILY AT CHERKLEY COURT. (SEE P. 17.)

siderably more slender in habit, its long drooping stems bearing a profusion of flowers which have yellowish-green sepals purple at the base inside, purple dotted petals, and a pandurate yellow lip bearing in the centre a dark spot. It comes from the Philippines; while *D. signatum*, from Siam, is in the way of *D. Bensoniæ*, the flowers white, and the large squarish lip sulphur-coloured, with a broad radiating dark brown spot on the disc. Some good varieties of *D. nobile* have also been flowered, as *D. nobile album*, *D. n. Schneiderianum*, and *D. n. Tollianum*, the records of which will be found in our pages.

The hybrid *Cypripedia* which we referred to last year have increased immensely in

long, yellowish veined with green at the base, and rosy-crimson towards the tips, and the lip prominent greenish-yellow, the incurved lobes whitish spotted with red, and the staminode pale yellow, fringed on the upper edge with blackish-red hairs. It was raised from *C. Roezii*, crossed by the pollen of *C. caudatum*, and like the three varieties above mentioned belongs to the *Selenipedium* group which Mr. Benthams in the *Genera Plantarum* admits to generic rank. *C. Leeaunum* is a very different, but a very distinct and handsome plant, a cross between *C. Spicerianum* and *C. insigne* Maulei, and partaking much of the habit and character of the former, being dwarf and compact, with green leaves and large flowers, of which the flat

whitish, with dark purple veins, and the lip yellowish. Finally, *C. Lindleyanum*, a plant described half a century ago, has at length been introduced in the living state; "it has smooth green leaves, and paniced stems 2 feet high, the sepals and petals red-brown, with darker veins, the lip green, and the staminode yellow, covered with stiff hairs." It comes from Guiana, and will no doubt be well appreciated when it comes to be established. Other novelties in other groups will come under review at another time.

— THE ALMANAC.—It is decreed by circumstances that the Almanac shall be published with the first number of the New Year as a new year's greeting to our friends and subscribers. The plan is,



however, not without its disadvantages. Owing to the date of publication it is impossible to insert all the fixtures for local flower-shows and other similar appointments, the precise date for which is not fixed till later on in the year. Nevertheless, in the Almanac issued with the present number, the dates of all the more important metropolitan shows are given, such as those of the Royal Horticultural and Royal Botanic Societies; the meetings of the Linnean Society; of many Scottish and provincial Societies; indeed of all that came to hand up to the end of December. The table of temperatures represents the adopted mean for every day in the year at Chiswick, and is taken from Mr. GLAISHER's elaborate reduction of the observations of upwards of forty years. Holidays and festivals are noted; the time of sunrise and sunset at particular periods indicated, as well as the periodic phases of the moon. In short, as much information is crowded in as the small space at our disposal will allow.

— THE INTERNATIONAL FORESTRY EXHIBITION.—We are glad to hear that the Executive Committee of the Forestry Exhibition, Edinburgh, has now resolved to publish a report, and a selection of the prize essays on forestry subjects. It is also stated that the authorities of the India and Colonial Offices have agreed to the suggestion of the committee, and are to publish the general list of awards made at the Exhibition in the official Indian and Colonial *Gazettes*.

— DR. GILBERT, F.R.S., Professor of Rural Economy in the University of Oxford, and the associate of Sir J. B. LAWES in the Rothamsted Experimental Work, has been offered and has accepted the post of Honorary Professor of Agricultural Chemistry at the Royal Agricultural College, Cirencester, rendered vacant by the death of the late Dr. VOELCKER.

— THE BEE AND FRUIT FARMING COMPANY.—This is the comprehensive title of a speculation about to be undertaken in this country. The business, which should be a profitable one if economically conducted, will also combine, if the public demand and local circumstances warrant, those of dairying, market gardening, and fruit preserving. The property intended to be acquired is situated at Hockenden, St. Mary Cray, Kent, where bee farming has been lately carried on by J. GARRATT, Esq. We can always welcome any addition to our present inadequate supplies of milk and honey, and likewise the preservation of soft and other fruits for winter consumption, and wish the projected industry every success.

— THE LIFEBOAT SERVICE.—Quite recently a lifeboat was established at Walton-on-the-Naze, through the generosity of the Honourable Artillery Company and of a gentleman well known to readers of the *Gardeners' Chronicle*—Mr. ROBERT WARNER, who presented the land on which the boat-station is erected. No long time elapsed ere the lifeboat was put to use, for on Friday last, December 26, the crew succeeded in safely landing twenty-five sailors from a German ship that ran aground in a snowstorm on Christmas morning. The next time Professor REICHENBACH—so felicitous in his choice of names—has to name an Orchid in compliment to Mr. WARNER, this incident may furnish a hint for an appropriate name.

— GRAND NATIONAL DAHLIA SHOW.—We have received the following communication from Mr. THOMAS MOORE, Hon. Secretary and Treasurer of the Grand National Dahlia Show, to be held on September 4 and 5 next:—

"The Directors of the Crystal Palace Company are preparing their programme for 1885, and are desirous to know from the Dahlia growers whether they intend to hold next season a show of that flower similar to those of the last three years. The Company, I am informed, are willing to continue their grant of £50 in aid of the Prize Fund. I may state that several of the exhibitors have expressed a hope that the show may be continued, so that it seems desirable to go forward with it if possible. The decision rests with the subscribers.

"Most of the present subscribers, if not all, are aware that the subscriptions from the growers have hitherto fallen slightly short of the sum necessary to provide the fairly liberal prizes heretofore offered, and also to cover the small but necessary expenses connected with the carrying out of the show. The deduction of a portion of the prize-money won by the larger prize-takers has

consequently had to be made in order to balance the accounts. This is not satisfactory; and, on consultation with Mr. C. TURNER, who has throughout taken much interest and undergone much labour in trying to raise the necessary sum, we have determined to appeal to the subscribers and prize-takers of the last two years in order to learn what sum each one is now willing to contribute. One gentleman has suggested that every subscriber of half-a-guinea should double his subscription; that would be a real help. Another plan of augmenting the total sum would be to induce a larger number of individuals to contribute, when an augmentation of the amount in each case would not be necessary.

"If the response to this appeal is hearty and liberal, we shall be able to hold the show as before, to keep up the amount of the prizes and possibly to increase their number. If it is penurious and wanting in spirit, we must either lower the amounts in the prize-list in order to meet the means which the growers are willing to provide, or cut out some of the classes or the prizes; or else we must adopt a rule that all prizes awarded shall be subject to a *pro rata* deduction if the subscriptions do not provide for paying them and the expenses in full."

— SENDING PLANTS TO GERMANY.—In reference to this subject Messrs. R. H. VERTEGANS, the Chad Valley Nurseries, state as follows:—"Everybody who sends plants abroad must know that plants of any kind (with the exception of Grape Vines) in all cases may be sent under the conditions that they be accompanied by a certificate from a magistrate in reference to Phylloxera. Only during a very short period, was it prohibited to send plants of any sort into Germany. In accordance with requests from many quarters the above regulations were adopted, so that plants of any description might be sent providing the certificate is at hand."

— BAGSHOT AND WINDLESHAM FLOWER SHOW.—This meeting will take place, as usual, in Bagshot Park, on June 30 and July 1, when several special prizes will be offered for cut Roses in the open classes.

— IMPATIENS HOOKERIANA.—Notwithstanding the beauty of the flowers of this species, and the fact that they are generally considered the largest of any, we seldom hear of its being successfully flowered in this country. Compared with *I. Sultani* and *I. flaccida* it is evidently not very floriferous even in Ceylon, its native habitat. The two latter, and *I. Sultani* especially, will flower in a small state either from seed or cuttings, but the species under notice must be grown to a considerable size, and towards the end of summer subjected to a ripening process by full exposure to light, with merely moisture sufficient to prevent flagging. The fleshy stems under this treatment will be induced to plump their flower-buds, which will flower well into winter. The blossoms are pure white with blood-red dots and lines on the two lower petals. The white spur is curved and remarkably attenuated. There is a figure of the species in the *Botanical Magazine*, and well flowered species may be seen in the Begonia-house at Kew.

— SEED TESTING.—At the New York Agricultural Station an apparatus is used as follows:—A 12-inch square earthen seed-pan is filled with a fine sand, pressed in, and the surface properly smoothed. This seed-pan is then placed in a copper tray 1 inch deep. Over the seed-pan, and fitting within the tray, a copper box with a glass cover is placed. The seeds, generally one hundred of a sort, are carefully counted and placed in parallel rows upon the surface of the sand, and left exposed to observation. Water being supplied to the tray capillary attraction keeps the sand in the seed-pan evenly moistened, while evaporation keeps the air within the apparatus and in contact with the seed thoroughly saturated. Each day the rows of seed are carefully gone over, and such seeds as are found germinated are counted as they are removed.

— SALVIA BOLIVIENSIS VAR. VERTICILLATA.—Several specimens of this are distributed through the greenhouse No. 4 at Kew, and are very effective among other late flowering subjects at this season. Several species are flowering more or less, but excepting the variety *Braunti* none rival the brilliancy of colour exhibited in the flowers of the plant under notice. The corollas are of a glowing scarlet, and the size of the flower is materially augmented by the breadth of the middle segment of the lower lip. The

type is figured in the *Flore des Serres*, t. 1148, and in the *Botanical Magazine*, t. 5947, under the name of *S. erubescens*. The present plant seems to be more robust than that figured, and the inflorescence of the leading axis is less inclined to branch, which, however, may be merely the result of cultivation.

— AMATEUR MARKET GARDENERS.—A "Nurseryman" writes to us in the following terms. From his point of view the matter is one of very great importance:—

"In the discussion on gardeners and salesmen a point has been raised which is to myself and some hundreds of other readers of the *Gardeners' Chronicle* of greater interest than the original question at issue, viz., the fact that the market gardener, and latterly the nurseryman, has not only to contend against bad seasons, tithes, ordinary and extraordinary, rates and taxes, &c., but also against competition from the majority of large gardens all over the country. Being an advocate for Free Trade, I have not a word to say against the level of trade being raised by an influx of aristocratic members, but I would point out that the present state of Free Trade is not Fair Trade. If the rates and taxes of the amateur and professional market gardener or nurseryman be compared, it will be seen that the latter are handicapped in the proportion of ten to one. The time has passed when the matter was glibly explained as the mere disposal of a little surplus stock, as every one conversant with the matter could name dozens of establishments in his own neighbourhood which are now managed solely for profit, and where the gardener's position depends on his ability to show a balance, as much as that of any head of a department in a business. This being the case the injustice of the present unequal distribution of the burden of taxation does not need a lengthy dissertation, the kernel of the matter is how the inequality is to be levelled. If anything is to be done an association must be formed of those most interested all over the country; mere local agitation will not be of any avail, as not only has the ordinary *vis inertia* to be contended with, but the fact that all local assessment committees, &c., are too much under home influence to be easily stirred. The time will come when the question cannot be shelved, and the sooner the better. Grapes, Cucumbers, &c., are now during most of the season sold under cost price, cut flowers arriving at the same state, and plants, Orchids, &c., are following rapidly. *Nurseryman*."

— CANTERBURY ROSE SHOW, 1885.—We are informed by the Honorary Secretary of the above-named Society that this show is arranged for June 27, instead of July 27, as was stated in our issue for December 27.

— THE CAMBRIDGE BOTANIC GARDEN.—The Botanic Garden Syndicate have recommended the increase of the stipend of the Curator of the Botanic Garden from £150 to £200. The Syndicate have watched with interest the zeal and skill with which Mr. LYNCH has applied himself to the conduct and development of the garden. The improvement during his curatorship has been very considerable—in fact remarkable; and the reputation of the garden among botanists and horticulturists, both at home and abroad, has risen so much that it is now considered to hold a place in England second only to the Royal Gardens at Kew. Sir JOSEPH HOOKER has said that the garden, under Mr. LYNCH's able management, is rapidly rising to eminence as one of the very best in Europe. The Syndicate express their strong approval of the assistance which Mr. LYNCH's intelligent appreciation of the requirements of botanical teaching has enabled him to render to the University.

— SCIENCE TRAINING AT CAMBRIDGE.—The Senate has sanctioned the recommendation that £700 be expended on the purchase of microscopes for the biological classes, on which sum interest at 4 per cent. is to be paid, a small terminal charge being made to the students for the use of the microscopes.

— GARDENING APPOINTMENTS.—Mr. A. BROOKS, late Foreman to Mr. L. JENKS, Brambletyre, has been appointed Head Gardener to W. S. STOOBRIDGE, Esq., Albury Hall, Herts.—Mr. W. HOLMES, late Gardener at Cromwell Range, Fallowfield, as Gardener to CHARLES MOSELEY, Esq., Grangethorpe, Rusholme, Manchester.—Mr. JOSEPH HEARD, late Foreman at Floors Castle Gardens, has been appointed as Head Gardener to H. ANDREWS, Esq., Swarland Hall, Felton, Northumberland.



## The Flower Garden.

### HARDY FERNS.

IN many gardens there are some unsightly places that might easily be made to suit hardy Ferns, and give great effect, such as the north aspects of walls or buildings, or raised bank or mounds, if the space is sufficient, but only a partly shady place—that is, avoiding the mid-day sun, which must be kept from them. After the site is decided upon collect the materials. Those in which I find Ferns flourish best are the refuse and sweepings of the garden which have been laying for two or three years, or old leaf-mould, or any loose sandy rubbish, and old heaps of mould of a sandy nature, or common peat would do to mix together. After all is arranged ready for the job, stoops, the larger the better for effect, must be obtained, for which, if not of easy access, I have often substituted large logs of wood and tree stumps and clinkers from the stovehole, which can be cemented together with good stone lime to form large massive pieces, so as to give the appearance of large stones. Then place the stones irregularly over the banks and mounds, and avoid making straight lines, giving as natural an appearance as possible. Next, plant the Ferns between the stones, taking care to put the small and delicate species and varieties in front. They do best put between two flat stones with some mould, pressing the stones somewhat together. I find such kinds as *Asplenium fontanum*, *Ruta muraria*, and *viride*, *Trichomanes cristata*, *Woodia ilvensis*, *Ceterach officinarum*, *Adiantum Capillus-Veneris*, *A. pedatum*, the Royal Ferns, *Osmunda regalis*, *O. cristata*, *O. cinnamomea*, and *O. spectabilis* require a damp situation, and should be planted low, with a good depth of soil, and kept well watered during the summer months. *Struthiopteris pennsylvanica*, *S. japonica*, *S. germanica*, are fine flowering Ferns, all very handsome, and make a handsome feature in hardy ferneries. *Lastrea cristata*, *L. dilatata*, *L. crispum*, *L. Filix-mas*, *L. cristata*, *L. Standishii*, *Athyrium Filix-femina* *Victoria*, *A. multifidum*, *A. cristatum*, *A. Applebyanum*, *A. Goringeanum* *tricolor*, *Polypodium cambricum*, *P. phegopteris*, *Polystichum cristatum*, *P. lonchitis*, *P. proliferum*, *Scolopendrium crispum*, *S. Kelwayi*, *S. marginatum*, *S. endive-folium*, *S. cristatum*—these Ferns are all good for the hardy fernery, and will do well in pots if placed in a compost of good peat and stiff loam and sand well mixed together and plunged in leaf-mould or any light loose material at the back of a north wall. *Wm. Smythe, Basing Park, Alton.*

## The Hardy Fruit Garden.

### PLANTING: PREPARATION OF THE SOIL.

PLANTING and pruning are the most important operations during this month. The first thing to be considered in planting fruit trees is the preparation of the ground, for if this is not in a good condition it is almost waste of time and money to plant; so if this operation has been delayed no time should be lost, always bearing in mind that fruit tree planting, as a rule, is intended to be permanent, hence it is very important that a good soil and situation should be chosen. Should the ground intended to be planted be damp, means should at once be taken to thoroughly drain it. Strong heavy ground should never have drains more than 3 feet deep, and if a foot of rubble can be placed on the top of the drain-pipes so much the better. I have planted fruit trees in borders concreted for 8 or 9 feet from the wall, and also on well-drained borders without concrete, and from experience I much prefer the latter. When planting the latter I prefer placing a good barrowful of broken brickbats under each tree, with a few slates laid flat so as to form a sort of table to plant on. Planted in this manner with about 18 inches of good loamy soil they will form a mass of fibry roots, which being kept near the surface are well under command as to feeding and watering. In transplanting remember to take up a sufficiently large ball. By the diagram, fig. 7, where the position of the circle

indicates the usual relative size of the ball, it will be seen that most of the feeding roots are outside the circle, and consequently sacrificed if the ball be too small.

### PRUNING.

The pruning of fruit trees should be pushed forward as expeditiously as possible. Old-established trees should be looked over carefully, removing all small, crowded shoots; and should the middle of the tree be a mass of small growths, a few large branches should be entirely removed, which will be found better than having to cut away so much young wood.

### MANURING.

Advantage should be taken of frosty mornings to place a good dressing of rotten dung on the surface of any fruit trees that are weak or unhealthy; this will encourage surface roots to form. Where the ground is of a strong heavy texture, dig between the rows of dwarf bush trees so as to allow the air to pulverise and sweeten the soil, always being careful not to dig too near the roots of the trees or bushes. Where the ground is of a light sandy nature it is better not to disturb the soil, merely hoeing and keeping the ground free from weeds. This is a good time of the year for placing a good dressing of manure on the surface of the ground of the latter nature. If Strawberry beds have not had a good dressing of manure placed on the surface of the beds it should now be done—or even over plants and all; it will do no harm if spread broadcast over the whole beds.

### WALL TREES.

The nailing and pruning of wall trees may be proceeded with as opportunity offers. I prefer



FIG. 7.—POSITION OF ROOTS, TO ILLUSTRATE THE NECESSITY FOR A LARGE BALL IN TRANSPLANTING.

nailing the north and east walls first; on south and south-west walls we prefer leaving all young shoots of Peaches, Nectarines, and Apricots loose from the walls at present, merely securing all the older shoots so as to save time when the busy season arrives. Let any one try this plan, and they will find that these trees will flower a week or ten days later, which often means a crop or no crop. It is a good plan before nailing the trees, or even after, to give the walls and trees a good washing with soap-suds either with the syringe or the engine. *J. Smith, Mentmore, Bucks.*

## Plants and their Culture.

### GENERAL REMARKS.

It will be found most advisable at this, the commencement of the New Year, to review the successes and failures of the past season or two, and endeavour, by the experience gained thereby, to attain to even better results in the future. We have all of us a great deal yet to learn in the minor details of plant culture; some apparently complex problems relating to the success in the culture of any given class of plants become very simple when well thought out and acted upon. The

requirements for the successful culture of many plants can be, as it were, anticipated by many practical cultivators almost at a first sight of the subject to be taken in hand. The most essential requisites, such as regards soil, exposure or non-exposure to the full influence of sunshine, and that (not easily mastered) knowledge of applying water at the right time or in a proper quantity to develop a healthy root-action, should be thoroughly understood and acted upon.

### WATERING.

Some plants on the one hand will, when in a healthy state, take an almost unlimited supply of water, thriving far better when never allowed to become dry at the root; whilst on the other hand there are such as require careful watching, suffering if allowed to become dry, yet never able to absorb large quantities. To this latter class belong most of the plants with fine hair-like or fibrous roots; to the former we may ascribe those with thick fleshy feeders, such as the Palms, that are in a healthy condition, and not over-potted. Most of the Ferns, too, have fleshy roots, though much finer than those of Palms; this will indicate their power of dealing with a larger quantity of water at the period of active growth. As a matter of course, the health of any given plant must be duly considered; if a plant is showing indications of exhaustion from weak root-action (this is soon found out by the soil remaining an undue length of time moist), more careful attention must then be paid to it, and the first opportunity taken to examine the roots and to repot into fresh soil. This advice will apply more especially to choice plants of an enduring nature, albeit the general outline must be followed in most cases where practicable.

### INSECTS.

Insect pests, again, are not always easily overcome, for they are very persistent in their attacks, and increase very fast under nearly all conditions. What horticulturist is there who has not had more experience than they ever desired to have of that pest of our hothouses, the mealy-bug? Yet by unremitting attention I venture to assert that this, even this insect, can be much reduced in numbers and eventually extirpated in the majority of cases, the persevering use of the best insecticides generally proving successful. It is now many years since the bug was allowed any lodgment here, and the advantage that has accrued in exterminating it has been very great, not to mention the ease of mind that is felt when, for want of room, the plants are shifted into the vineries or other fruit-houses. No fear in such cases of the bug reaching the Vines and ending their course, in some instances, only when the bunches are placed upon the table. Having once got rid of this pest, on no account allow it to gain headway either on cuttings, small plants, or specimens. We make it a practice to grow all of our specimen plants from the small state, thus running no risk in that direction, having the pleasure besides of seeing their development through all stages. Small plants and cuttings are kept in quarantine, so to speak, for some weeks, till a clean bill of freedom can be granted to them, but this is rarely ever needed, though always practised for safety. When once one is clear of this pest doubtful sources are carefully avoided from whence a fresh stock is likely to proceed. *James Hudson, Gunnersbury House, Acton.*

## FRUITS UNDER GLASS.

### PINES.

If there is one operation that demands more attention than another in the process of Pine-apple cultivation it unquestionably may be ascribed to watering the plants at the roots; no matter how complete or satisfactory other arrangements and conditions of treatment may be, if this matter is not judiciously done it will be a primary cause of diminishing the energies and constitution of the plants to such an extent that the ultimate issue with respect to the fruit will be far from satisfactory; for this reason the consequences cannot well be too plainly indicated, more especially at the present season, which of all the rest is a time this matter requires most discretion. As the means employed in cultivation differ in character, so will the requirements vary accordingly in respect to supplies of water. For instance, plants situated in beds heated by means of hot-water pipes will need much more water than others in beds of fermenting materials only; in the former case every plant should be examined by hand at least once in every ten days, and have a liberal supply of water if necessary. On the other hand, those plants plunged in fermenting



beds will want but little of it during the winter months; in fact it is under such conditions far preferable to have them somewhat dry at the roots than otherwise, as in the event of the soil becoming soddened worms will penetrate it more readily and much mischief will ensue from their depredations, watering should therefore be deferred until such time as it is absolutely necessary. Although these beds are not so commonly used in Pine culture as they were formerly, yet under good management they are still the best means to employ for growing the young stock of plants. The plants which are expected to show fruit next month should now have the advantage of a good position near the glass where light and sunshine can operate freely about them. Liberal treatment in the way of heat and surface moisture should also be afforded; the former should range about 70° at night with 5° more in the day; air should be given sparingly at 80°, and before the temperature falls much below this point the place should be closed and moistened with the syringe. Plants which are to come into fruit after the foregoing ones are over need not have a higher temperature than 60° to 65° at night, and about 5° more in the daytime during the present month. My plants are still in fermenting beds under these conditions, and will remain so until they are placed in a fruiting pit, where they can have an abundance of heat both at top and bottom by means of hot-water pipes which will be regulated as required. Young plants and suckers which merely require to be kept in a healthy state until starting time next spring will not need a temperature of more than 55° or 60°. Tepid water ready for use at all times is an essential required in connection with Pine culture, and must be provided; in my own case it is obtained by carrying the flow-pipe from one of the boilers through a large tank made with bricks and cement: from this for many years past I have at all times ready an ample supply of it, not only for the purpose in question, but likewise adequate for the rest of the subjects which are forced in this establishment.

#### PEACHES AND NECTARINES.

In those houses which were closed at the beginning of last month, and forcing operations have been applied since that time, growth in the trees will already be excited, and in the case of those which have been subjected to these operations for some years past they will be in full blossom by this time. At this early period bees do not generally abound, and the loss of their aid in fertilisation will have to be supplemented by artificial means. Experience has already revealed the fact that it is possible at this critical period to keep the air too dry for the purpose of securing a good set of fruit, and we have found it prudent to continue to syringe the trees lightly every day during the time they are in flower. I also, to avoid any risk of failure, brush the blossoms over with a camel's-hair pencil two or three times in the week when in flower. A low temperature for the present should rule here, 50° at night, 55° in the daytime, and from 60° to 70° by natural influences will be safe; ventilate at 60°, and close up at the same point. In the next division the necessary preparations for starting should demand attention. Too much pains cannot well be bestowed in eradicating insect pests, if such abound, by well washing the trees, &c., which if done carefully, in my opinion, is all that is necessary under ordinary circumstances. I have abandoned the slow practice of besmearing the trees and buds with compositions made up with various ingredients, some of which, if not discreetly used, are calculated to do very much more harm than good, and recommend others to do so likewise. After the trees are regulated and tied to the trellis, fork the borders over 2 or 3 inches deep. Remove inert and useless soil, and replace it with fresh compost; afterwards add 2 or 3 inches of partly decomposed manure as a surface dressing, and, if needful, give the borders a liberal watering; in order to have the fruit ripe by the time that in the early division is over forcing should be proceeded with not later than the beginning of next month. Later houses should have all preparatory work executed as speedily as possible, and if the fruit is not wanted in advance of those from out-of-doors, they should be well ventilated both at night and in the daytime; also trees in pots in cool structures should have their requirements attended to. If the shifting and disrooting of these is not already done, it is expedient to do it without delay, and afterwards mulch the surface soil with manure, and see

that watering when necessary is duly attended to. This place should be kept as cool as possible, particularly where means are not furnished for supplying heat.

#### CHERRIES.

As an advocate for many years past for the extension of the cultivation of Cherries under glass, it is satisfactory to notice of late years a marked increase in the number of houses devoted to this purpose, and if it were not for prejudices existing in the mind of many practical men much more progress would in all probability have been made by this time. The season of no kind of stone fruit can be advanced more readily and at a less cost under glass than Cherries, and the fact of being able to get them ripe during the months of May and June ought of itself to be a sufficient recommendation for their cultivation. Should this be contemplated any good class of house which is amply ventilated will answer the purpose, I prefer planting the trees out in restricted borders, and to have them on trellises about a foot or so under the glass, or on a back wall. In this case only one single rod should be run up under the rafters, otherwise they will not get sufficient light and air. Good friable loam with an admixture of sharp sand will be suitable as a composition. This should be from 2 to 3 feet deep, and be well drained. At the warmest end of the house plant *Frogmore Prolific*, *May Duke*, or *Governor Wood*, and follow out with *Black Circasian*, *Elton Bigarreau*, and *Bigarreau Napoleon* at the coldest part. Of course time must be given for the trees to become established, after which they can be gradually advanced by forcing means. The Cherry-house here containing established trees is just closed. During the present month 40° at night and 50° in the daytime will be the artificial state. At 55° the house will be ventilated and closed again at the same degree. Above this point plenty of air will be admitted. A slight sprinkling occasionally when necessary will be required. *G. T. Miles, Wycombe Abbey.*

## The Kitchen Garden.

IN commencing the Calendar for the new year I shall enumerate the different varieties of vegetables which I have found and proved to possess the most essential qualities in their respective classes. Many other gardeners undoubtedly can say as much in favour of other existing kinds; however, the best plan to follow is to adhere to varieties which have proved to be suitable to soil and climate, at the same time trying new varieties which have come prominently before the public notice—and in some classes especially there has been marked improvement of late years.

Vegetables, I need hardly remark, succeed and vary considerably on different soils and in various situations. For standard and important sowings varieties must be chosen which have been well tested, or in all probability a continuous supply will not be maintained.

*Asparagus*.—*Connover's Colossal*.

*Beans* (kidney varieties, for general outdoor cropping).—*Canadian Wonder* and *Ne Plus Ultra*; and for forcing, *Fulmer's* and *Ne Plus Ultra*. Broad varieties.—*Windsor*, *Veitch's Improved Long-pod*, and *Leviathan*. Runners.—*Scarlet Champion*.

*Broccoli* (spring varieties).—*Veitch's fine Spring White*, *Cooling's Matchless*, *Leamington*, and *Penzance Early White*; for autumn and winter use, *Veitch's Protecting Autumn*, *Grange's Cauliflower Broccoli*, and *Snow's*; and for late use, *Lauder's Goshen*, *Ledsham's Latest of All*, and *Model*.

*Brussels Sprouts*.—Any good selected variety.

*Borecole*.—*Asparagus*, *Read's New Hearting*, and *Cottager's*.

*Cabbage*.—For autumn sowing to cut early in spring: *Ellam's Dwarf*, *Mill's Incomparable*, and *Wheeler's Imperial*. For general summer use: *Allan's Dwarf Incomparable* (a splendid Cabbage), *Nonpareil*, and *Endfield Market*.

*Carrot*.—*Early Nantes*, *James' Intermediate*, and *Long Red Surrey*.

*Cauliflower*.—*Early London*, *Snowball*, *Walcheren*, and *Veitch's Autumn Giant*.

*Celery*.—*Major Clarke's Red*, *Cole's Crystal White*, and *Wright's Giant*, fine for exhibition.

*Endive*.—*Batavian Improved Round-leaved* and *Green Curled*.

*Leek*.—*Musselburgh* and *The Lyon*, the latter for exhibition.

*Lettuce* (Cabbage).—Summer varieties: *Hardy White Dutch*, *Neapolitan*, and *Drumhead*. Winter varieties: *All the Year Round*, *Stanstead Park*, and *Lee's Hardy Green*.

*Cos Lettuce*.—Summer varieties: *Paris Green* and *Paris White* are the two best; and for winter crops, *Hick's Hardy* and *Brown Cos*.

*Onion*.—*Banbury Improved*, *Giant Zittau*, and *James' Keeping*, for spring sowing; and *The Queen*, *Early Naples*, *Giant Rocca*, and *Italian Tripoli* for autumn sowing.

*Parsnips*.—*Hollow-crowned*.

*Peas*.—For growing in pots and frames: *American Wonder* and *Chelsea Gem* (also these two are the best dwarf varieties for sowing early on a south border); to follow, *William I.* and *Ringleader*. Second earlies: *Champion of England*, *Gladiator*, *John Bull*, *Laxton's Supreme*, *Telegraph*, and *Telephone*. For late use: *Ne Plus Ultra*, and *Sturdy* and *Veitch's Perfection* may be included.

*Potatoes*.—*Kidney* varieties: *Improved Ashleaf*, *Woodstock*, and *Covent Garden Perfection*; also *Magnum Bonum*. Round sorts: *Radstock Beauty*, *Grampian*, *Schoolmaster*, and *Champion*.

*Turnips*.—*Early Milan*, *White Stone*, *Veitch's Red Globe*, and *Orange Jelly*, or *Chirk Castle*.

#### GENERAL WORK.

Peas above-ground must receive timely attention on the approach of sharp frosts, also during cutting winds, by giving them some kind of protection. There is nothing like sowing the earliest Peas in heat, in 3-inch pots (to be planted out later on), and gradually hardened off prior to planting on a south border. I recommend for this sowing *William I.* and *Ringleader*. Simultaneously a sowing of the same varieties should be made out-of-doors, and including *American Wonder* and *Chelsea Gem*. About January 6 or 7 will be early enough to make both these sowings, and the pot Peas will be ready for planting out a month later. Draw a little soil to both Peas and Broad Beans that are above-ground. Broad Beans may now be sown in boxes in heat, and when thoroughly hardened off planted out, or they may be sown out-of-doors at once in light soil. Expose freely in favourable weather all young Cauliflower plants. Have protecting material in readiness for Celery, in case of severe frosts or snow. Keep the rows of all growing crops free from weeds, and ply the Dutch hoe when the soil can be caught in a moderately dry state. Proceed as fast as possible with all digging and trenching. After the ground for Peas and Beans has been prepared (if not already done), the ground for early Potatoes should receive attention. This, along with the ground for Carrots, Parsnips, and Beetroot, should have been trenched weeks ago, and henceforth it should be pricked over with a fork (and left lying rough) as often as labour will admit, that is, if produce of the finest quality and size is desired. *W. Richards, Normanton Castle.*



#### SEASONABLE NOTES ON GREENHOUSE FLORISTS' FLOWERS.

##### THE AMARYLLIS.

AT p. 532 of the last volume the remarks on this gorgeous spring flower had brought it up to the point when the bulbs had arrived at the resting period. They had nearly, if not quite, passed through this period, and it is now time to see to the repotting of the bulbs, and their arrangement where they are to flower. We prepare our compost for potting about two months before it is required for use. This year it is formed of two parts loam, one of peat, and one of very decayed stable manure, from a yard where peat litter is used, and with it a small quantity of bones and prepared fish manure. The Amaryllis does not seem very particular as to the compost, but it will do with a richer material than is generally used, and the roots push vigorously into the spent tan over the sides of the pots, and seem to derive more vigour from that than from the compost in which they are growing. Our largest bulbs are potted in 8-inch pots, the others in smaller ones, according to the size of the bulbs,



but it is better to under rather than overpot them. When a bulb is placed in a pot that is too large for it, the chances are that it will not do well. We have bulbs now in 60-sized pots as large as ducks' eggs. In potting the compost should be pressed in firmly round the bulbs, which should not be covered more than half their depth with compost. After potting plunge the pots in tan or any other medium that will give a bottom-heat of about 80°. This cannot be obtained in every garden. If it is not possible to give them bottom-heat, they may be placed on the stage or a shelf near the glass, but in neither case should they be watered at the roots until the bulbs have made some roots into the new compost.

#### THE HYACINTH, THE TULIP, AND POLYANTHUS NARCISSUS.

These are all placed in the category of florists' flowers, and after they are taken out of the plunging material require very much the same treatment. Even the latest flowering plants ought to be taken inside about the second or third week in January. Any of them intended to flower very late had better be placed in a cold frame behind a north wall. Those that are to come into flower about the third week in March or for exhibitions at that time must be placed in a heated pit or greenhouse near the glass. We usually invert a small pot over the crowns until they are inured to the light. They require plenty of air in the early stages of their growth. This free air and a judicious application of weak liquid manure-water favours the production of stout green leaves, which are as brittle as glass. When the leaves are fully developed, with the consequent production of a mass of healthy roots, a little artificial heat will cause a better development of the flowers. They must be shaded from hot sunshine when in flower, and also be sheltered from cutting winds. The house should be aired on the side opposite to that from which the east wind blows.

#### THE CYCLAMEN.

There are many different methods of cultivating these very pretty greenhouse flowers, and some growers who cultivate them successfully sow the seeds at one time, and others, equally successful, sow at another. On one occasion I sowed the seeds in January, and had a nice batch of plants in flower, with a dozen blooms or so on each, in twelve months. January is not the best time to sow the seeds. The best of the market growers who grow for profit sow the seeds early in July. They are pricked out as soon as a leaf or two is formed on the plants; they are not of large size even now, being yet in thumb-pots only. The pots are arranged on a shelf near the roof-glass, in a temperature of about 50° at night; this is necessary to keep them growing freely, and as soon as the plants are large enough they are shifted into small 60's, the object being to keep them growing freely, and the leaves are well developed if the plants are freely exposed to light and air, as they are sure to be close to the glass. The treatment subsequently is different from that usually pursued, but that will be described at the right time. For some time yet let them remain near the glass in a temperature of 50°.

#### PRIMULAS.

The Chinese Primulas are now in full bloom and growth, they are greatly valued at this season of the year for their bright and varied colours. The colours are not only brighter within the last few years, but some of the soft pink or peach coloured kinds are of large size and good form, as well as exquisite in colour. I have noticed during the last few months that some presumably new varieties had very large flowers of good substance, but wanting in form. It is certainly an error to cultivate for size, or colour either, at the expense of form. The object of the florist is to work for form, and from that point cultivate for size, colour, and substance. At this season the plants, if kept in an ordinary cool greenhouse, are very liable to damp off at the neck; this is avoided by keeping up a higher temperature and a comparatively dry atmosphere. We keep our plants in the house where zonal Pelargoniums are in flower. J. Douglas.

#### LATE CHRYSANTHEMUMS.

Valuable as the early kinds of these are, the late sorts are even more so, as December is a very dull time for flowers, but with a few varieties of late Chrysanthemums a house may be kept

gay till quite the end of the year. The best with us at the present time are Ethel, Meg Merrilies, Splendens, Goldeo Thread, Bouquet Parfait, Nelly, and Baron de Prailly. Ethel is a very useful substitute for Elaine and Fair Maid of Guernsey, as it is a pure white, the only fault being that the lady has a black eye, and yet all do not regard that as a defect, for it was only to-day that one of the fair sex remarked that the dark eye added to Ethel's beauty, and gave her a mark of distinction. Be this as it may, those who do not like the orb staring at them can pluck it out if they have the heart, and if not they can blind, or hide it by dressing, as the latter seems coming into vogue, and a little manipulation will make Ethel perfect. Meg Merrilies is a loose formed, ragged, Japanese kind, of rather a dingy yellow shade when the blooms first open, but they improve greatly with age, and come of a rich cream, running off into white at the edges. Splendens is a splendid yellow with narrow petals, and not over-large flowers, and these being light are of great service for cutting—a purpose for which Golden Thread is specially adapted, as it is very feathery and irregular in outline, and, therefore, dresses well in a vase. Bouquet Parfait is one of the oldest of the pompons, which are fast going out of favour, as most of them are too button-shaped and formal; but this one is not so, and is quite worth keeping. The flowers are medium-sized and creamy-white, fading off more to the latter colour as they get old; and Nelly is lilac, and much smaller in size. There is one thing against these late Chrysanthemums, and that is that they lose their foliage, which seems to go shabby as soon as that on the others, so that by the end of the time they have done blooming they become nearly leafless below. Is it not possible to cross some of the autumn or winter flowering kinds with Chrysanthemum frutescens, and so get perpetual bloomers? If it can be done what a gain it would be, and those who succeed would reap their reward, as a great sale would be found for the plants. J. Sheppard.



#### FORESTRY FOR JANUARY.

##### PLANTING.

Arrears of planting will still demand the forester's principal attention, although much will depend on the state of the weather in determining the work to be done in the woodlands during the present month. When frosty or wet weather intervenes all hands may be advantageously employed in pitting and otherwise preparing such tracts of ground as are intended for spring planting, although work of this kind, more especially the draining and pitting, would, for future results, have been much better performed three or even six months ago.

When inserting plants during the present month great care is necessary to prevent either the roots becoming damaged by frost and the cold cutting winds to which they are frequently subjected, or their being planted in ground containing particles of frost. In conveying plants from the nursery to the planting ground pay particular attention to having the roots well covered either with mats or damp hay, as half of the losses reported in newly formed plantations may be attributed either to this cause or planting them during frosty weather or in ground, as before stated, containing particles of frost.

##### THINNING.

Continue the general thinning of plantations, and finish the cutting of hedgerow timber, advantage being taken of frosty weather for the removal of such from woods and fields. At this season the winds are often pretty severe, and numbers of trees are not unfrequently blown down by their violence. Where such is the case have these cut up and cleared off at once, as few things about the policy grounds have a more unsightly appearance than fallen trees lying about with upturned roots. The simplest and most effectual method of disposing of tree roots is to dig a deep pit immediately behind them, and into which they will fall when severed from the trunk. In some cases, more especially where the soil is stiff or rocky, it may be advisable to resort to splitting the roots with dynamite or gunpowder.

Prepare for timber sales by having the various kinds lotted and valued. The trees should be collected into various sized lots to suit purchasers, and, if possible, near to good roads—few things enhancing the value of timber generally like ease of removal. The following are the average prices of the various woods in this district:—

Per cubic foot.—s. d.		Per cubic foot.—s. d.	
Larch .. ..	1 2	Beech .. ..	0 7
Scotch Pine ..	0 7	Birch .. ..	0 10
Spruce .. ..	0 7	Alder .. ..	0 10
Silver Fir .. ..	0 7	Willow .. ..	0 10
Oak .. ..	1 6	Poplar .. ..	0 7
Elm .. ..	1 6	Chestnut (Spanish) ..	1 3
Ash .. ..	1 4	.. (Horse) .. ..	0 6
Sycamore .. ..	1 6	Hornbeam .. ..	0 6

The prices of Larch and Oak timber are, however, considerably affected by local demand, arising from shipbuilding on the Menai Straits.

##### NURSERY WORK.

In the home nursery all young stock not required for planting out this season should, where time permits, be gone carefully over and thinned out by removing every alternate plant. When lifting the plants, insert the spade or fork (the latter is always preferable) well under the rows, so as to prevent root-fracture. Pulling the plants out is a most pernicious practice, and should never be allowed. Ridge up or dig over roughly all vacant plots, and leave them so until wanted for planting in spring. Where the ground has been previously under nursery stock a green crop may be taken, at the same time adding a fair quantity of well decomposed farmyard manure. Pay attention at frequent intervals to the rot-heap, and seeds that have been stowed away for spring planting or sowing.

##### FENCING.

As recommended last month, pay strict attention to all fences, hurdles, tree guards, and rabbit-proof wire-nettings, and, where necessary, have all omissions set right at once. Tarring the stems of standard trees is not, although frequently resorted to, satisfactory, neither as regards the plant's health nor appearance, cages made of wire-netting, or a piece of bark placed around the stems of such trees as require protection, is far preferable. As the staking of ornamental standards generally falls on the fencers, a little extra vigilance will at this season be necessary, so as to preserve the Moorings in a perfect and safe condition.

##### HEDGING.

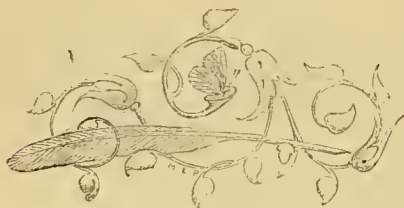
Where not already done, preparation for the planting of young Quicks should be pushed forward, but it is well to remember that both these operations would have been far more satisfactorily performed three months ago. Dig and clean the sides of existing fences and remove all Ivy or other injurious vegetation therefrom. This is an operation that is far too seldom attended to, but one which, nevertheless, is of vital importance as regards the growth and value of the fences.

##### GENERAL WORK.

Ground work improvements of all kinds may be satisfactorily carried out during favourable weather in the present month. New roads, walks, terraces, and turf laying may especially be brought under notice. Attend to woodland drains and ditches, and remove from their course all obstacles. Cut new drains where, from the dampness of the plantations, it may be deemed advisable. As great damage is often done to trees and shrubs by heavy falls of snow, it will be necessary during such weather to have it shaken off. A few men with long poles will soon clear considerable numbers of such as are most valuable. Cart timber to the saw-mill, and have it prepared as early as possible for estate purposes during the present year.

Clear up and remove all fallen leaves and branches from lawns or pleasure grounds, or where they are likely to become scattered about during windy weather. Fork shrubby beds and borders, and, where necessary, prune overgrown bushes of Rhododendrons and other shrubs. Straggling branches of Laurel or Rhododendron may, where extension of the shrubberies is aimed at, be pegged down and covered with a spadeful of soil to assist the process of rooting. Where faggots and firewood are required for home consumption they should be tied up and either stacked or brought home and housed until wanted for use. A. D. Webster, Penrhyn Castle, North Wales.





## HOME CORRESPONDENCE.

**The St. Petersburg Botanic Garden.**—In my notes upon this establishment, I wrote a name inadvertently, by which a Bromeliad came to be compared with a Palm, viz., *Glazioviana insignis*. For this I intended to write *Vriesia Glazioviana*, like which I saw a probably new species, differing however in its spiny-margined leaves. About this Mr. Watson of Kew kindly wrote me. Some information of *Pandanus nitidus*, which we have not in this country, may be of interest. Of the name I could find no mention, and therefore on receiving the plant (unfortunately dead), I forwarded a few leaves to Mr. Baker, who kindly wrote me that full information is given in Seemann's *Journal*, vol. v. (1867), p. 103, informing me also that it is a Malayan species perfectly, distinct from *P. Forsterianus*, from which it differs according to my recollection, in having much narrower leaves, in branching more freely, and in being generally more graceful. Without confirming the name for the leaves sent, Mr. Baker appears to think it correct, but adds that there is no authentically named specimen in the Kew Herbarium. It is thus of interest botanically, and being handsome also, I hope to see it successfully introduced. One of the plants which struck me particularly was a Bamboo named *Guadua latifolia*, and I am indebted to the Rev. Canon Ellacombe for writing me with reference to my description, which gave the stems as purple. He informs me that General Munro does not mention the purple stems, but describes the culms as "*kete virens*," so the name must be wrong, as the stems are purple or purple-black in a marked manner. The plant, however, appears to be unknown in this country. I do not remember having seen a coloration at all like this in a species of its habit, and I understand from Kew that there is no plant there now which answers the description. Mr. Jenman, of Demerara, informs me that the stems of the plant he knows are green. *Spathartum* is a misprint for *Spathantem*, and *Hydrosma* for *Hydrosme*. These genera belong to the Aroidæ, and are unknown probably in our collections, unless recently introduced. *Spathantem heterandrum* is not mentioned in Engler's monograph in De Candolle's *Monographic Phanerogamarum* of 1879. R. Irwin Lynch.

**Market Sale of Fruit and Flowers.**—Beginners lack probably experience more than uprightness, as is confirmed by their asking for articles that would be misleading. The experience of Messrs. Pope & Son seems somewhat limited, and the suggestion sounds like an attempt to blow their own trumpet. Messrs. Pope & Son's figures are not clear, unless they mean cost of carriage is *nil*. To auction English produce is quite a new mode, adopted in London even only by a few, for the late arrivals. Many have tried and found about 20 per cent. less than market value was being realised, except when supplies have been unusually short. When the market is in such a state that goods become unsaleable privately, then, senders, beware of making consignments for the dung-cart. My objection to the mode of selling applies to English produce, and more especially to produce costing much to raise. The sale for this is generally arranged the day before the arrival, and herein lies one of the secrets of success to growers as well as to the *Covent Garden Salesman*.

**Colour in Flowers.**—I send you herewith an apt illustration of the effects comparative absence of light may cause in flowers of rich hues. The one sent is from a plant of a climbing *Tropæolum* growing in a cool house, and in a somewhat dull place removed from the glass. Properly the flowers should be of a rich crimson-scarlet, but now they are of a pale yellow hue, and might, under all ordinary circumstances, be regarded as from a yellow flowered kind. It is rather curious to know that not a few yellow flowered

kinds of the *Tropæolum*, both climbing and compact, will give reddish hues at certain periods, as, for instance, when too much moisture rules, or there is too much draught. But what is remarkable about the flowers sent is the fact that, although the rich hue of the petals is absolutely wanting, yet that the spots at the base of each petal naturally obliterated in brilliant hued flowers, but nearly always seen in yellow ones, are clearly defined, and almost as rich in colour as the flowers should be. These spots must be an inheritance from ancient progenitors, and it would seem cannot be obliterated, whilst the rich colour of the flowers is of more modern growth, and is not absolutely fixed. All flowers would not show this fleeting nature in the coloration under the same conditions. Chinese Primroses, zonal Pelargoniums, and others keep their rich soft hues under adverse conditions of light. A. D.

**The Gardeners' Royal Benevolent Institution: Augmentation Fund.**—I was very much interested in Mr. Coleman's letter in a recent number of the *Gardeners' Chronicle*, and can endorse what he says, that a widow was better off with a pension of £15 a year than a man with £20 a year. I have taken an interest in the Augmentation Fund for the last three years, and although not so successful as Mr. Coleman has been, yet have done what I could to help to increase the fund, and I think it a very good suggestion for the members of the committee to take into consideration at their next meeting—whether the pensions should be increased four to five as at present contemplated, or from three to four as Mr. Coleman suggests. John Malcolm, *The Gardens, Cholmondeley*.

**Narcissus viridiflorus.**—Mr. Wolley Dod, I fear, will find very few, if any, who have yet flowered any of the bulbs distributed by Mr. Maw or himself. I possess bulbs from both sources, as well as from an earlier importation; all have vegetated in a cold pit, but those derived from the latter source are much the strongest. I have found that the African species have a great dislike to have the bulbs baked, as is frequently done, on a hot shelf during summer. They prefer a frame or pit where they can be protected from rain after flowering, but not dried till they lose their fibrous roots. At the present time *N. viridiflorus* is 6 inches high, varying in degrees of strength; *N. canariensis* is coming strong, *N. pachybulbus* showing flower, *N. serotinus* has flowered well, and the rare *N. Broussoneti* in the open border under a hand-glass is 9 inches high, and very strong. If it is once let get thoroughly dry so as to lose its roots it requires one or two years to recover. One word more. If the bulbs are growing let them alone, as they dislike frequent moving. H. C.

**The National Auricula and Carnation and Picotee Societies (Southern Section).**—I trust to your fairness to permit me to say that the announcement at p. 813 of your last issue as to the holding of the exhibitions of these societies is, at least, premature. By an overwhelming vote, by fifty-three against twenty-two, who from making no return, were regarded as giving a passive assent to the action of the meeting of October 14—by this overwhelming vote the action of that meeting was disapproved by the supporters of the societies—as shown by a return I placed in the hands of the chairman, alike of the meeting of October 14, and on the latter date, December 9. This expression of opinion was refused recognition by a narrow majority of one, a result due to accident, one of the signatories of the protest, who attended the meeting of December 9, expressly to condemn the action of the meeting of October 14, having from a misunderstanding voted against the amendment moved by me, viz., "that the minutes be not signed," instead of for that amendment as he really purposed, another gentleman having held up his hand, and being received as a *bona fide* voter, whereas he was not a member, never having contributed a penny to the funds of either society. Unfortunately, I was not personally acquainted with Mr. Walker prior to the vote, and was not aware that the hand held up in the rear of Dr. Hogg was that of Mr. Wright until the close of the meeting. At the time the vote was taken the gentlemen present supporting the action of the meeting of October 14 were Messrs. Hlibberd (in the chair), Rolt, Douglas, Pearson, Kirtland, Ware, Laing, Turner, and Dr. Hogg. In fairness the latter gentleman was not entitled to vote, his subscriptions for 1883 being unpaid; but I did not care to moot

trifles. Those present adverse to the action of the meeting were Messrs. Dean, Wilkins, Lakin, Rowan, Dodwell, W. H., Dodwell, E. S., Tomes, Pohlman, Kew, and Walker. At a later period Dr. Masters and Mr. Pohlman, jun., were present, but throughout the upholders of the action of the meeting of October 14 were in a minority, and but for the accidents described the proceedings of that meeting would have been summarily suppressed. Before this will reach the public eye I hope to place in the hands of the members of the societies a review of the extraordinary and unparalleled action whereby, of their own will merely, and in defiance of a duly constituted and existent authority, a numerically insignificant minority have seized upon place, and maintain it despite the distinctly expressed wish of an overwhelming majority. I regret that the utter prostration of severe illness has delayed this, and therefore that I am at this time without knowledge as to what may be the resolve of that majority as to future action. But this much I am sure I may venture to say, the gentlemen who with such disregard of right and regularity of procedure seized upon place will not be accepted as the representatives either of the Auricula or of the Carnation and Picotee Society, or as expressing the mind and will of the majority of the supporters of those societies. That position, sir, belongs to me—the senior honorary and financial secretary, and your obedient servant, E. S. Dodwell, Oxford, Dec. 29, 1844.

**Eucharis amazonica.**—On looking through the pages of the *Gardeners' Chronicle* the other day, I read "*A. E.*'s" account of his *Eucharis amazonica*, and think it might be useful to many to show how I overcame the unhealthy state of my own stock of this useful bulb. In last July my *Eucharis* were in the same state of health as "*A. E.*'s" were, and I was puzzled to tell what the reason could be. I had them in the stove always, but I took them from that house into a cooler temperature, where they remained at rest until late in August, by this time they had lost all their leaves; then taking them to the potting shed I turned them out of their pots, when I found the roots in a bad condition. I then cleaned the bulbs and potted them into pots of different sizes, allowing six good sized bulbs to a 7-inch pot. After potting them I did not put them straight into bottom-heat, but stood them on a stage in a heat of 75° by day, 60° by night, until they had made a little start. Then I prepared a hotbed of leaves which was left for a week to settle, and when it had got a nice gentle heat the pots were plunged three parts of their height. They were left in this hotbed for a fortnight, after which cocoa fibre was added to the surface to keep the leaves from springing up and covering the pots, and which also made the work look more finished and tidy. By this mode of treatment, at the present time, they are looking very healthy, and the trouble they have caused me is being repaid by their healthy growth, and I hope in the latter end of February by plenty of good strong blooms. The compost in which they were repotted consisted of two barrowloads of good loam with two shovelfuls of soot added, a 6-inch potful of bones, half a barrowload of fibry peat, half a barrowload of dry cowdung, some charcoal and silver-sand, enough to keep the soil open and sweet. *A Young Gardener*.

—Mr. Hudson and his correspondent have started a topic very interesting to all growers of *Eucharis*, and I have no doubt you will have other communications besides mine, there being a very decided opinion prevailing that there is a disease affecting the *Eucharis*, the symptoms exactly corresponding with those described in your issue of last week. I enclose a few leaves picked from different pots out of a collection of 300 plants, and one bulb just as taken out of the pot, for your opinion. I had them as offshoots in September, 1883, and put them in boxes in cocoa-fibre till they started to grow; then they were potted, four or five bulbs in a 5-inch pot, using rough loam and rotten manure and sand. They grew away fast with good dark leaves till April, when they were taken and placed under a *Stephanotis* growing all over the roof of a half-span greenhouse, and my own idea is they got saturated with moisture from the heavy syringing of the overhead creeper, the broad leaves catching all the water and guiding it to the pot. The yellow edges then began to come, till the whole lot of plants were so affected. In last September I shook them all out of the soil, washed the roots of the worst, and potted them into 6 inch pots, using plenty of crocks, charcoal, good



sweet loam, and rotten leaf-mould; but it is at this time I think my misfortune began, as I had taken my hot-water apparatus to pieces, and could not get a higher temperature than 60°. Now they are all in a house where the warmth will not be less than 65°, and are throwing up some healthy green leaves; and as they grow I intend to give them some cow-manure and soot-water, so as to assist them to overcome the disease. I quite agree with Mr. Hudson that they would be better plunged, but I have no place to plunge them in. As to the disease theory, a well-known grower for market has lost the whole of his large stock, but that case I attribute to the hard flowering they were subjected to. Another well-known grower said to me that he would not put one of those yellow-leaved ones near his plants, as he was quite sure it would infect the whole batch of them; and at an auction sale in the spring of this year one house of healthy looking plants sold for from 5s. to 7s. a pot, whilst another houseful of yellow-leaved plants at the same place hardly found purchasers at any price. I should be glad to know the opinion of your experienced readers if it is bad treatment and too little warmth that is the cause of this bulb doing ill, or is there really a disease in the *Eucharis* not known to gardeners. *W. B.*

*Photinia serrulata*.—We have a plant growing on a wall here which is showing flower. Is it an unusual thing for it to do so in this country? I have never seen the bloom. Owing to the lateness of its appearance I am afraid the frost will destroy it. I have stood a sash against a part of the plant and buds to try to preserve it. *Wm. Edwards, Babraham Hall, Cambs.*

**The Royal Horticultural Committee.**—The resolution which the United Floral Committee agreed to forward to the Council of the Royal Horticultural Society, and which you have published, can hardly be said to err on the side of boldness. If it had been worded to the effect that the members of the committee reported to the Council that the arrangement which had existed during the past year of dividing the committee into two portions had at once detracted from the prestige of its awards and of its usefulness, and in consequence expressed a resolve to revert to the old state of things, the Council would have accepted the situation without demur. The committee might have been even bolder and have intimated that henceforth it was desirable in the interests of horticulture and of the future usefulness of that body that ample power should be given to the members to arrange their own terms of taking office in so far that one-fourth should go off every year, the selection of retiring members being first made from the lists of most irregular attendants, and failing that then by ballot, and farther that the committee should at its last meeting in each year have the power to nominate a list of not less than twice the number of persons for which vacancies were created and submit the same to the Council for final selection. Of course those who have served their specified term on the committee should not be eligible for re-appointment until a full year had elapsed. It would, assuming this arrangement were carried out, however, be needful that some safeguard should be taken against official nominations or lists, indeed, any member of the Council should be esteemed ineligible to nominate, because he would still have a veto in respect to the final selection. I fear it will not be possible to devise any scheme that will prevent personal considerations from entering into nominations or final appointments on the committees, for members of both committees and Council are but mortal. Still a loyal desire in the first place to secure on the committees the services of the very best men to be had, and in the second place to make such appointments really honourable rewards for long and faithful horticultural work, should always operate in the actions of a body of English gentlemen far beyond what personal or petty intrigues can accomplish. Most certainly I would make certain exceptions to the proposed method of tenure and selection in the shape of honorary appointments commensurate with other considerations to be given for special services rendered to horticulture in various ways, but these honorary appointments, which should be of a permanent character, should be few, and held by the recipients in the highest esteem. It is just now a specially important time in reference to the future constitution of these committees, not only because

they are, owing to the time of year, in a somewhat tentative position, but also because every year shows that their work is becoming the most important and valuable the Royal Horticultural Society is accomplishing. Let the most complete confidence in the fitness and integrity of the committees be established, and then work will grow rapidly. At present the provinces do not share in that work to anything like their full capacity. If the Council would aspire to perform national functions, it must strive to give to its operations a national basis. *A. B. C.*

**Tarred Hot-water Pipes.**—Having noticed in last week's *Gardeners' Chronicle* that Mr. Bishop is still at a loss to know how to take the tar off his hot-water pipes, I would advise him to try salt butter, and rub it well into the tar. If that fails to loosen the tar, there must be something more than tar varnish on his pipes. I have never known salt butter to fail in loosening tar. It would give me much pleasure to let Mr. Bishop know a good paint for hot-water pipes. *D. Wilkie, Sundrum, Ayr, N.B.*

— I think that if Mr. A. Bishop tries wetting his pipes thoroughly with turpentine, and scraping them whilst moist, he may succeed in removing the Brunswick Black. I have often taken it off wood by means of turpentine, but, of course, it may not succeed so well with iron. *P.*



## Notices of Books.

*Der Garten.* By Jakob v. Falbe. (Williams & Norgate.)

THE writer, after reviewing briefly the state of horticulture in ancient times, beginning with the first pair in Eden, asserts that the love of gardening has always existed among the most diverse nations that possessed a settled dwelling and a fixed civilisation. The modes of laying out a garden are broadly defined at the outset into two widely differing classes—the architectural, in which Nature is made to bend to the will of the designer, and is not allowed to assert herself except in the minor features, which of themselves do not give character to the design; and the other in which Nature is not only copied, but invited into the garden, and supplies the major part of the decorations. These two styles are found in their sharpest contrast in the French—as at Versailles, and in the English, or more truly the Chinese garden. He then points out the proper employment of the two styles, or modifications of them, and would not have town gardens or parks partaking of any other than the architectural style. Various examples are given of gardens in this style, viz., the Versailles park and garden, as seen from the terrace in the year 1688; the garden of Boboli at Florence, in which there is much statuary, basins, terraces, shells, spouting nymphs, dolphins, &c., but with fine Cypresses and other pyramidal forms as contrasts to the great number of horizontal lines in the masonry. We have then several gardens, as at Schönbrunn at Vienna, Augnien in Belgium, illustrating gigantic topiary work, as seen in the immense walls of clipped trees. Of the natural style examples are given of a fine landscape with water at Guisard, in France—a rock scene at Mortefontaine. After describing the various styles, a historical account is given with a light hand of some celebrated Egyptian and other antique gardens, together with plans. The English style, which he acknowledges carried the palm against all other European styles during the last century, and after which model many celebrated gardens were renovated, is described in somewhat contemptuous terms. A lake or pool with Weeping Willows on the margin, the landscape strewn over with single trees, a little height with a summer-house, a milkhouse, a hermitage; but of

talent, invention, or originality, there was no trace. In the last chapters the author puts England in its proper place as the apostle of the true and improved methods of laying out a garden—giving Sydenham, the Royal Horticultural Society's Garden at South Kensington, the parterre at Kew, and the private pleasure grounds at Windsor Castle, as samples of good styles. The book will be of service to any one intending to lay out a garden architecturally, and who is in want of an authority to decide for him, because he at present hesitates between the two broadly-defined methods of treatment. But it will be thought that the places selected as illustrations of the modern English garden are unfortunately chosen, as these are examples that find small favour amongst ourselves, being at the present time thought formal and stiff.

## ORCHIDS FOR AMATEURS.

(Continued from p. 687, vol. xxii.)

ALTHOUGH it is very desirable to have Orchid-houses, those who have not such structures are by no means precluded from the enjoyment of growing Orchids. Many may be grown with great success in a warm greenhouse with other plants, others in an ordinary intermediate-house or stove. Orchids are for the most part only beautiful when in flower, so that many persons care nothing for them at other times. In a greenhouse or stove their want of foliage is not observed and their blossoms never look so well as when surrounded by other plants. Success, however, under these conditions can only be attained by attention to details and the judicious selection of the proper plants.

For purposes of cultivation Orchids may be well grouped in the following classes:—1. Alpine Orchids; 2. Cape Orchids; 3. Brazilian Orchids; 4. Insular Orchids; 5. Tropical Indian Orchids; 6. Temperate Orchids.

### 1. ALPINE ORCHIDS.

These plants come from the mountain ranges in the tropics; they are usually called "cool Orchids," and include in their number some of the loveliest plants in the world. The temperature necessary for their health is not a high one, indeed they will only flourish under cool treatment, but cool treatment may be carried too far. I believe, with plenty of sun and air, there is little need for fire-heat except during severe frosts; but in the neighbourhood of London, with dark, murky weather, fire-heat is, I find, very necessary in winter. These plants do not rest, but need to be kept growing constantly, with but a slight check when their year's growth is complete, to ripen the bulbs and encourage the formation of flowers. This is produced by giving less water for a few weeks, but they must never become dry or shrivelled. The *Masdevallias* have no bulbs, and therefore need water in abundance throughout the year. The following are well-known examples:—*Odontoglossums*, many *Oncidiums*, and *Masdevallias*.

### 2. CAPE ORCHIDS.

These are chiefly of little interest, except to botanists, with the exception of the remarkable *Disas*. They are terrestrial Orchids, that is, they grow in peat and sand. The distinction of terrestrial and epiphyte Orchids is not easily drawn. Most of the tropical species grow upon dead trees and branches, such are spoken of as epiphytes; others grow on the ground, or in sphagnum beds, and are called terrestrial, but as epiphytes often flourish on hollow stems, thrusting their roots into the vegetable mould which accumulates in them, the distinction is frequently of little value to the cultivator. Many *Cypripediums*, which are naturally epiphytes, succeed in cultivation as terrestrial Orchids, planted in peat and sand. I shall hereafter give rules drawn from the structure of the roots which I have found very useful. The *Disa* succeeds with Cape Heaths, and needs the same treatment. It is useless, I believe, to attempt its cultivation under other conditions.

### 3. BRAZILIAN ORCHIDS.

These are the *Cattleyas*, *Laelias*, *Miltonias*, *Pescatoreas*, &c., and are equally if not more magnificent than the *Dendrobiums*. They need both heat and moisture in the growing season and a mild equal temperature during the dull months of winter. Properly treated they are easy to grow. These plants are marked by some as "cool Orchids;" nothing is



more fallacious, they must have plenty of heat during their growth, and an atmosphere loaded with moisture. It is true they will live and grow with "cool treatment," but to expect these plants to produce flowers under such treatment is, I believe, futile. *Cattleya Mossiae* is a good plant for the amateur to try his hand on, as it is cheap, and a splendid result may be attained. I should recommend the following treatment to any one with a warm greenhouse. If a small "stove" can be utilised, so much the better. When the other plants are turned out put a few *Cattleyas* into the house and keep up a minimum temperature of 60°, and a maximum of 80°. Keep the paths and benches well watered, syringe the plants once or twice a day. Keep them growing until the house is wanted for the ordinary greenhouse plants. They will by that time have made fine bulbs, and will need rest. During the winter they will require a moderate supply of air, a temperature not under 45° or over 55°, and very little water. Such plants would undoubtedly flower in the spring as soon as the average temperature of the house rises to 60° or 65°. This should not be delayed beyond April, or the growing season will be shortened. They would flower earlier by one or two months under the same conditions as *Pelargoniums*. If a small stove could be utilised for them during the growing season they would be a magnificent addition to a conservatory. When in flower they may be kept at 50° or 55°, and will remain in splendid condition for a month or six weeks. Most of the Brazilian Orchids will flower under such treatment.

#### 4. INSULAR ORCHIDS.

Those from Moulmein and the Philippines come under this category. Such are the beautiful Moth Orchids and many *Cypripediums*. They need a constant temperature of from 60° to 65° or 70°, and 80° or 90° in sunny weather; and cannot stand the direct rays of the sun and need an abundance of moisture in the air. I find salt strewn on the floor under the pipes very conducive to the health of such plants. They are exceedingly easy to grow if not kept too hot, but must never get cold. One cold night, say under 40°, would be fatal to most of the Moth Orchids.

#### 5. INDIAN ORCHIDS.

The majority of the *Dendrobies* come under this head. The key to their growth is found in the impressive words of Lord Macaulay:—"In Calcutta we are boiled for four months, baked for four months, and have the remainder of the year to get over it as we can." It is possible to imitate these conditions artificially in the following manner. From the middle of March to the end of June you need a great command of fire-heat, and the house must be kept in a steam at a temperature of 75° to 80° or higher on bright sunny days. Do not let it go above 100° if you can help it, and give air when above 80°. During July and August you must bake your plants in the sun out-of-doors, and carry this treatment on until September is as far advanced as possible. I used to put my *Dendrobies* on the top of the furnace all last September when the sun was out. The stones on which they stood were quite warm to the hand from the fire beneath. During the baking they need just enough water to keep them from shrivelling. They must not be left out at night or in the rain. During the remainder of the year they need a genial warmth of 60° to 70°, and very little water until the flower-buds begin to form. They need a moist atmosphere at this time, but not one loaded with water. With such treatment I can confidently predict great success.

#### 6. TEMPERATE ORCHIDS.

I include under this head terrestrial Orchids from Europe and North America. There are also numerous glorious species in Australia, but they are little cultivated, as they are especially difficult to manage. I do not pretend to any special knowledge of their culture, but it is undoubtedly very difficult. The plants seem to die off in a year or two at most, and I believe that any one who could discover the proper treatment needful for success would if so disposed soon make a considerable fortune. *B. T. L.*

(To be continued.)

### SOURCES OF TIMBER SUPPLY.

At a meeting of the Society of Arts, in their rooms, John Street, Adelphi, on December 17, 1884, a paper on "Present and Prospective Sources of the Timber Supplies of Great Britain," was read by Mr. P. L. Simmonds. Sir Charles Tupper, C.B., High Commissioner for Canada, took the chair. In view of the diminishing supply of timber from nearly every foreign country, extended official inquiries, the lecturer said, were set on foot by the Colonial and Foreign Offices some six years ago, to ascertain how far we could depend upon our own possessions to supply our undoubted deficiencies at home. The information thus obtained, although useful to a certain degree, was very incomplete. The committee of the Edinburgh Forestry Exhibition invited essays on this subject, and the present paper was one of those rewarded. The immense importance of the extraneous supply of wood to this country was proved by the magnitude of our imports as shown in the Board of Trade returns for the last two years. These exceeded £18,000,000 in value, to say nothing of our home supply of wood, and other forest products, brought the total value to over £31,500,000. In 1883, out of 6,647,211 loads imported, only a little over 1,529,000 loads came from India and our colonies. According to the latest official returns the areas under woods and forests in the principal countries of Europe amounted to 726,829,119 acres. The great importance of North America for the future timber supply of the world might be deduced from the fact that Canada possessed almost 1,000,000,000 acres of timber lands, and the United States nearly as much. But the United States, judging by the declared value of her exports of timber, could not be looked upon for any continuous supply, the shipments for some few years past having become almost stationary at a little over £3,000,000 sterling in value. British India and the other parts of Asia, however, furnished useful supplies of wood, and would contribute more as the forests were more easily reached by rivers and roads.

The South American forests had as yet furnished but little timber to Europe, except small supplies from Mexico, Central America, and British Guiana. The magnificent forests of Brazil, with their large varieties of wood, had yet to be drawn upon, but at present were for the most inaccessible to the wants of commerce. Having referred to some of the more valuable woods of India and Australasia, calling attention especially to the little appreciated qualities of many kinds of timber growing in New South Wales, in Queensland, in Western Australia, and in New Zealand, he described some of the many beautiful varieties of woods suitable for furniture to be obtained in Jamaica and other dependencies of England, and remarked that the raw material at the disposal of joiners and cabinet makers was practically unlimited. All that was required was a little boldness and originality in seeking out and utilising new woods. In conclusion, he observed that it behoved all timber producing countries to husband their resources, and by judicious forestry regulations to prepare increased supplies for the future demands of the world. In the discussion which followed, Mr. Simpson showed specimens of Jarrah wood from Western Australia, which had been exposed to bush fires, and for many years to weathering and the attacks of insects in the ground and in water without suffering any injury. Mr. Cornish, confirming what had been said of the wonderful durability of Jarrah, mentioned that it was proposed to provide this wood for piles throughout the Suez Canal in order to prove its value for such purposes. Sir Charles Tupper, speaking of the vast resources of Canada in the forests to be found between Nova Scotia and British Columbia, said that, although they had not woods so enduring as Jarrah or as Teak, they had a great variety of woods valuable for other purposes. It was satisfactory to find that all the woods and timber we required could be procured from different parts of the British Empire.

**APPLES.**—The quantity of Apples imported into this country from various countries in 1882 amounted to 2,386,805 bushels, valued at £783,906. In 1883 the quantity was 2,251,925 bushels, the value being stated in the Agricultural Returns for 1884 as £553,488.



STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, DECEMBER 24, 1884.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 35 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 35 years.	Dew Point.	Degree of Humidity, Sat. = 100.		
Dec. 18.	In.	In.	°	°	°	°	°	°	%	S. S. E. W. S. W.	In.
18	29.59	-0.23	49.0	30.0	19.0	40.8	+0.6	35.8	83	S. S. E.	0.20
19	29.31	-0.52	45.5	37.0	8.5	41.8	+1.8	34.9	78	W. N. W.	0.00
20	29.08	-0.76	45.5	37.0	8.5	41.0	+1.3	34.2	77	W. N. W.	0.24
21	29.88	+0.03	41.2	37.0	4.2	38.4	-0.9	34.2	86	N. W. N. E.	0.00
22	30.04	+0.20	42.5	34.5	8.0	38.6	-0.2	33.4	82	N. E. N. E.	0.00
23	29.89	+0.04	39.0	35.0	4.0	36.7	-1.7	31.9	83	N. E. N. E.	0.02
24	29.94	+0.08	38.5	34.0	4.5	36.7	-1.5	32.6	85	N.	0.00
Mean	29.68	-0.17	43.0	34.9	8.1	39.1	-0.1	33.9	82	variable	0.46

Dec. 18.—Rain at times during the day, dark dull night.  
 19.—Very fine day, overcast at night.  
 20.—Heavy rain in early morning and nearly all day; strong wind at night.  
 21.—Fine day and night.  
 22.—Fine clear morning, dull afternoon and night.  
 23.—Dull day and night, slight rain in evening.  
 24.—Dull cold day.

**SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE** in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, December 22, 1884; issued by the Meteorological Office, 116, Victoria Street, London, S.W.:—The weather has been cloudy or dull generally, with somewhat frequent falls of rain, hail, or sleet. Thunderstorms occurred in some parts of central England on the 18th or 19th, and in many other places lightning was observed.

The temperature has been considerably lower than of late in all districts. In "England, N.E.," "England, E.," "England, S.," and the "Channel Islands" it has been about equal to the mean for the season, but in all other districts it has varied from 1° to 3° below. The maxima, which were registered at most stations on the 18th, ranged from 53° in "Ireland, S.," and the "Channel Islands" to 44° in "Scotland, E.," and 43° in "Scotland, N." The minima, which were recorded on various dates, ranged from 23° in "Ireland, N.," to 32° in "England, N.W.," and 36° in the "Channel Islands."

The rainfall has been rather less than the mean in "Scotland, N.," and the "Channel Islands," and about equal to it in "Scotland, E.," "England, N.E.," and "Ireland, S.," but in excess over all other districts.

**Bright Sunshine**, though more prevalent than it was last week, has still been very deficient, the percentages of the possible duration ranging from 2 in "England, N.E.," to 19 in "Scotland, W.," and to 24 in "England, S."

**Depressions Observed.**—During the earlier part of this period the barometer continued highest over France, and rather large cyclonic systems moved in a north-easterly or easterly direction to the northward of Scotland. The wind was consequently fresh or strong from between south and west, and occasionally reached the force of a gale—especially in the north and west. By 8 A.M. on the 20th, however, the centre of a new and deep depression, which had advanced rapidly from the west-north-westward, lay a little to the eastward of Yarmouth, producing violent gales from the westward or north-westward over our south-western coasts and the north and west of France, and moderate or fresh gales at most of our western stations and over the greater part of England. By the following morning the depression was disappearing over the Gulf of Genoa, the barometer in our islands had risen with unusual rapidity, and the gales had subsided. At the close of the period a large anticyclone, which stretched east-north-eastward from Ireland to the south of Sweden, had been formed, and the wind on our south-eastern and southern coasts had shifted to the north-eastward.

**POTATOS IN NEW YORK STATE.**—It is calculated in the Census report that in 1880 33,644,807 bushels were raised from 343,536 acres.



STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, DECEMBER 31, 1884.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEVIATIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 48 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 50 years.	Dew Point.		
1 Dec.	In.	In.	°	°	°	°	°	°	N.N.E.	In.
25	29.81	-0.06	39.1	33.6	5.5	36.1	-1.9	32.7	87	0.02
26	30.02	+0.04	38.0	33.5	4.5	34.9	-2.9	31.2	85	0.00
27	30.02	+0.13	37.0	33.5	3.5	35.6	-2.0	33.3	94	0.00
28	29.79	-0.11	37.0	35.0	2.0	35.9	-1.6	32.8	89	0.00
29	29.63	-0.27	37.0	34.0	3.0	35.3	-2.1	30.2	81	0.00
30	29.81	-0.09	36.0	30.0	6.0	32.9	-4.4	28.7	84	0.00
31	30.07	+0.17	40.0	27.5	12.5	36.6	-0.6	34.2	89	0.00
Mean	29.85	-0.03	37.7	34.4	5.3	35.3	-2.2	31.9	87	0.02

Dec. 25.—Sleet falling at 8 A.M. Fine bright morning. Overcast at night.  
 — 26.—Dull, cold day and night.  
 — 27.—Dull, cold day and night.  
 — 28.—Dull, cold day and night.  
 — 29.—Dull, cold day and night.  
 — 30.—Dull, cold day and night.  
 — 31.—Dull day. Fine moonlight night.

LONDON: Atmospheric Pressure.—During the week ending December 27, the reading of the barometer at the level of the sea increased from 29.66 inches at the beginning of the week to 30.22 inches by 9 A.M., decreased to 30.20 inches by 3 P.M., and increased to 30.22 inches by midnight on the 22d, decreased to 30.05 inches by midnight on the 23d, increased to 30.13 inches by 2 P.M. on the 24th, decreased to 29.94 inches by 3 P.M. on the 25th, increased to 30.10 inches by 9 A.M. on the 26th, decreased to 30.07 inches by 3 P.M. on the same day, increased to 30.24 inches by 9 A.M. on the 27th, and was 30.17 inches by the end of the week.

The mean reading of the barometer for the week was 30.11 inches, being 0.39 inch lower than last week, and 0.07 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 42° 5, on the 22d; the highest on the 27th was 37°. The mean of the seven high day temperatures was 39°.

The lowest temperature was 33° 5, on the 26th and 27th; on the 21st the lowest temperature was 37°. The mean of the seven low night temperatures was 34° 4.

The greatest range of temperature in one day was 8° on the 22d; the smallest was 3° 5 on the 27th. The mean of the seven daily ranges was 4° 7.

The mean temperatures were—on December 21, 38° 4; on the 22d, 38° 6; on the 23d, 36° 7; on the 24th, 36°; on the 25th, 36° 1; on the 26th, 34° 9; on the 27th, 35° 6; and these were all below their averages by 0° 9, 0° 2, 1° 7, 2° 2, 1° 9, 2° 9, and 2° respectively.

The mean temperature of the week was 36° 6, being 3° 7 lower than last week, and 1° 7 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 61°, on the 22d. The mean of the seven readings was 49° 2.

The lowest reading of a minimum thermometer with its bulb placed on grass was 24° 5, on the 22d. The mean of the seven readings was 26° 7.

Rain.—Rain fell on three days to the amount of 0.04 inch.

ENGLAND: Temperature.—During the week ending December 27 the highest temperatures were 48°, at Truro, 45° 2 at Plymouth, 43° at Leeds. The highest at Sheffield and Preston was 40°, at Wolverhampton and Bolton 40° 2. The general mean was 41° 9.

The lowest temperatures were 25°, at Sheffield, 25° 9 at Bolton, 27° at Leeds and Sunderland; the lowest at Blackheath was 33° 5, at Brighton 32°, at Plymouth 31° 5. The general mean was 29°.

The greatest ranges were 20°, at Truro, 16° at Leeds, and 15° at Sheffield and Sunderland; the smallest ranges were 9°, at Blackheath, 9° 3 at Brighton, 10° 5 at Bristol and Preston. The general mean was 12° 9.

The mean of the seven high day temperatures was highest at Plymouth, 42° 2, at Truro 42° 1, at Leeds 40° 7; and was lowest at Bolton, 37°, at Wolverhampton 37° 1, at Preston 37° 9. The general mean was 39°.

The mean of the seven low night temperatures was highest at Nottingham, 34° 8, at Blackheath 34° 4, at Plymouth 34° 3; and was lowest at Wolverhampton, 29° 3, at Bolton 29° 7, at Sunderland 30° 5. The general mean was 32° 4.

The mean daily range was greatest at Truro, 9° 7, at Plymouth 7° 9, at Wolverhampton 7° 8; and was least at Brighton and Blackheath, 4° 7, at Cambridge and Nottingham 5° 2. The general mean was 6° 6.

The mean temperature was highest at Plymouth, 38° 3, at Nottingham 37° 4, at Truro 37° 3; and was lowest at Wolverhampton, 33° 2, at Bolton 33° 3, at Sunderland 34° 4. The general mean was 35° 7.

Rain.—The largest falls were 0.76 inch at Hull, 0.14 inch at Truro, 0.13 inch at Sunderland; the smallest fall was 0.01 inch at Sheffield and Bradford. No rain fell at Bristol, Wolverhampton, Liverpool, Bolton, or Preston. The general mean fall was 0.09 inch.

SCOTLAND: Temperature.—During the week ending December 27, the highest temperature was 44°, at Leith; at Dundee the highest was 40° 4. The general mean was 42° 4.

The lowest temperature in the week was 20°, at Glasgow; at Aberdeen the lowest temperature was 28°. The general mean was 24° 6.

The mean temperature was highest at Leith, 35° 2; and lowest at Dundee, 31° 5. The general mean was 33° 8.

Rain.—The largest fall was 0.12 inch, at Aberdeen. No rain fell at Glasgow, Edinburgh, Greenock, Leith, or Paisley. The general mean fall was 0.02 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, December 29, 1884; issued by the Meteorological Office, 116, Victoria Street, London, S.W.—The weather has been cold and dull in all parts of the kingdom, with a good deal of mist or haze. Very little rain or snow, however, has fallen, and at many of the English stations there has been none at all.

The temperature has been about equal to the mean in "Scotland, N.," but below in all other districts; over the "Wheat producing" districts the deficit ranged from 3° to 4°, while in most of the "grazing" districts it varied from 5° to 7°. The maxima, which were recorded on different dates, varied from 49° in "Ireland, S.," to 41° in "England, E." Over central Ireland and the central and north-western parts of Eogland the maxima on some days were only a few degrees above the freezing point. The minima, which were registered on the 24th in Ireland and on various dates over Great Britain, were as low as 19° in "England, N.W.," 20° or 21° in Ireland, 22° in the east and west of Scotland, and between 25° and 30° in most other districts, while in the "Channel Islands" the thermometer did not fall below 33°. At Killarney the minimum (20°) was lower than any reading recorded since December 14, 1882.

The Rainfall has been considerably less than the mean in all districts.

Bright Sunshine has again been very deficient, the percentages of the possible number of hours varying from 14 in "England, S.W.," and 11 in "Scotland, E.," to between 4 and 8 in most other places, while in "England, N.E.," the weather was quite sunless.

Depressions Observed.—Beyond some large low-pressure systems far to the northward of our islands, and a smaller disturbance which was shown over the north-east of Spain on the 28th, no depressions of importance have appeared in our neighbourhood. The high-pressure band noticed at the close of last week has been established over the central parts of the United Kingdom and the North Sea, causing easterly or north-easterly winds in the south, southerly to westerly breezes in the north, and light variable airs over the intervening districts.

## Answers to Correspondents.

APPLE: W. & J. Brown. We have no knowledge of the fruit having reached this office.

CAMELLIA BUDS FALLING OFF: C. W. The young buds of the size of a marble seemed quite healthy and plump. These plants will frequently shed their buds when standing near the heating apparatus, the drier air there causing it; dryness at the root, induced by withholding water, or brought about by too much drainage; but in your case we are more inclined to attribute the failure to flower to be an inherent defect in the variety itself or the stock on which it is grafted.

DISQUALIFIED CHRYSANTHEMUM: C. P. "Large-flowering" would include specimens of any large-flowered class, unless certain varieties were distinctly disallowed in the schedule. There was a want of clearness in the wording, hence the unpleasant occurrence.

EUCHARIS: W. B. There are no indications of disease:

The plant appears, as do many others we have observed, to be suffering from unsuitable cultivation—from violent checks, and equally violent means to bring it into bloom; all indications of failing vigour being only hints to give doses of manure, when the plants really require rest and less exciting treatment. As a rule, the plants which grow under more natural modes of treatment suffer least, or not at all, from being grown artificially, as the life of a pot-plant really is.

NAMES OF FRUIT: A. V. Z., Drayton. Pears: 1, not recognised; 2, quite decayed; 3, Broom Park. Apples: 4, King of the Pippins; 5, Hambleton Deux-ans; 6, not recognised; 7, Tom Putt.

NAMES OF PLANTS: W. J. C. Eranthemum pulchellum.—A. R. L. Cymbidium sinense.—N. Langford. 1, Areca lutescens, Hyophorbe indica? 2, Coccoloba platycladon; 3, Tussilago fragrans.—H. Thompson. 1, Cyrtopodium longifolium; C. venustum.

ROSEY, OR ROSARY: Q. Whichever you please. Rosary is a more exact rendering of the Latin *rosarium*, but rosary is more consistent with the English language, and also avoids confusion with the string of beads also called a rosary. The Latins also used the word "rosetum," to signify a place where Roses are grown; so that "three courses are open to you," and each would be correct. What a happy state of things!

UNFRUITFUL ORCHARD: H. Hanson. As the ground is stiff and undrained, you ought to drain it, if you can get sufficient fall for the outlet drain, at 3½ to 4 feet deep, and 27 feet asunder, letting these follow the slope of the ground. Rubble drains are better than pipes where trees are to stand, as they do not get filled with roots nearly so readily as the latter. In filling in the drains turn the grass sod, if there is any, on the rubble first. In planting new trees, plant on broad hillocks or throw the orchard into "lands," as then the surface water will run off into the furrows. Work in straw manure, burnt earth, and lightening materials generally, and plough or dig in the autumn.

HOLLIES NOT BEARING BERRIES: C. Pocock. These shrubs are polygamous, frequently bearing male and female blooms on the same or on different specimens, or sometimes the flowers are hermaphrodite, so that



FIG. 8.—HOLLY BLOOMS, MALE AND FEMALE.

yours are probably all of one sex, most likely males. The little figures show their structural peculiarities, 4, 5, 8 being the male, 1, 2, 3, neuter, 6 and 7 the female.

## CATALOGUES RECEIVED.

Messrs. ALEX. DICKSON & SONS, Belfast—Vegetable and Flower Seeds.

Messrs. STUART & MEIN, Kelso—Amateur's Guide and Spring Catalogue.

Messrs. DANIELS BROS., Norwich—Illustrated Guide for Amateurs.

Messrs. SUTTON & SONS, Reading—Amateur's Guide in Horticulture.

Messrs. R. B. LAIRD & SONS, Edinburgh—Descriptive Catalogue of Garden, Flower, and Agricultural Seeds, Roots, &c.

J. C. WHEELER & SONS, Gloucester—Select Seed List, Farm Seeds, and Seed Potatoes.

DICKSON & ROBINSON, 12, Old Millgate, Manchester—Select Vegetable and Flower Seeds.

DICKSON, BROWN & TAIT, 43 and 45, Corporation Street, Manchester—Garden Seeds and Cultural Guide.

W. B. SMALE, Torquay, and Barton Nursery, St. Marychurch—Seeds.

C. SHARPE & CO., Sleaford—Seeds.

HARRISON & SONS, Leicester—General List of Seeds.

DICKSON & CO., Edinburgh—Garden Seeds.

W. LEIGHTON, 89, Union Street, Glasgow—Seeds, Implements, Requisites.

THOMAS METHVEN & SONS, Edinburgh—Garden, Flower and Agricultural Seeds.

COMMUNICATIONS RECEIVED.—D. Cleghorn.—Mr. Busk.—G. N.—D. Schestakoff, Ormsk, Siberia.—B., Lille.—H. G. Rchb. f., Hamburg.—T. M.—A. D.—H. G. Q.—R. W.—J. B. A., Christchurch, New Zealand.—W. Brockbank.—E. J.—A. D. W.—H. E.—M. D.—Lucien Linde, Ghent.—E. P. Gheert.—T. W.—P. L. S.—E. Bonavia, Etawah.—E. Jenkins.—W. Neillage.—A. Wallace.—R. D.—W. J. M.—E. S. G. W.—J. S.—T. B.—H. Watney.



## Enquiries.

"He that questioneth much shall learn much."—BACON.

BOTHY MEN IN MARKET GARDENS.—T. G. Cornwall writes as follows:—"Will any of your readers inform me, through the columns of your paper, what is customary for the master to provide for young men living in a bothy in a market garden?"

DRILL FOR GARDEN AND FARM.—Would our experienced readers inform "W. H. W." which is the best drill for both farm and garden purposes?

MARRIED.—On December 20, 1884, at St. Mary's, Bilton, Rev. WALTER A. MOBERLEY, son of the Lord Bishop of Salisbury, Vicar of the Church of the Ascension, Lewisham, to MARY A., daughter of Canon Ellacombe, Vicar of Bilton.

## Markets.

## COVENT GARDEN, January 1.

TRADE again quiet. All classes of goods heavy. James Webber, Wholesale Apple Market.

## FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, ½-sieve .. 1 6-4 0	Lemons, per case .. 12 0-18 0
— Nova Scotia and .. 1 6-4 0	Pine-apples, Eng., lb. 2 0-3 0
— Canadian, barrel 10 0-18 0	— St. Michael, each 3 0-7 0
Cobs, per 100 lb. .. 60 0-0 0	Pears, French, doz. 1 6-3 6
Grapes, per lb. .. 1 6-4 0	

## VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, .. 4 0-6 0	Horse Radish, bun. 3 0-4 0
Asparagus, English, per bundle .. 12 0-0 0	Lettuces, Cab., doz. 1 6-0 0
— French, bundle 0-24 0	— French Cos, each 0 6-0 0
Beans, French, lb. 1 0-0 0	Mint, green, bunch .. 1 6-0 0
Beet, per doz. .. 1 0-0 0	Mushrooms, p. basket 1 0-2 0
Cabbages, per doz. .. 1 6-2 0	Onions, per bushel .. 4 0-0 0
Carrots, per bun. .. 0 6-0 0	— Spring, per bun. 0 6-0 0
Cauliflowers, English, dozen .. 1 0-2 6	Parsley, per bunch .. 0 4-0 0
Celery, per root .. 0 4-0 0	Radishes, per doz. .. 1 0-0 0
Celery, per bundle .. 1 6-2 6	Rhubarb, bundle .. 0 8-0 0
Cucumbers, each .. 1 0-2 6	Salsify, per bund. .. 1 0-0 0
Endive, English, per dozen .. 1 0-0 0	Seakale, per punnet 2 0-2 6
Garlic, per lb. .. 0 6-0 0	Small salad, per punnet .. 0 4-0 0
Herbs, per bunch .. 0 2-0 4	Spinach, per bushel 2 0-0 0
	Tomatoes, per lb. .. 1 0-1 6
	Turnips, bun. .. 0 5-0 0

POTATOS.—Magnum Bonum, 40s. to 70s.; Regents, 70s. to 90s. Champions, 45s. to 60s. per ton. Markets have a downward tendency.

## PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-24 0	Ferns, in variety, per dozen .. 4 0-18 0
Arbor-vita (golden), per dozen .. 6 0-18 0	Ficus elastica, each 1 6-7 0
— (common), dozen 6 0-18 0	Foliage Plants, various, each .. 2 0-10 0
Arum Lilies, dozen 9 0-15 0	Hyacinths, per doz. 8 0-10 0
Azaleas, per dozen .. 18 0-42 0	— Roman, per pot 1 0-1 3
Begonias, per doz. .. 6 0-12 0	Marguerite Daisy, per dozen .. 8 0-15 0
Bouvardia, dozen .. 9 0-18 0	Myrtles, per doz. .. 6 0-12 0
Cinerarias, per doz. .. 9 0-12 0	Palm in variety, each .. 2 6-21 0
Cyclamens, per doz. 9 0-24 0	Pelargoniums, scarlet, per dozen .. 4 0-6 0
Cyperus, per dozen 4 0-12 0	Poinsettia, per doz. 9 0-15 0
Dracena terminalis, per dozen .. 30 0-60 0	Primula sinensis, per dozen .. 4 0-6 0
— virens, per doz. 12 0-24 0	Solanums, dozen .. 9 0-12 0
Epiphyllum, doz. .. 18 0-24 0	Tulips, dozen pots .. 8 0-10 0
Erica, various, doz. 9 0-18 0	
Eucyamus, various, per dozen .. 6 0-18 0	
Evergreens, in var., per dozen .. 6 0-24 0	

## CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilon, 12 bunches 2 0-4 0	Mignonette, 12 bun. 6 0-9 0
Arum Lilies, 12 blms. 6 0-9 0	Narcissus, Paper-white, 12 sprays .. 2 6-3 0
Azalea, 12 sprays .. 1 0-1 6	— French, 12 bun. 9 0-12 0
Bouvardias, per bun. 0 9-1 0	Pelargoniums, per 12 sprays .. 1 0-2 0
Camellias, per doz. .. 3 0-8 0	— scarlet, 12 sprays 0 6-0 9
Carnations, 12 blms. 1 0-2 0	Poinsettia, 12 blooms 3 0-9 0
Chrysanth., 12 bun. 12 0-24 0	Primula, double, bun. 1 0-1 6
— large, 12 blooms 1 6-4 0	— sinensis, 12 bun. 4 0-6 0
Cyclamen, 12 blooms 0 3-0 6	Roses (indoor), doz. 2 0-6 0
Epiphyllum, 12 blms. 0 4-0 6	— French, per doz. 0 9-1 6
Eucharis, per doz. .. 4 0-8 0	Stokesia, 12 blooms 1 0-0 0
Euphorbia jacquini-flora, 12 sprays .. 1 0-2 0	Tropaeolum, 12 bun. 1 0-2 0
Gardenias, 12 blms. 12 0-18 0	Tuberose, per doz. .. 2 0-4 0
Heliotropes, 12 sp. .. 0 6-1 0	Tulips, 12 blooms .. 1 0-1 6
Hyacinths, Roman, 12 sprays .. 1 0-1 6	Violets, 12 bun. .. 1 0-1 6
Lapageria, white, 12 blooms .. 2 0-3 0	— French, bunch .. 2 0-2 6
— red, 12 .. 2 0-3 0	— Pome., French, per bunch .. 5 0-7 0
Lily-of-the-Valley, 12 sprays 1 0-3 0	Wallflower, 12 bun. 4 0-6 0
Marguerites, 12 bun. 3 0-6 0	White Jasmine, per bunch .. 0 6-1 0

## SEEDS.

LONDON: Dec. 31, 1884.—There was scarcely any business doing on to-day's seed market, the attendance being small; as regards values, there is consequently no change to be noted. American red Clover-seed continues quite a dead letter, whilst the supply of English exceeds the demand. Spring Tares are neglected. Canary and Hemp seed sell slowly on former terms. Feeding Linseed is firmer. The colder weather tends to harden prices of Blue Peas and Haricot Beans. John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.

## CARTERS'



## IMPORTANT FACTS.

It is generally admitted that the Vegetable and Floral Novelties introduced of late years by Messrs. CARTER possess sterling qualities to a degree that finds few competitors. J. C. & Co. have only to refer to the splendid introductions Stratagem, Telephone, and Pride of the Market Peas, Leviathan Beans, Heartwell Cabbage, Model Cucumber, Leckham Favourite Tomato, &c., to confirm the statement, and it is a notable fact that Messrs. Carters' Novelties, unlike many others, do not fade from public favour, but are generally recognised as necessary in every garden, whether for Exhibition or for the table.

## The Champion Peas of the World

	Per pint.	Post-free.
CARTERS' STRATAGEM ..	2s. 6d.	3s. 0d.
CARTERS' TELEPHONE ..	2s. 0d.	2s. 6d.
CARTERS' PRIDE OF THE MARKET ..	2s. 0d.	2s. 6d.

## Opinion of Recognised Authorities.

The finest Peas in cultivation.—A. F. BARRON.  
The finest I have ever seen.—D. T. FISH.  
Excellent for Exhibition.—G. T. MILES.  
Stratagem is a gem.—R. GILBERT.  
The best ever sent out.—J. MARRIOTT.

## Broccoli—Carters' Pyramid.

The perfection of Sprouting Broccoli.  
In sealed packets, 1s. 6d. and 2s. 6d., post-free.

## Cabbage—Carters' Prizetaker.

A distinct variety with a white heart.  
In sealed packets, 1s., post-free.

## Celery—White Plume.

A beautiful variegated variety.  
In sealed packets, 1s. and 2s. 6d., post-free.

## Onion—Carters' Crimson Vesuvius

A desirable addition to the exhibition group.  
In sealed packets, 1s. 6d. and 2s. 6d., post-free.

## Tomato—King Humbert.

A distinct and novel variety.  
In sealed packets, 1s. and 2s., post-free.

## Tomato—Carters' Perfection.

Awarded 1st Prize Royal Horticultural Society, 1884.  
In sealed packets, 2s. 6d., post-free.

## Broad Bean—Carters' Leviathan.

Pods 2½ inches long.  
Per pint, 2s.; post-free, 2s. 6d.

## Runner—Carters' Holborn Master-piece.

The best White Runner.  
Price, per pint, 2s.; post-free, 2s. 6d.

## Kale—Carters' New Welsh.

A distinct and superior variety.  
In sealed packets, 1s. 6d., post-free.

**Carters'**

Seedsman by Royal Warrant to His Royal Highness the PRINCE OF WALES,

237 High Holborn, London, W.C.

## WM. CLIBRAN &amp; SON'S

## New Catalogue for Autumn, 1884.

Of the finest Bulbs, Roses, Fruit Trees, Herbaceous Plants, Stove and Greenhouse Plants, Trees, and Shrubs.

## BULBS for INDOOR.

HYACINTHS, choice quality, 6s. per dozen.  
TULIPS, the best for forcing, 1s. and 1s. 6d. per dozen, 7s. to 10s. per 100.  
POLYANTHUS NARCISSUS, to name, 1s. 6d. per dozen.  
SPIRÆAS, DIELYTRAS, DEUTZIAS, LILY of the VALLEY, MISCELLANEOUS BULBS in great variety, very moderate prices. See CATALOGUE.

## PLANTS for INDOORS.

CHRYSANTHEMUMS, 6 and 7 inch pots, to bloom this season, 9s. and 12s. per dozen.  
PRIMULAS and CINCERARIAS, 6s. per dozen.  
CYCLAMEN, BOUARDIAS, SOLANUMS, TREE CARNATIONS, 12s. and 18s. per dozen.  
ERICAS, EPACRIS, AZALEAS (Irish, Ghent, or Mollis), ROSSES, in pots, for forcing, 18s. and 24s. per dozen.  
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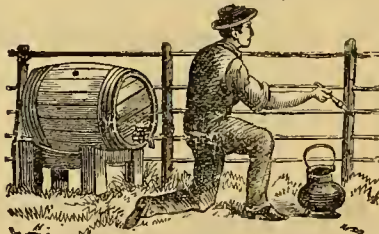
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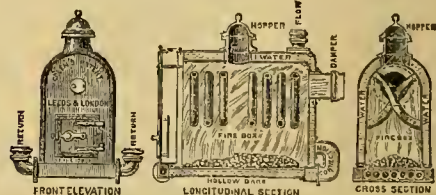
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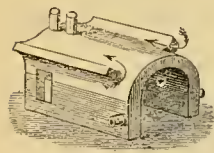
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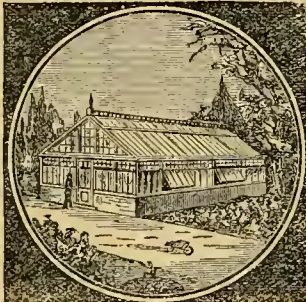
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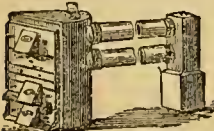
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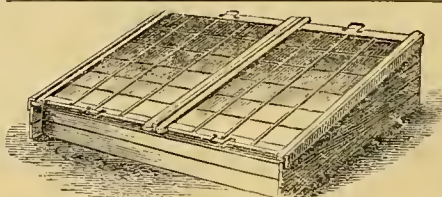


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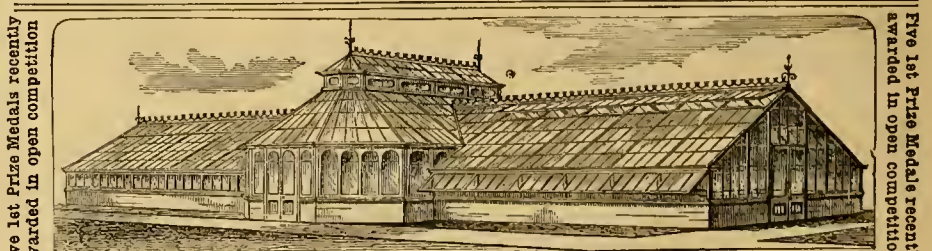
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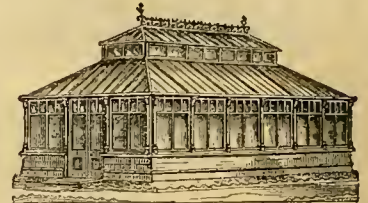
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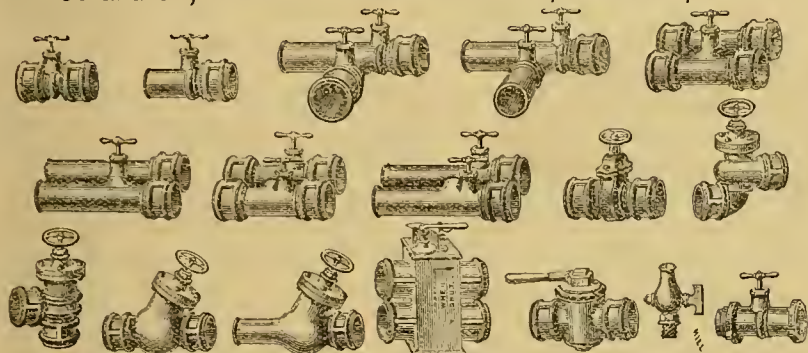
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" Mossiae, 5s., 7s. 6d., to ..	10 6	" hastilabium, 7s. 6d., to ..	10 6	" Harrisonianum, flowers pure white, deliciously fragrant ..	21 0
" Skinneri .. ..	10 6	" Halli, 7s. 6d., 10s. 6d. to ..	21 0	" intermedium, 15s. to ..	21 0
" Schilleriana (Regnellii), 10s. 6d., to ..	21 0	" Lindleyanum .. ..	2 6	" violaceum, 21s. to ..	31 6
" speciosissima, 2s. 6d., 5s., 7s. 6d., to ..	10 6	" luteo purpureum, 5s. to ..	10 6	SCUTICARIA Hadweni .. ..	21 0
" superba splendens, 5s. to ..	10 6	" maculatum, 7s. 6d. to ..	10 6	SOPHRONITES grandiflora, 5s. to ..	7 6
" Trianae (Warscewiczii), can be offered by the thousand, an immense number with flower sheaths: 2s. 6d., 5s., 7s. 6d., 10s. 6d., 15s. to ..	84 0	" madresne, 7s. 6d. to ..	15 0	" coccinea, 5s. to ..	7 6
CELOGYNE cristata, 7s. 6d. to ..	42 0	" nebulosum, 7s. 6d. to ..	15 0	STANHOPEA, in variety, 10s. 6d. to ..	21 0
" Lowi (asperata) .. ..	10 6	" Crested, 3s. 6d., 5s. to ..	7 6	" Thunia (Phaius) alba, 5s. to ..	7 6
COLAX jugosus .. ..	5 0	" Pescatorei, 3s. 6d., 5s., 7s. 6d. to ..	21 0	" Bensoni, 7s. 6d. to ..	10 6
CYMBIDIUM eburneum, 7s. 6d. to ..	10 6	" extra size, 31s. 6d. to ..	43 0	" Marshalli .. ..	5 0
" giganteum .. ..	21 0	Very many thousands of this lovely Orchid are in stock, and in addition to sizes above quoted, small plants can be offered at 4s., 4s. 7d. 10s. and 1s. 10s. per 100.		TRICHOPIA coccinea, 2s. 6d., 5s., 7s. 6d., to ..	7 6
" Lowianum .. ..	21 0	" pulchellum, Guatemala vars., 2s. 6d., 3s. 6d., 5s. to ..	7 6	" suavis, 3s. 6d., 5s. to ..	7 6
" Mastersii, 7s. 6d. to ..	10 6	" Roezlii, 5s., 7s. 6d. to ..	10 6	" tortilis .. ..	7 6
CYPRIPEDIUM Argus, 5s. to ..	7 6	" extra size, 15s. to ..	21 0	TRICHOSMA suavis .. ..	15 0
" barbatum, 2s. 6d., to ..	10 6	" album, 7s. 6d. to ..	15 0	VANDA Batemanii, 10s. 6d., 21s. to ..	42 0
" Boxalli, 3s. 6d., 5s., 7s. 6d., to ..	10 6	" Roseni, 5s. to ..	7 6	" Boxalli, 7s. 6d., 10s. 6d., to ..	15 0
" Bullenii, 2s. 6d., 3s. 6d., to ..	5 0	" Rossi, 2s. 6d., 3s. 6d., 5s. to ..	7 0	" Cathcarti, 3s. 6d. to ..	42 0
" caudatum, 15s. to ..	21 0	" tripudians, 7s. 6d. to ..	21 0	" cerulea, 7s. 6d., 10s. 6d., 15s. to ..	21 0
		" triumphans, 7s. 6d. to ..	21 0	" cocculescens, 10s. 6d., 15s., 21s. to ..	42 0
		" Uro-Skinneri .. ..	7 6	" Denissoniana, 7s. 6d., 10s. 6d., 15s., 21s. to ..	42 0
		" vexillarium, 7s. 6d., 10s. 6d., to ..	21 0	" gigantea, 10s. 6d. to ..	15 0
		" rubellum autumn flowering var., 5s., 7s. 6d. to ..	21 0	" Hookeri, 3s. 6d. to ..	42 0
		ONCIDIUM ampliatum majus .. ..	10 6	" insignis, true, 21s. to ..	42 0
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		" crispum, 5s., 7s. 6d. to ..	15 0	" Sanderiana, 21s. to ..	21 0
		" cucullatum, 7s. 6d., 5s. to ..	7 6	" extra-sized fine specimens are in stock, price on application.	
		" dasyle, 5s. to ..	7 6	" teres, 7s. 6d., 15s. to ..	21 0
		" Forbesi, 5s., 7s. 6d., to ..	7 6	" tricolor, 15s. to ..	42 0
		" Krameri, 7s. 6d., 10s. 6d. to ..	21 0	WARREA tricolor .. ..	15 0
		" Lacraeum, 7s. 6d., to ..	10 6	ZYGOPETALUM eritimum, 10s. 6d., to ..	21 0
				" Mackayi, 7s. 6d., 10s. 6d., to ..	21 0
				" maxillare, 10s. 6d., 15s. to ..	42 0

Collections, comprising 12, 25, 50, or 100 Species and Varieties, can be supplied on very reasonable terms.

12 Choice Showy Orchids, 21s. to 70s.

50 Choice Showy Orchids, £10 to £20.

SELECTION LEFT TO H. L. AND CO.

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# THE GARDENERS' CHRONICLE.

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## NOTICE TO SUBSCRIBERS AND OTHERS.

Post-office Orders and Postal Orders should be made payable at  
**DRURY LANE.**

## ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.

NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M., in the Conservatory; Scientific at 1 P.M., in the Library. GENERAL MEETING for the Election of Fellows, at 3 P.M., on TUESDAY NEXT, January 13.

N.B.—Entrance, N.E. Orchard House, Exhibition Road; and Exhibitors' Entrance west side of Royal Albert Hall.

## THE BATH ROSE SHOW

will be held on THURSDAY, July 2. Prize Schedules for the BATH BULB SHOW, to be held WEDNESDAY and THURSDAY, March 25 and 26, are now ready.

14, Milk-street, Bath. BENJAMIN PEARSON, Secretary.

## THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE IS HEREBY GIVEN, that the ANNUAL GENERAL MEETING of the Members of this Society will be held at the Bedford Hotel, Covent Garden, on WEDNESDAY, the 14th of January next, for the purpose of receiving the REPORT of the COMMITTEE and the ACCOUNTS of the Institution for the present year, and Electing Officers for the ensuing year; also for the ELECTION of SIX PENSIONERS on the funds. The Chair will be taken at 4 o'clock precisely, and the Ballot will close at 7 o'clock precisely.—By order,

EDWARD R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden, December 30, 1884.

P.S. The Voting Papers have all been issued, and Subscribers not having received one are requested to make immediate application to the Secretary.

## HARDY GROWN FOREST TREES

from the North of Scotland. A large stock of seedling and transplanted Forest Trees, &c, cheap. Write for quotations and samples.

W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

## GOOSEBERRY TREES and Carter's Prolific RASPBERRY.

Strong 2-yr. and 3-yr. old Lancashire Lad and Raspberry Canes for Sale. Apply to

W. WARREN, Worton Gardens, Isleworth, W.

## GRAPE VINES, strong Fruiting and Planting Canes; also STRAWBERRIES in pots. LIST on application.

FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey.

## ASPARAGUS ROOTS (Harwood's Giant).

Very strong and fit for abundant produce the first season; per 100, 7s. 6d.; extra, immense roots, per 100, 10s. 6d.

HOOPER AND CO., Covent Garden, London, W.C.

## SAGE PLANTS, 1s. 6d. per dozen. Order of

R. BATH, Crayford, Kent.

**ERRATUM.**—In Messrs. HUGH LOW & CO.'s Page Advertisement of ORCHIDS in last Saturday's *Gardeners' Chronicle*, for O. Alexandria, 21s. to 21s., read 21s. to 210s.

**Trade List of Home-grown Seeds.**  
**CHARLES SHARPE AND CO.'S Wholesale CATALOGUE** of Seeds is now ready, and will be forwarded, post-free, on application.  
**CHARLES SHARPE AND CO., Seed Merchants and Growers, Sleaford.**

**LILIAM KRAMERI.**—Good flowering Bulbs of this handsome and scarce Lily can now be supplied by the dozen or hundred.  
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

**Wholesale Seed Catalogues.**  
**HURST AND SON** beg to intimate that their New Trade CATALOGUES have been Posted to all their Customers. Any whom they may not have reached will oblige by informing them, and other copies will be at once sent.  
152, Houndsditch, London, E.

**CHESTNUT (Spanish), Larch, Hazel, Ash, Birch, Willow, Oak, and Thorn Quick.** Stout, well-rooted, transplanted. A large quantity to be sold.  
**GEO. CHORLEY, Coaster's Nursery, Midhurst.**

**Hyacinthus candicans.**  
**BUDDENBORG BROS., BULB GROWERS,** Hillegom, near Haarlem, Holland, offer the above, splendid white flowering bulb, at 50s. per 1000.

**ROSES.**—The finest Show and Decorative varieties, strong, robust, hardly grown plants. Dwarfs, from 6s. per dozen, 45s. per 100 and upwards. Standards, from 12s. per dozen, 90s. per 100 and upwards. Many thousands to select from.  
**JAMES DICKSON & SONS, "Newton" Nurseries, Chester.**

**NEW CHRYSANTHEMUMS.**—Orders are now being booked for the New Varieties of 1884 at 10s. per doz.; Cuttings, 1883 Varieties, 4s. per doz.; best Old Varieties, 1s. 6d. per doz., my selection. Post-free for P.O. CATALOGUE one stamp.—**R. GWEN, Floral Nurseries, Maidenhead.**

**GENUINE SEEDS.**—General CATALOGUE of Kitchen Garden, Flower, and Agricultural Seeds, Plants, Roses, Vines, &c., Implements, Garden Requisites, &c., is now ready. Free to Customers.  
**LAING AND CO., Stanstead Park, Forest Hill, S.E.**

**Garden Flower Seeds, and Spring Bulbs.**

**G. VAN TUBERGEN, Jun., BULB GROWER and SEEDSMAN,** Haarlem, Holland, begs to announce that his CATALOGUE of the above is now ready, and may be had free on application to  
Messrs. R. SILBERRAD and SON, 25, Savage Gardens, London, E.C.

**To Nurserymen, Private Growers, &c.**  
**A. CATTANEO, COMMISSION SALESMAN,** 44, Hart Street, and New Flower Market, Covent Garden, W.C., is open to RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS in quantities. Terms on application.

**SQUELCH AND BARNHAM,** Long Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatos, Cucumbers, choice Flowers, &c.

**SQUELCH AND BARNHAM,** giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

**SQUELCH AND BARNHAM.** ACCOUNT SALES sent daily, and CHEQUES forwarded weekly.  
**BANKERS and TRADE REFERENCES.** BASKETS and LABELS supplied.

**WISE AND RIDES, Covent Garden, W.C.,** beg to inform Senders that GARDENIAS, EUCHARIS, and STEPHANOTIS are in demand.

**WISE AND RIDES, Covent Garden, W.C.,** have now a demand for Tuberoses, Arum Lilies, White Bouvardias, good Roses, Chrysanthemums, &c.

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**NEUMAN AND CORNISH, Portman Floral Hall, 29, Orchard Street, Portman Square, London, W.**

**WANTED, 300 common HOLLIES, 3 feet, not particular, bushy, cheap.** 10,000 MANETTI STOCKS for Sale, 20s. per 1000.  
**F. BIBLE, Downby, Beckenham, Kent.**

**WANTED, Two ORANGE TREES, 8 to 10 feet high, well furnished.** State price, &c., to  
**THOMAS BURY, Arley Nurseries, Mellor, near Blackburn.**

**WANTED, Three large, trained, Pine-apple NECTARINES.** State size and price to  
**THE LIVERPOOL HORTICULTURAL CO. (JOHN COWAN), Limited, The Vineyard, Garston, Liverpool.**

**STOLEN.**—A number of ADDRESSED COPIES of CARTER'S CATALOGUE of GARDEN SEEDS for 1885, having been STOLEN from their Warehouse, Messrs. Carter & Co., respectfully ask those Customers who have not received the book to communicate to them, in order that a fresh copy may be posted.

**JAMES CARTER AND CO., Seedsmen, by Royal Warrant, to H.R.H. the Prince of Wales, 237 and 238, High Holborn, London, W.C.**

**Expiration of Lease.**  
**SEVEN ACRES of NURSERY, containing a VALUABLE STOCK,** continues to be offered at a nominal price. The lease cannot be renewed.  
See **CHARLES NOBLE'S** full Advertisement, *Gardeners' Chronicle*, January 3 and 17.

**GLADIOLI.**—Twenty Acres. The largest collection in Europe. CATALOGUES free, with Cultural Directions.  
**KELWAV AND SON, Langport, Somerset.**

**NOVELTIES and SPECIALITIES for 1885,** in Flower and Vegetable Seeds. See **BARR AND SON'S** Descriptive Spring CATALOGUE, just published. Free on application.  
**BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.**

**Tea Roses.**  
**THE LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited,** have this season a grand stock of TEA ROSES in pots. Their plants have been carefully ripened, and are ready to start immediately into growth. CATALOGUES free. The Trade supplied.

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

**LILIAM AURATUM.**—Good, plump, sound Bulbs, 6s., 9s., 12s., 18s., and 24s. per dozen; extra strong, 30s. and 42s. per dozen. All other good LILIES at equally low prices.  
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

**LILIAM AURATUM.**—Special Offer.—Good sound dry BULBS, 4 to 6 inches in circumference, 4s. per dozen, 28s. per 100. Cheapest for quality ever offered. Samples twice stamps.  
Messrs. **MORLE AND CO., 1 and 2, and 162, Fenchurch Street, E.C.**

**Freesia refracta alba,**  
**HURST AND SON** have to offer a fine stock of above beautiful Cape Bulbs, just received from South Africa.  
Lowest Price to the Trade on application.  
152, Houndsditch, London, E.

**MARTIN GRASHOFF, Quedlinburgh, Prussia.** My Wholesale Trade CATALOGUE of Agricultural, Vegetable, and Garden Flower Seeds, &c., with divers Floral Novelties, is to be had gratis on application.

**STRONG MANETTI STOCKS,** fit for immediate working, at unusually low prices; &c.  
**A. M. C. JONGKINDT CONINCK, Dedeinsvaart, by Zwolle, Holland.**

**LARCH.—LARCH.—LARCH.**—Special cheap offer, to clear ground. From 3 feet upwards at very low prices; also other FOREST TREES.  
**GEO. CHORLEY, Coaster's Nursery, Midhurst.**

**Grape Vines.**  
**THE LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited,** have this season a grand stock of Grape Vines, suitable for Fruiting in Pots and Planting in Vines. CATALOGUES free on application. The Trade supplied.  
The Vineyard and Nurseries, Garston, Liverpool.

**HERBACEOUS and ALPINE PLANTS.**—Now is the season to plant and insure success. Write for **R. H. VERTEGANS' Pocket CATALOGUE**, and make your choice from his unrivalled Collection.  
**Chad Valley Nurseries, Edgbaston, Birmingham.**

**Johnston's St. Martin's Rhubarb.**  
**EARLIEST and BEST in CULTIVATION.** Strong Roots, 1s. each, 9s. per dozen. Trade price on application.  
**W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.**

**BRUSSELS SPROUTS, MAY'S NORTHAW PRIZE,** the variety that has been successfully exhibited by him and admired. Seed direct from the grower, 1s. 6d. per packet. Cheaper to the Trade.  
**J. MAY, The Gardens, Northaw, Barnet, Herts.**

**LOVEL'S STRAWBERRY PLANTS.**—GREENHOUSE, 5s. per 100, 40s. per 1000. GARDEN, 2s. 6d. per 100, 20s. per 1000. Sample and Pamphlet, post free, 4d.  
**W. LOVEL AND SON, Strawberry Growers, Driffeld.**

**SEAKALE and ASPARAGUS.** Crowns for Forcing. Apply to  
**WILLIAM BAGLEY, Miltshot Farm, Fulham, S.W.**



## SALES BY AUCTION.

Monday Next.—(Sale No. 6816.)

IMMENSE IMPORTATIONS OF LILIES, SEEDS, &c.  
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, January 12, at half-past 12 o'clock precisely, an importation of 8000 LILIIUM AURATUM, just received from Japan in the finest possible condition; 1600 LILIIUM TENUIFOLIUM, from America; 5000 TUBEROSAS, from South Africa; 12,000 grammes of fresh collected MEXICAN SEEDS, consisting of Cupressus, Pinus, Taxodium, Ceanothus, Arbutus, Bocconia, Yucca, a quantity of the beautiful FOURCROYA BEDINGHOUSI, a splendid decorative plant; BEAUCARNEA RECURVATA, &c.; also 1000 bulbs of MILLA BIFLORA, 3000 fine imported LILY of the VALLEY crowns, 1000 Home-grown LILIES, in variety; and a large quantity of Miscellaneous PLANTS and BULBS.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6818.)

ROSES, BORDER PLANTS, BULBS, &c.  
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, January 14, at half-past 12 o'clock precisely, first-class Standard and Dwarf ROSES, finest varieties to name: CARNATIONS, PICO-TEES, PINKS, and other BORDER PLANTS; GOOSEBERRIES, RASPBERRY CANES, LILIES, GLADIOLI, and a quantity of miscellaneous HARDY ROOTS and BULBS.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6819.)

MOST VALUABLE IMPORTATIONS.  
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, January 15, at half-past 12 o'clock precisely, by order of Mr. F. Sander, grand importations of two YANDAS and two AERIDES, from a new island; a superb lot of the magnificent ONCIDIUM PHALENOPSIS (the plant in flower will show what a beautiful new introduction this is); many ODONTOGLOSSUM KLABOCHIANUM (rubellum), the dark autumn-flowering variety; O. ROEZLI, ONCIDIUM PAPILLO, PESCATOREA WALLISI, PAPHINIA RUGOSA, SACCOLABUM VIOLACEUM, many CATTLEYS, ODONTOGLOSSUMS, and other ORCHIDS, the whole in specially fine healthy condition.

On view morning of Sale, and Catalogues had.

Wednesday Next.

10,000 very fine bulbs of LILIIUM AURATUM, just received from Japan in splendid condition, 1000 hardy English grown LILIES, comprising the best varieties in cultivation; 2000 Berlin crowns of LILY of the VALLEY, 400 Standard and other ROSES of the best sorts from an English nursery, 10,000 double African TUBEROSAS, 1000 TIGRIDIAS, 1000 MILLA BIFLORA, CARNATIONS, PINKS, and an assortment of Hardy Plants and Bulbs.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, January 14, at half-past 12 o'clock precisely.

On view morning of Sales and Catalogues had.

Wednesday Next.—10,000 Liliun auratum.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, January 14, 10,000 very fine bulbs of LILIIUM AURATUM, just arrived from Japan, in splendid condition.

Fulham, S.W.

In the High Court of Justice, Chancery Division. *Re* The General Horticultural Company (John Wills) Limited.

UNRESERVED CLEAANCE SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Nursery, Fulham Palace Road, Fulham, S.W. (close to Hammersmith Station), on THURSDAY, January 15, at 12 o'clock precisely, by order of the Hon. Mr. Justice Chitty, the Judge to whose Court the matter is attached, the erections of Twelve GREENHOUSES, containing together about 20,000 feet super of GLASS and WOODWORK, span-roof SHOW HOUSES, 5000 feet run of 4-inch hot-water PIPING, 1200 feet of 3 and 4-inch, thousands of good BRICKS, SLATE, SLAB, and WOOD STAGING, GUTTERING, Two BOILERS, and other items.

On view two days prior to the Sale. Catalogues had on the Premises, of Mr. A. TOOVEY, Solicitor, 18, Orchard Street, W.; of F. WHINNEY, Esq., Chartered Accountant, 8, Old Jewry, E.C.; and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

Friday Next.

ESTABLISHED IMPORTED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, January 16, at half-past 12 o'clock precisely, Six cases of ODONTOGLOSSUMS received direct from Columbia, about 600 plants; imported DENDROBIUMS and other ORCHIDS from India, together with about 200 lots of ESTABLISHED ORCHIDS from well known Collections, several of them in flower, including Odontoglossum Ruckerianum, O. Bictoneense album, and many other rare and valuable species.

On view morning of Sale, and Catalogues had.

Wood Green, N.

ALTERATION of DATE to TUESDAY, January 27.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Vineries, Nightingale Road, Wood Green, N., on TUESDAY, January 27, by order of the Proprietor, who is relinquishing the business, the whole of the STOCK in TRADE, including 10,000 Maidenhair Ferns in various sized pots, Carts, Pots, &c. The valuable FREEHOLD NURSERY (comprising an acre of ground, Five large GREENHOUSES and several PITS, all heated upon modern principles, SHEED and DWELING-HOUSE), is FOR SALE, upon moderate terms.

Full particulars of the Auctioneers.

Flowering Orchids.

MESSRS. PROTHEROE AND MORRIS beg to announce that their NEXT SPECIAL SALE of ORCHIDS IN FLOWER will take place on TUESDAY, January 27, and they will be glad to receive notice of Entries as soon as possible.

Saturday, January 17.

SALE of 200 Dwarf-trained FRUIT TREES, 50 Pyramidal PEACH, CHERRY, APRICOT, NECTARINE, PLUM, APPLE, and PEAR TREES, Standard QUINCES, 300 Dwarf and Standard ROSES, IXIAS, and SPARAXIS bulbs, EUONYMUS, and a variety of SHRUBS and PLANTS.

MESSRS. PEED AND GREAVES, HORTICULTURAL AUCTIONEERS, will SELL the above by AUCTION, without reserve, on SATURDAY, January 17, at 12 for 1 o'clock precisely, at the Brixton Auction Rooms, Loughborough Road, Brixton.

Catalogues of the Auctioneers, Loughborough Road Brixton, London, S.W.

NEXT SALE, JANUARY 31.

WANTED, TO RENT, a few GREENHOUSES, with Ground attached, within a radius of 10 or 12 miles of Covent Garden, or even nearer preferred.—C. FLORIST, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

WANTED, TO RENT, a COTTAGE with about an Acre of Land, also Glass suitable for a Florist. Address Z., Florist, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Lee.

TO BE SOLD, a very compact LEASEHOLD PROPERTY, consisting of Dwelling-house, about 1/2 Acre of Land, and 4 Greenhouses, in the occupation of a Florist and Gardener, at the annual Rent of £50 per annum, held on Lease for a long term at a Ground Rent of £11 10s. Possession can be obtained at March next.

Further particulars may be had of Mr. JOSEPH HIBBERD, Surveyor and Auctioneer, 14, Newington Green, London, N.

The Old Sydenham Nursery, Sydenham, S.E.

TO BE SOLD, owing to the sudden death of the Proprietor, the LEASE and GOODWILL, consisting of good House and Shop, 6 Glass Houses and Stock, Heating Apparatus, &c., all in working order. No reasonable offer refused.

For particulars, apply on the premises, Kirkdale, Sydenham.

TO BE DISPOSED OF, a First-class

FLORIST, SEED, and JOBBING BUSINESS, in a main thoroughfare, about 7 miles from London, all in good working order.

Address L., Nurseryman, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

A Rare Opportunity for Nurserymen.

TO BE SOLD, by Private Treaty, owing to the death of the owner, ELM GROVE NURSERY, Newry, Ireland. These well known Nurseries are at present well stocked, and for nearly fifty years the proprietors (Messrs. M. Grant & Co.) carried on a splendid business.

For particulars apply to THOS. J. MARRON, Solicitor, Newry, Co. Down.

FOR SALE, a Small NURSERY, doing a good business; 1200 yards of land, about 2500 feet of Glass. The best stand in Hull.

Apply, J. H. ELSOM, Nurseryman, Cave Street, Hull.

Gardeners—Practical.

TO LET, a well-established NURSERY BUSINESS, Glass, and 10 acres of Arable and Grass-Land, partly planted—Roses, Plums, and Berries. Good family residence. Excellent living. Ill health causes owner to retire. Valuation in Pot Plants, Roses, &c., about £150.

Apply W. BELL, The Poplars, Sutton-on-Trent.

JOHN KENNARD'S HORTICULTURAL SUNDRIES, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

T. MILLINGTON AND CO., ENGLISH and FOREIGN SHEET and PLATE GLASS, WHITE LEAD, MILLED LEAD, OILS, and COLOUR MERCHANTS, 43, Commercial Street, E.

STEPHEN BROWN, deceased.—Pursuant to Statute 22 & 23 Victoria, caput 35, NOTICE IS HEREBY GIVEN that all persons having any CLAIM AGAINST THE ESTATE OF STEPHEN BROWN, late of Weston-super-Mare, in the county of Somerset, Seedsman, Nurseryman, and Florist, who died on the 25th day of November, 1884, and whose Will was proved on the 16th day of December, 1884, in the District Registry attached to the Probate Division of Her Majesty's High Court of Justice at Wells, are requested to SEND IN WRITING THE PARTICULARS of THEIR CLAIMS to the undersigned on or before the 31st day of JANUARY, 1885, after which date the said Executor will distribute the assets of the said deceased, having regard only to the Claims of which he shall have had notice.

WM. SMITH, Weston-super-Mare, Solicitor to the Executor.

Dated this 18th day of December, 1884.

## CANNELL'S



Has been posted to all customers. Should any have miscarried please to intimate the same. It is much improved, and so is our stock. The world knows that we grow nothing but Flowers and their Seeds, and all can therefore understand how well we supply them.

THE HOME FOR FLOWERS,  
SWANLEY KENT.

Orchids.

THE LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, have at present a grand stock of DENDROBIUMS, in variety, and other East Indian ORCHIDS, also CATTLEYS and other valuable ORCHIDS from South America, and they are constantly receiving fresh importations. Price LISTS and full particulars on application.

The MANAGER, The Vineyard and Nurseries, Garston, Liverpool.

EAST LOTHIAN STOCKS.

THOMAS METHVEN AND SONS offer their choice strain of the above Intermediate Stocks in five colours—Scarlet, Purple, White, Crimson, and Snow-white, well-leaved, in packets, 1s., 2s. 6d. and 5s. each colour. Price to the Trade on application.

15, Princes Street, Edinburgh.

HARRISON AND SONS

Royal Nurseries, Leicester, have to offer:—10,000 Strong GOOSEBERRIES, mostly Warringtons. 6,000 IVIES, mostly Irish. 7,000 POPLARS, 6 to 12 feet. 1,000 Standard Horse CHESTNUTS, fine. 20,000 Bushy Evergreen PRIVET, 2 to 3 feet. 2,000 AMERICAN ARBOR-VITE. 2,000 Common LAURELS, 3 to 4 feet, extra. 1,000 Paul's Crimson THORNs, standards. 1,000 Pyramidal APPLES, PEARS, and PLUMS. 1,000 Standard PEARS.

All well grown. Special quotations and samples free.

ABIES DOUGLASII, 1 1/2 to 2 feet, 25s. per 100; 2 to 2 1/2 feet, 35s. per 100; 3 to 4 feet, 60s. per 100; by the thousand, finely finished and rooted. ARAUCARIA IMBRICATA, 18 to 20 inches, 24s. per dozen; 2 to 2 1/2 feet, 42s. per dozen; 2 1/2 to 3 feet, 60s. per dozen; each size by the thousand. CEDRUS DEODARA, 4 to 5 feet, 30s. per dozen. CRYPTOMERIA ELEGANS, 2 to 2 1/2 feet, 60s. per 100. CUPRESSUS LAWSONII, 2 1/2 to 3 feet, 60s. per 100; C. GRACILIS, distinct, 1 1/2 foot, 12s. per dozen; C. STRICTA, 2 to 2 1/2 feet, the finest upright, 12s. per dozen; C. FUNEBRIS, scarce, 1 1/2 foot, 15s. per dozen. PICEA NOBILIS, 3 to 4 feet, 60s. per dozen; P. NORDMANNIANA, 1 foot, fine, 50s. per 100; 1 1/2 to 2 feet, 15s. per dozen; 6 feet, extra, 84s. per dozen. PINUS EXCELSA, a feet, 8s. per dozen; P. INSIGNIS, 1 foot, 30s. per 100; 6 to 8 inches, 16s. per 100. THUJA LOBBII, 10 to 15 inches: special by the 1000, the best substitute for Larch. RHODODENDRON PONTICUM, 1 to 4 feet, each size in thousands.

GARLIES MITCHELL, Nurseryman, Stranraer, N.B.

CHRYSANTEMUMS.—Speciality.—420 varieties, guaranteed true to name. One of the largest and cheapest Collections in the Trade. Plants, purchaser's selection, 2s. 6d. per dozen, 16s. per 100; cuttings, 1s. 6d. per dozen, 10s. per 100; W.E.'s selection, cheaper. For the new English and Continental varieties see CATALOGUE, with Essay on Cultivation, one stamp. Inspection invited.

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J. LEWIS AND SON, Newtown Nurseries, Malvern, offer for Sale three thousand LAURUSTINUS, beautifully set with bloom, from 1 to 1 1/2 foot, bushy, suitable for pots. Also a large quantity of Common LAURELS, from 2 to 5 feet. Also several thousands of Dwarf ROSES, including La France, Mlle. Eugène Verdier, Duke of Edinburgh, Boule de Neige, Gloire de Dijon, A. K. Williams, Mrs. Jowitt, Marie Baumann, &c., in lots to suit purchasers. No reasonable offer will be refused.

SPECIAL CHEAP OFFER.—

ALDER, ASH, BIRCH, ELM, Austrian PINE, MAPLE, OAK (English), PRIVET ovalifolia, PRIVET Evergreen. All the above good stout stuff, from 2 to 4 feet in variety, from 4 to 10 feet; THORN 4 feet, 3 and 5 feet; YEWs, extra strong; SYCAMORES, 3 to 6 feet; BERBERIS AQUIFOLIA, 1 1/2 to 2 feet; CUPRESSUS, various, 2 to 10 feet; Golden ELDER, Ribes CURRANTS, Sweet BRIERS, HOLIES in variety, from 1 to 9 feet; splendid stuff, all recently transplanted, IVIES in variety, LAURELS in sorts, 2 to 4 feet; LILACS, 3 to 5 feet; RETINOSPORA, in sorts, 1 to 6 feet; English YEWs, 2 to 4 feet, fine stuff; AZALEA PONTICA, 1 to 3 feet; RHODODENDRONS, for covert and other planting, from 1 inch to 3 feet; several hundred thousand choice named RHODODENDRONS, in good sized plants; Cunningham's White CAUCASIAN PICTUM JACKSONIANA, &c. Double Yellow and White PRIMROSES.

For price and particulars apply to ISAAC MATTHEWS AND SON, The Nurseries, Milton, Stoke-on-Trent.

BULBS for SPRING PLANTING, of all sorts.

JAPANESE MAPLES, JAPANESE LILIES, choice Seeds of our own sowing; choice New Zealand Seeds; NEW MAGNOLIAS, ZAMIAS from the Cape, North American Hardy Plants.

See our Spring LIST, No. 72, just issued. NEW PLANT and BULB COMPANY, Colchester.

FOR SALE, Black CURRANT TREES,

Baldwin's Black and Green Bud, at 6s. per 100. Also Standard DAMSON TREES. The Trees are strong and well rooted, and warranted true to name. Apply to

A. UNDERDOWN AND CO., The Vineries, Paddock Wood, Kent.

SEED POTATOS—Sutton's Favourite, a large quantity, 46 per ton or 7s. per cwt., free on Rail. C. DAVEY, Seed Farm, Bedford.

To the Trade. SEED POTATOS.

H. AND F. SHARPE'S Wholesale Priced LIST of SEED POTATOS is now ready, and can be had on application. It comprises the best kinds in cultivation, and the prices are very reasonable. Seed Growing Establishment, Wisbech.

For Sale. RHUBARB SETS, of a Selected Growth. R. BATH, Wansunt Farm, Crayford.

To the Trade. VINES.—VINES.—VINES. STRONG PLANTING CANES, 3s. each. EXTRA STRONG FRUITING CANES, 5s. each.

Well ripened and short-jointed. CALDWELL AND SONS, The Nurseries, Knutsford, Cheshire.



BY ROYAL WARRANT,  
Nurserymen and Seedmen to the Queen.



Messrs. LITTLE & BALLANTYNE

Beg to intimate that they have now issued their CATALOGUES of Seeds, Trees, Plants, &c., to all their Customers. Should any have miscarried, their friends will oblige them by applying for another.

The quality and prices of the articles offered will compare very favourably with other houses.

CARLISLE—January 3, 1885.

**FRANCIS & ARTHUR  
DICKSON & SONS.**  
106 Eastgate St. &  
The Upton Nurseries **CHESTER.**

**FOREST TREES, FRUIT TREES,  
EVERGREENS, QUICKS, ROSES,**  
ALL HARDILY GROWN AND SPLENDID QUALITY.

### VEGETABLE SEEDS

Of the highest class and most select character,  
each variety being saved from the best  
stock of its kind.

### FLOWER SEEDS

Of every description, and of the finest strains in  
existence, both Home and Continental.

In every case the strong growth of Seeds is proved  
before being sent out, which ensures success.

**WRITE FOR CATALOGUES,**  
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*Catalogue of Garden Seeds, 1885,  
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JOHN LAING & CO.			
Roses for Removal now.			
Laing's			Per doz.
Rose	Standards, choicest and best sorts ..	18s. and 21s.	
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Trees.	Dwarfs ..	9s. ..	12s.
	Our selection of above Perpetuals.		
	Vigorous growth, well-rooted, unequalled quality.		
	Rose Growers, Forest Hill, S.E.		

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**ILLUSTRATED LIST**  
Of Choice New Seeds for Gardeners  
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Post-free 6d. Sent free to all Customers.

**E. J. JARMAN,**  
The People's Seedsman,  
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### COOLING'S OMEGA BEET.

Handsome in shape and of rich crimson  
colour, but more especially remarkable for  
its distinct flavour, which is delicately sweet  
and agreeable, far surpassing any other  
variety.

Per packet 1s., post-free.  
Trade price on application.

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JOHN LAING & CO.	
Laing's	GOLD MEDAL STRAIN from our Prize Plants.
Begonia	New crop now harvested. Sealed packets.
Seed.	CHOICE MIXED, from single varieties, 1/- and 2/6 per packet; 5/- extra large packets; double varieties, 2/6 and 5/- per packet.
	COLLECTIONS, 12 named varieties, separate, 7/6 6 named varieties, separate, 4/-
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No extra charge for Packing.

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**BENJAMIN R. CANT,**  
THE OLD ESTABLISHED AND CELEBRATED  
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**FRUIT TREES**  
OF ALL KINDS. WRITE TO  
**GEORGE BUNYARD & CO.**  
THE OLD NURSERIES;  
**MAIDSTONE.**  
WHO CULTIVATE 700 KINDS.  
*Illustrated List. List of Names.*  
*3 Stamps. Gratis.*

Registered.)  
300,000 Trees to select from.



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TRACK MUSHROOM**  
SPAWN.—Too well known to require  
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(1s. extra per bushel for package), or  
6d. per cake; free by Parcels Post, 1s.  
None genuine unless in sealed pack-  
ages and printed cultural directions  
enclosed, with our signature attached.  
**WM. CUTBUSH AND SON**  
(Limited), Nurserymen and Seed  
Merchants, Highbate Nurseries, N.

**VEGETABLE & FLOWER SEEDS**  
**SEED POTATOS. TOOLS & C**  
*BEST QUALITY—CARRIAGE FREE.*  
*PRICED CATALOGUE—POST FREE.*  
**JAMES DICKSON & SONS**  
SEED-GROWERS.  
**108 EASTGATE ST. CHESTER**

**ROSES A SPECIALITY.**  
STANDARDS and HALF-STANDARDS,  
best sorts, 18s. per dozen, 120s. per 100.  
DWARFS, LARGE BUSHES,  
9s. per dozen, 60s. per 100.

The following letter, selected from many hundreds of similar  
ones, is, I trust, a sufficient proof that the plants are of the best  
quality—

"Hill Side, 203, Richmond Road, Putney, Nov. 26, 1884.  
"Sir.—I am much pleased with the fine healthy plants you  
have sent me. Both the Dwarfs and Standards are specimens  
of skilful cultivation. They are particularly well rooted, and  
are in every respect all that a Rose-grower can desire.—I am,  
yours faithfully,  
"B. G. COLEBY.

"To Mr. FRANK CANT, Rose-Grower, Colchester."  
A Descriptive CATALOGUE Post-free on application to  
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The largest and hardiest Cos Lettuce. A  
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Bath Cos. Should be sown now.

Per packet 1s., post-free.  
Trade price on application.

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Williams' Early Prolific Kidney Beans, per qt.	2	6
The earliest and best for forcing.		
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Williams' Semper Fidelis Melon ..	1	6
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Williams' Emperor of the Marrow Pea per qt.	2	6
Williams' Holloway Rival Pea ..	2	6

For further particulars see Illustrated SEED  
CATALOGUE, post-free on application.

**VICTORIA and PARADISE NURSERIES,**  
UPPER HOLLOWAY, LONDON, N.

To the Trade Only.  
**FERNS — FERNs — FERNs.**  
—Adiantum cucurbitum, A. trapeziforme, A. gracillimum,  
Lomaria gibba, Lastrea aristata variegata, Pteris serrulata  
cristata Cowani, P. serrulata: nice plants in 60's, 2s. per 100.  
Adiantum cucurbitum, A. gracillimum, A. trapeziforme, in 4 and  
4½ inch pots, 4s. to 50s. per 100, according to size; Adiantum  
Pacotti, in 60's, 30s. per 100; ditto, in 4 and 4½ inch pots, 50s.  
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**THE LIVERPOOL HORTICULTURAL CO. (John  
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**Forty Acres**  
**Orna-mental**  
**FRUIT & TREES**  
Forest  
Priced Catalogues Post Free.  
**J. CHEAL & SONS**  
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The earliest in cultivation, dwarf and compact  
in habit, head firm and pure white, and  
well protected by the foliage. It stands dry  
weather better than any other variety.  
Mr. GILBERT says it turned out the best  
of all he grew last season.  
Mr. E. STEPHENSON, Thorganby Hall,  
says:—"Your 'President' Cauliflower is act  
only the earliest but the most useful I have  
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than any other variety. The heads are very white  
and compact. I have grown it ever since it  
came out. I recommend it to all my friends."  
Post free on receipt of postal order or stamps  
for 1s. 6d.

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### COOLING'S NE PLUS ULTRA DWARF BEAN.

Acknowledged by all to be the earliest and  
most productive Dwarf Bean in existence.  
Invaluable for forcing.

Per pint 2s. 6d., post-free 2s. 9d.  
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**GEO. COOLING & SON,**  
SEEDSMEN, BATH.



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Invites attention to the following LIST of well-grown and properly rooted NURSERY STOCK:—

HOLLIES, Commoo Green, 3, 4, 5, 6, 7, 8 to 10 feet high. (10 feet high.)  
 „ laurifolia, ditto.  
 „ Hodgins', 3, 4, 5 to 8 feet.  
 „ myrtifolia, ditto.  
 „ Scottica, 3 to 8 feet.  
 „ Yellow-berried, altacularensis and others.  
 „ Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.  
 „ Waterer's splendid plants, 3, 4, 5, and 6 feet, 8 to 15 feet in circumference.  
 „ Golden Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of beautiful specimens.  
 „ Perry's Weeping Holly, on straight stems, with beautiful heads, ten to fifteen years' growth, hundreds.  
 „ new Golden Weeping, a large number of very beautiful plants.

BOX. Green and Variegated, 3, 4, 5, 6 to 7 feet, many thousands.  
 YEWS, Common, 3, 4, 5, 6 to 10 feet, thousands.  
 „ Golden, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards, in point of variety and size unequalled.

„ Irish, 5 to 10 feet, hundreds. (thousands.)  
 CUPRESSUS ERECTA VIRIDIS, 3, 4, 5, 6 to 8 feet.  
 „ Lawsoniana lutea, 3, 4, and 5 feet, hundreds of beautiful specimens.

THUIOPSIS DOLABRATA, 3, 4, and 5 feet, hundreds.  
 RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.

AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and 5 feet high, thousands.

JUNIPERS, Chinese, 7, 8, and 10 feet high.  
 „ Chinese Golden, 3 to 6 feet.

JUNIPERUS VIRGINIANA GLAUCA, 3 to 5 feet.  
 ABIES CANADENSIS, 4 to 7 feet, hundreds.

„ DOUGLASII, 3 to 5 feet, thousands.  
 „ GLAUCA, 2 to 4 feet, hundreds.

„ ORIENTALIS, 4, 5, 6 to 10 feet, hundreds.  
 „ HOOKERIANA, 3 to 5 feet.

„ HARRYANA GLAUCA, 1½ to 2 feet, hundreds.  
 PICEA CONCOLOR, 2 to 4 feet, hundreds.

„ GRANDIS, 5 to 7 feet.  
 „ LASIOCARPA, 3 to 5 feet, hundreds.

„ MAGNIFICA, 2 to 3 feet, hundreds.  
 „ NOBILIS, 1½ to 3 feet, thousands.

„ NORDMANNIANA, 6, 7, to 10 feet.  
 „ PINSAP, 6 to 10 feet, hundreds.

„ PUNGENS, 1½ to 2 feet, thousands.  
 PINUS CEMBRA, 6 to 8 feet.

CEDRUS DEODARA, 6 to 9 feet, hundreds.  
 „ LIBANI (Cedar of Lebanon), 3 to 5 feet.

THUJA OCCIDENTALIS LUTEA, 3 to 6 feet, hundred.  
 THUIOPSIS BOREALIS, 3 to 5 feet, hundreds.

RETINOSPORA OBTUSA AUREA, 3 to 6 feet, hundreds.  
 „ PISIFERA AUREA (true), 3 to 6 feet.

„ PLUMOSA AUREA, 3 to 5 feet.  
 Knap Hill Nursery, Woking Station, Surrey.

RHODODENDRON PONTICUM.—For sale, at reasonable prices, many thousands of fine healthy plants, bushy and well rooted; two years transplanted. Trade supplied on liberal terms. For prices and further particulars apply to H. CROSS, Woodcote, Newport, Salop.

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Buy of the Growers.

LILY OF THE VALLEY (very fine), and TULIPS (in sorts).

The Advertisers are prepared to offer a regular supply of above for cash at moderate prices.

MESSRS. TURNER BROS., Nurserymen and Florists, Allerton, Liverpool.

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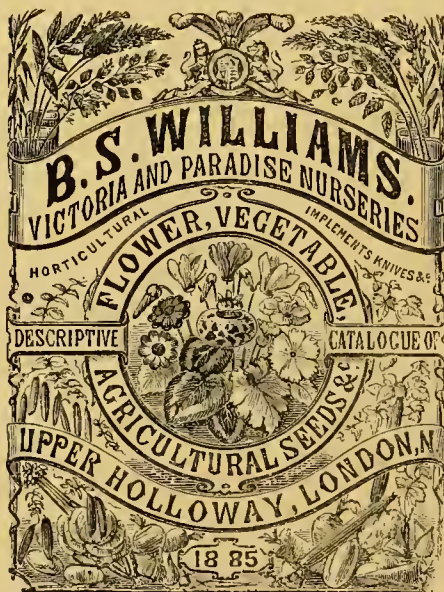
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All well transplanted and strong, at reduced prices (free on application).

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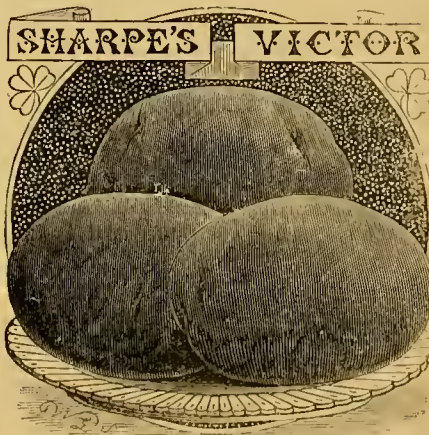
Goldworth "Old" Nursery,

WOKING, SURREY.



The above is now ready, and has been posted to all Customers. Another Copy will be forwarded on application to any who have not yet received one.

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VICTOR will produce new Potatoes all the year round. 8d. per Pound (7 lb. Carriage Paid).

Victor is the perfection of Potatoes for frame cultivation. New Potatoes, fit for use, have been produced from it in Six Weeks.

CHARLES SHARPE & CO., SLEAFORD.

PAUL AND SON, The "Old" Nurseries, Cheshunt, hold very fine stocks of the undermentioned:— STANDARD TEA ROSES, best kinds. STANDARD HYBRID PERPETUAL ROSES, vigorous kinds.

DWARF TEA ROSES, on Brier only. STRONG CLIMBING ROSES, very large plants. STRONG CLIMBING ROSES, in pots, 8 to 9 feet high. STRONG DWARF ROSES for Hedges. STRONG DWARF ROSES for Beds. POT ROSES, of all sorts and sizes. STRONG STANDARD APPLES, 5 to 6 feet stems. STRONG STANDARD PEARS, extra fine heads. STRONG STANDARD PLUMS, including Victorias. EXTRA FINE HORIZONTAL TRAINED APPLES and PEARS.

EXTRA FINE FAN TRAINED PLUMS and CHERRIES.

STRAWBERRIES, in large and small pots. GOOSEBERRIES, fine, on 1 foot stems. CURRANTS, particularly fine Red and White. CONIFERS, EVERGREENS, and AVENUE PLANTS, HOLLIES, Green and Variegated, to acres at High Beach. CATALOGUES post-free.

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C. Fidler's New Annual Catalogue OF SEED POTATOS

will be sent Gratis and Post-free on application.

It contains a complete descriptive List of all the choicest varieties in cultivation, also valuable hints on Potato Growing. Every one who has a Garden should send for a copy.

C. FIDLER, POTATO GROWER, READING.

## New, Rare, and Choice Flower Seeds

"ILLUSTRATED."

This most USEFUL and INTERESTING CATALOGUE, which every one with a Garden or Greenhouse should possess, is NOW READY, and is being posted to all CUSTOMERS, and may be had gratis upon application. It includes, perhaps, the finest list of STERLING NOVELTIES ever brought together; a grand collection of HARDY FLORISTS' FLOWERS; a specially fine selection of HARDY PERENNIALS, and such as are easily and quickly grown; GREENHOUSE SEEDS—all the most popular; HARDY ORNAMENTAL GRASSES; SHOWY SINGLE-FLOWERED ANNUALS and PERENNIALS. The Catalogue is beautifully illustrated and everything very fully described. Also, in separate form and complete Collection of MISCELLANEOUS BULBS adapted for Spring Planting.

THOMAS S. WARE, HALE FARM NURSERIES, TOTTENHAM, LONDON

## SPECIAL CULTURE OF FRUIT TREES and ROSES.

A large and select stock is now offered for sale.

The Illustrated and Descriptive CATALOGUE OF FRUITS post-free.

The Descriptive CATALOGUE OF ROSES post-free.

THOMAS RIVERS & SON, The Nurseries, Sawbridgeworth, Herts.

## HARRISON'S EARLY ECLIPSE PEA.

The Earliest in the Garden.  
 The Earliest in the Field.  
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## THE

# Gardeners' Chronicle.

SATURDAY, JANUARY 10, 1885.

## THE LATEST NOVELTIES.

IN continuance of our remarks on the newly introduced plants of the last year (see p. 19) we have now to mention the Ferns, Lycopods, and Stove Plants.

### FERNS AND LYCOPODS.

Some good new Ferns have appeared during the past year, the majority of them of supposed hybrid origin. The finest is *Gymnogramma Lathamiae*, which is believed to be a hybrid between *G. decomposita* and *G. schizophylla*. It forms an erect caudex, from which the fronds arch out in all directions; they are oblong-lanceolate, about 2½ feet long, quadripinnate, with shortly stalked ascending obliquely-elongate triangular pinnæ, and sessile deltoid pinnules, cut down to the rachis into small narrow segments, the larger of which are forked or trifid, and the smaller entire. The sori form short lines on the narrow segments, the spore-cases being embedded in a white waxy secretion. The stout stipes and rachis are bright chestnut-brown. It was raised in the Birmingham Botanic Garden, and is named after Mrs. Latham. Another fine Fern, also of hybrid origin, is of the Maidenhair race—*Adiantum rhodophyllum*—and is of a very ornamental character, on account of the rich colouring of its young fronds. The plant is evergreen, with triangular tripinnate fronds, the pinnæ few, pinnate or bipinnate, the pinnules rhomboid-trapezoid, with incised-lobate margins; its aspect is intermediate between that of *A. Victoriae* and the larger pinnuled forms of *A. tenerum*, and being of free growth, with a gracefully curving contour, it makes a fine decorative Fern, the more so as all the young fronds come of a brilliant tint of rosy-purple, which lasts for a considerable time, and then passes through soft coppery shades until the full green hue is acquired. As the plants are continually making new growth, the colour effect is almost constant. A curiosity, and yet a pleasing variety, is found in another hybrid, which bears striking evidence of its origin—*A. cuneatum deflexum*. It is *A. cuneatum* in all respects, except that its pinnules are deflexed, so as to appear drooping, exactly as in *A. Bausei*, which is believed to be one of its parents. Another remarkable variety of this prolific species is *A. cuneatum strictum*, a variety remarkable for its erect spriggy, branchy habit of growth, quite unlike the spreading habit of the type; it is a neat decorative Fern, so distinct in character as to be useful in grouping, but we know nothing of its origin. *Adiantum Fergusoni*, a curious abnormal looking Fern from Mr. Ferguson's greenhouse in Ceylon, has triangular-ovate tripinnate fronds, with the pinnules various in form, but requires to be better known before its true value and position can be determined.

In *Selaginella viridangula* we have a climbing Club-moss of elegant character, much in the way of *S. canaliculata* and *S. Willdenovii*. The ultimate divisions of the pinnæ terminate in long quadrangular spikelets, which differ from those of *S. Willdenovii* in having the bracts long and acuminate, instead of short and ovate.



It has been introduced from the South Sea Islands.

#### STOVE PLANTS.

Commencing with the flowering division, we think the first place for beauty, combined with distinctness of character, belongs to the new Brazilian *Amasonia punicea*, a plant of the Verbenaceous order, and a near ally to *Clerodendron*, for which a brilliant future may be predicted. It is of shrubby habit, with opposite oblong or elliptic-lanceolate serrated leaves, and large erect panicles of flowers, which have five-parted red calyces and tubular creamy-yellow corollas with projecting curved stamens—these flowers being accompanied by very persistent brilliant red bracts, from 2 to 4 inches long and ovate lance-shaped in form, which remain for many weeks on the plant, and add very much to its effectiveness. It ought to be a good subject for summer shows. To the same family belongs *Clerodendron illustre*, a fine, bold habited stove shrub, in the way of *C. squamatum*, having glabrous, cordate, stalked, repandly-toothed leaves and large terminal panicles of brilliant scarlet flowers, the exerted stamens of which have vermilion filaments. These shrubby *Clerodendrons* were the glory of our summer shows some thirty or forty years since, and if the art of growing them successfully has not departed with our old showmen, it is much to be desired that the introduction of this new species may be the means of again drawing the attention of exhibitors to their grand effect on the exhibition tables. In the *Dichotrichum ternatum* we have a showy stove plant of creeping habit, the hairy stems rooting, like those of ivy, against a damp wall; it produces large, stalked, roundish-ovate hairy leaves, and axillary, long-stalked, umbellate corymbs of assurgent tubular scarlet flowers of great beauty. It is allied to *Æschynanthus*, and will be well suited, like the species of that showy family, for covering the back walls of plant stoves.

*Ipomœa Thomsoniana*, briefly referred to previously as *I. Horsfalliæ alba*, may be claimed for the present sketch on account of the rectification of its name; it is a very charming stove climber, with much of the habit and aspect of *I. Horsfalliæ*, but differs in its fleshy ternate leaves, which have stalked leaflets, as well as in its much larger pure white flowers, which are so freely produced as to render the plant one of a very ornamental character. It was figured in these columns December 29, 1883. The *Sumatran Rhododendron Curtisii* proves to be one of the forms of *R. multicolor*, which, as the name imports, produces flowers of various colours. One of the prettiest flowering plants of the year is the supposed Central American *Aphelandra Margaritæ*; it is dwarf in habit, with cylindrical hairy stems, clothed with decussate elliptic leaves, furnished on the upper side with about half a dozen bars of white on each side the midrib, and terminated by a short terminal spike of bright orange or apricot coloured flowers, which issue from the axils of pectinate bracts. It is one of the neatest and most manageable of the species, and thoroughly distinct in colour.

#### BROMELIADS.

As usual, some fine Bromeliaceous plants have come into notice. One of them, *Bilbergia Sanderiana*, a brilliant acquisition to the group, has long spinose leaves and nodding scapes, supporting elongate panicles of handsome flowers, which emerge, several together, from the axils of rosy-pink bracts, and consist individually of a greyish-green calyx tipped with blue, a corolla, which is green below, heavily tipped with deep blue, and yellow stamens. The plant, being an abundant bloomer, ranks high as a decorative object. *Vriesea Duvaliana*, a Brazilian species, which has a tuft of recurved green leaves tinted with purple, bears a long

distichous spike of yellow flowers, emerging from keeled bracts, which are scarlet, tipped with green, and give the plant a very striking and ornamental aspect. *Vriesea fenestralis* is a very handsome plant of a totally different type, its beautifully tessellated leaves growing in a rosulate tuft, from the centre of which arises the erect elongated distichous spike of yellow flowers. The chief beauty of this species lies in the foliage, which is pale green, with crowded cross bars of a deeper green, the surface between the markings being in many parts white, like ivory. Another of this genus is *Vriesea hieroglyphica*, a splendid plant, with large rosulate tufts of loriform smooth leaves, which are suddenly contracted to a point, of a brilliant green, sometimes a bright yellow, marked with transverse irregular bands of deep green; these markings more or less broken up to form a close series of coloured arabesque or hieroglyphical characters on the leaf surface. All these come from Brazil.

#### BEGONIAS.

The genus *Begonia* has been augmented by a few handsome species, besides the grand florists' varieties of the tuberous section, the improvement of which has been rapid and striking beyond precedent. Thus *Begonia Lubbersii* is an ornamental sub-shrubby species, of branching habit, with cylindrical green stems, distichous, narrow oblong rhomboid peltate leaves, which are dark shining green, marked with irregular oblong white blotches, and axillary nodding cymes of large white flowers, which are tinged with green. It is of Brazilian origin, and was accidentally introduced to the Botanic Garden at Brussels attached to the stem of a Tree Fern. The Mexican *Begonia Lyncheana*, is a very beautiful plant, grown sometimes as *B. Roetzlii*, but not the true plant so named. It has now been renamed, in honour of Mr. Lynch, of the Cambridge Botanic Gardens, by whom it has been very successfully grown and exhibited. It has tuberous rhizomes, tall thick fleshy branching stems, large oblique roundish-oblong ovate leaves, and bold axillary corymbiform panicles of bright scarlet flowers produced in the winter period.

#### BULBOUS PLANTS.

Of this series there remains to notice a few stove bulbs of an interesting character. One of the most strikingly handsome is *Crinum Sanderianum* from Sierra Leone, a distinct novelty, with small globose bulbs, ensiform leaves, and umbels of three or four sessile large expanded flowers with lanceolate perianth segments, white with a conspicuous crimson band down the centre. *Crinum leucophyllum* from Damara-land is a fine bold plant of the asiaticum type, with large ovoid bulbs, distichous lanceolate leaves, and lateral two-edged scapes bearing large umbels of thirty to forty flowers, which have very long tubes, and narrow linear spreading segments of a bluish-white colour, the outer surface being of a deeper rose tint. *Crinum zeylanicum radiculatum* is a dwarf compact-growing and very floriferous bulb from Zanzibar, with small long-necked bulbs, ensiform ciliated leaves, and umbels of four green-tubed white flowers which are marked by a red central band, and have declinate stamens. *Hæmanthus Katherinæ* is a noble species from Natal, and would probably succeed in a warm greenhouse. It has elliptic-oblong acute leaves whose stalks are sheathed so as to form a kind of cylindrical stem, and the cotemporary scape supports a globose umbel of scarlet flowers. *Hymenocallis eucharidifolia* is a fine South American species, with large bright green leaves, and umbels of four or five flowers, which have a green tube, white linear perianth-segments, and a funnel-shaped white corona, with two marginal teeth between each pair of stamens. In *Ismene Andreana* we have a handsome new

bulb of distinct character, and probably only requiring greenhouse treatment. It comes from the Andes of Ecuador, and has bulbs of considerable size, producing several glabrous linear cotemporary leaves, and solitary flowers, of which the perianth is white, with lance-shaped undulated segments, and the corona broadly funnel-shaped, white, with a green band opposite each sinus, from the top of which a white filament with its anther is projected inwards. We are glad to see that the fine race of bulbous plants is again attracting the notice of cultivators, since, though long neglected, it comprises some of the grandest and gayest of flowers.

#### MISCELLANEOUS PLANTS.

Of another type is the *Sagittaria montevidensis*, a most charming tropical aquatic. This plant has a tuberous rootstock, hastate leaves, and panicles of white flowers having at the base of each of the three petals an ovate spot of a rich brown bordered with yellow. This will be quite an acquisition for the aquarium. In the tropical East African *Streptocarpus Kirkii* we have a distinct type of that interesting genus of Gesnerads; it is an elegant little plant, with erect leafy stems 4 to 6 inches high, which are furnished with opposite ovate cordate leaves, and slender dichotomous cymes of curved tubulose-campanulate flowers of a pretty bright lilac colour; it is quite different in its style and habit from the more familiar species of *Streptocarpus*, and will be a neat little subject for a pet plant. *Kalanchoë farinacea*, a Crassulaceous succulent from the island of Socotra, appears to be a handsome plant, of erect habit, with fleshy stems, orbicular-spathulate leaves, and terminal umbellate panicles of scarlet flowers, the whole plant, saving the flowers, covered with a white mealy powder, which gives it a greyish hue. *Bomarea Kalbreyeri* represents one of the beautiful climbing *Alströmerias*, which have latterly come more prominently into notice, owing to the introduction of several fine new species. The present is a free growing climber, bearing large terminal umbels of flowers, of which the outer segments are brick-red, and the longer inner ones orange-yellow, spotted with red. It came from New Grenada.

#### FOLIAGE PLANTS.

In the section of Fine-foliage Plants we have less novelty to record than usual, the run upon these subjects having apparently somewhat abated; but there are, nevertheless, a few good things worth notice. *Alocasia Sanderiana* is certainly one of the finest of the metallic-leaved Arads, strikingly distinct, and remarkably effective. It comes from the Eastern Archipelago, has tuberous rootstocks, brownish-green, striately mottled erect petioles, and large deflexed leaf-blades, which are peltately affixed, glossy, arrow-shaped, with three lateral lobes on each side, the surface green, with metallic-blue reflections, and the midrib and margin ivory-white. *Dieffenbachia Jenmanni*, a species lately imported from British Guiana, is one of the most elegant of its family. It is dwarfish in habit, with long narrow oblong-lanceolate leaves, of a bright green, marked with oblique elongate white blotches parallel with the primary veins, and extending in broken lines from the costa nearly to the margin, these being mingled with smaller spots and blotches scattered over the whole of the leaf surface. We believe it will prove very useful as a decorative plant of this class, not being so unwieldy as many of them are, and at the same time being elegant both in its form and marking.

*Begonia sceptrum*, from Brazil, is a handsome species of novel character, with obliquely ovate leaves, which are cut on one side into deep blunt lobes; the raised spaces between the sunken veins are marked with large blotches



mixed up with smaller spots of silvery-grey, and have a very pretty and distinct appearance. The *Kæmpferia ornata*, recently discovered in Borneo, is an effective plant, about a foot high, throwing up a mass of stalked leaves, which are narrowly lanceolate, dark green at the edges, with a distinctly serrated silvery-grey band up the centre, the under-surface of a dull reddish-purple. The flowers are yellow, but the chief interest of the plant will be in its foliage, which has nothing of coarseness about it.

#### AROIDs.

Some very fine *Alocasias* and other fine-foliage plants were brought forward at the St. Petersburg Exhibition. They include *Alocasia*

true, more elongated in form. The flesh is firm, yellow, and of good flavour, and as Mr. Bull received the fruit direct from California, whence it arrived in good condition, nothing further need be said as to its qualifications as a traveller. The tree was introduced from Japan to California in 1871. According to the *Pacific Rural Press*, the tree is very prolific, and Messrs. Hammon & Co., of Oakland, who have propagated it, claim for it these merits:—

- "1. Its wonderful productiveness is unsurpassed by any other Plum, either native or foreign. 2. It comes into bearing at the age of two to three years, and continues with great regularity, blossoms frequently appearing on yearling trees. 3. The fruit is of very large size, being from 7 to 9 inches in circumference, and specimens weighing 6½ oz. each, and it has a remarkably small pit. 4. It is very attractive in appearance, being of a rich

made leaves the size of a half-crown piece; but on account of their having sprouted late in the season, and our not being acquainted with the true nature of the plants, they both died in November of the same year.

From that time several attempts were made to introduce it, both by roots and seeds, but none succeeded till January, 1849, when seeds were received, sent in a phial of water from Demerara, by Dr. Boughton, which vegetated, and in March six plants had become fully established and grew rapidly, occupying shallow water-tubs, successively increasing in size, the last being 9 feet in diameter, which was occupied by one plant.

Applications were now made to the Commissioner of Works for a large tank to grow it in; in the meantime advantage was taken of the heated slate floor of



FIG. 9.—NEW JAPAN PLUM.

*imperialis*, figured in the last number of the *Illustration Horticole*, and *A. regina*: these rank amongst the best new plants of the year. *Philodendron Regelianum*, in the way of *P. crinipes*, and *Pothos Enderiana*, remarkable for its black-green foliage, are also well spoken of. All of them are Bornean plants. The remarkable *Arisæma fimbriatum* was recently figured in these columns (p. 680, Nov. 29, 1884), and is at this moment in bloom in M. Bull's Nursery. *T. Moore*.

(To be continued.)

#### JAPAN PLUM.

THE Plum of which we give an illustration (fig. 9), from the pencil of Mr. Fitch, was exhibited before the Fruit Committee on October 14 last, by Mr. Bull. The fruits attracted much attention, being much more like Nectarines in colour than Plums, though, it is

yellow nearly overspread with a bright red, with a lovely bloom. It is heart-shaped. It ripens from first to last of September, at a most favourable time for harvesting and marketing the crop, the larger part of the Plum crop being gone. 5. It is of superb quality, melting, rich, and juicy; in fact, to some tastes, at least, has a more satisfying flavour than any other Plum. For cooking, jelly, or preserving in any manner it has no equal. Its large size renders the paring of the fruit as practicable as in the Peach, which is quite a novelty in the line, and excels all other canning Plums. As a dried fruit it is destined to take the lead, equal to if not surpassing the best dried Prunes or Peaches for drying results."

#### VICTORIA REGIA.

In August, 1846, seeds of this remarkable water-plant, of which an illustration was given in your last number, were first sent to this country by Mr. Thomas Bridges, a plant collector, who discovered it in Bolivia. Two of these seeds were purchased for Kew, at a guinea each, both of which vegetated and

No. 6, and it was formed into a tank by fixing slate sides 2 feet deep, thus forming a tank 25 feet long by 11 feet wide; and on the 21st of August a heap of soil was placed in the centre and the first plant was planted. It grew rapidly, and on November 24 produced a flower-bud, which, on account of the dull weather at that season of the year, did not come to perfection, and during the winter it dwindled and died.

Sir W. Hooker promised a plant to the Duke of Devonshire, provided he would have a tank made for it, which he did, and on August 3, 1849, Mr. Paxton called early one morning and took our second-sized plant, which I had carefully packed ready for him, and the next day it was to be seen in the Chatsworth tank. It thus had three weeks start of the Kew plant. It flowered on November 1, and thus Chatsworth got the credit of being the first to flower it in this country. [An illustration of this flower appeared in our columns, with a full history of the plant, on November 24, 1849. Ed.] Having preserved plants through the winter of the previous year's







second the number of stations from which reports were sent, the third the three degrees of quality under which the returns for the respective fruits have been classed; the other columns show the proportionate values of the respective fruit crops. Having already explained under which head I have classed the varied expressions used in the returns to express the quantity or quality of the crops, I would here say that in those few instances where no returns were made for any particular fruit they have been classed here as "under" average, as being the least liable to error. Possibly this table may be open to some objections, but these I venture to hope will not seriously affect its accuracy as a ready means of ascertaining at least an approximate idea of the actual and relative quantity and value of the respective crops. The right-hand column gives the total number of reports made on all fruits from each district, while the figures at the base show the summary of averages of the respective fruits at the aggregate stations. The second series of tables is intended to show the percentage of each crop. In calculating these the "over" and "average" crops have been added together, and the percentage then taken from the whole returns: for example, in Scotland there are in Apricots seven "over" and six "average," which added together make thirteen, and thirteen in forty-two equal thirty-one per cent. These two quantities have been added together, so as to obtain as nearly as possible the numbers of what may be called good crops. In each table the district in which the best results occur have been placed first, so as to be more convenient for comparison.

## GENERAL RESULTS.

Some of the results as tabulated are very striking, and show most plainly how great and general the failure was in respect to some fruits. Apricots, Peaches, and Nectarines, or what may be termed the tender wall fruits, do not appear to have suffered so severely as the harder kinds; this result may perhaps be best accounted for in two ways: first, by their having safely passed the most sensitive period of fertilisation before the most severe weather occurred; and, second, from the fact that they were more generally protected artificially from the destructive frosts which occurred in the middle of April for several nights in succession, when nearly all the blossom and young fruit on unprotected trees was destroyed.

Apricots show somewhat the best results in the Eastern, Midland, and Western divisions; the Southern, Scotland, and Northern show but very moderate results, while in Ireland, Wales, and the Channel Islands, they appear to have been a comparative failure. This failure, however, does not appear, judging from the weather reports from those districts, to have been caused so much by severe frosts as by the unusually hot and dry weather which prevailed during the late spring months causing the young fruit to shrivel and drop.

Plums may be described as a total failure throughout England, not a single return of "over," and only one "average," result being returned from either the Midland, Western, or Eastern Counties, while from the Northern it was even less favourable. In Wales, Scotland, and the Channel Islands, the returns were somewhat better, while in Ireland very fair results were obtained. The mean percentage, however, was exceedingly low, being only fourteen.

Cherries show, with the exception of small fruits and Strawberries, the best average of any fruit. The Western district appears to have been the most favoured, showing the respectable average of 76 per cent. In Ireland and Scotland the returns are also good, while in the English counties and in Wales they are moderately so.

Peaches and Nectarines in the Eastern district show a good result; in the other English counties, except the Northern, the returns were fair, while in Ireland, Wales, Scotland, and the Northern Counties, they were but moderate.

Apples, on the whole, may be called only a moderate crop; while the Western district and the Channel Islands show a good percentage, the other districts give but very moderate averages, and that of Scotland is exceedingly poor. In the latter country, as also in the Northern and Eastern districts, not a single return of "over" average was given; the same remark also applies to Ireland, Wales, and the Channel Islands.

Pears appear to have suffered more than any other fruit. There is not a single return of "over" average from any station; and from the Eastern Coun-

ties, also from Ireland and Wales, there is not even an "average" return. With the exception of the Channel Islands, the Pear crop was perhaps the worst that has occurred generally within the last half a century.

Small Fruits were, with very few exceptions, abundant everywhere. From Scotland, also from the Northern and Western Counties, as well as Wales, there was not a single "under" average return made; in the Midlands and in Ireland, only one each; and in the Southern only four, while the general average is 95 per cent.

Strawberries were also plentiful everywhere, the Northern, Midland, as well as Wales and Ireland, having no return "under" average. The Eastern, Western, and the Channel Isles, only one each; Scotland two, and the Southern Counties five.

Nuts appear to have been only a moderate crop in the Midland and Eastern Counties, and more especially so in all other districts.

All Fruits.—The Western Counties obtain the premier position, showing the best general average for all kinds of fruit, beating the Channel Isles, while the Midland and Eastern districts, although next in order of merit, are much lower down the scale. The Southern Counties, being equal with Ireland, are next in succession. Then appears Scotland, 5 per cent. lower in the scale, closely followed by Wales and the bleak Northrons.

(To be continued.)

## PORANA PANICULATA.

THIS fine climber is seldom heard of in Europe. It is now in full bloom here, and a most charming thing it is. It is a twining plant of the family of the Convolvulaceæ. Besides the twining branches, it gives off, on a level with the ground, long straight shoots, which have no tendency to twine, but root readily in favourable places. This is a common feature in various perennial Convolvulaceæ. The largest leaves of this Porana are about 5 inches across, and have a rather rough surface. The stems and small leaves are covered with a greyish down. Single panicles are frequently a foot long and 4 inches across, but often terminal compound panicles are 3 and 4 feet long. The flowers are of the purest white, a quarter of an inch across, and bell-shaped, with a yellowish tube, and sweet-scented. The beauty of the inflorescence consists in the panicles having most of the flowers open at once, from tip to base, so that the climber is covered with pure white minute bells in cloud-like masses, with here and there long and gracefully drooping panicles. Fine as this plant is in the open, when in full bloom, either by sun or moonlight, it is unsurpassed by any other for internal decoration. It is on dining tables, in hanging baskets, and on stands, with a long panicle entwined round their stems, that it should be seen. The colours which best suit this fluffy white mass of florets are a brilliant crimson, with some delicate green foliage. Once, at a private dinner party, in Lucknow, I saw both drawing and dining rooms decorated with this fine thing. The dining-room was separated from the drawing-room by Saracenic arches, with curtains drawn across them. From the tops of the arches hung baskets with the charming Porana panicles drooping carelessly out of them, and interspersed with crimson and green. In one corner was a flower-stand with the same elements, and with a long panicle neatly entwined round its stem. On the dining-table were three crystal long-stemmed epergnes, decorated with these milk-white masses of tiny flowers, single crimson Roses, and Maidenhair Fern. The specimen glasses all round the table were *en costume*, and similarly got up. As dinner was announced, the curtains drawn, and the guests walked into the dining-room, they exclaimed, "How lovely!" and it was a truly lovely combination of forms and colours—exquisite through their very simplicity. The Porana paniculata flowers in November, when there is little else in the way of flowers. It ought to do well in a cool-house in England, as it stands a moderate degree of frost. Here it is at its best, rambling in its own way among and over bushes, or running up the sunny side of some dark-foliaged tree. I have never seen it seed, and I know several other perennial Convolvulaceæ which do not seed. In lieu of seed, they produce immense straight stems along the ground, which root at the joints. Every joint acts as a seed, and probably this is the reason why, in the struggle for existence, such plants had no need of seed to keep them from extinction. *E. Bonavia, M.D., Etawah.*

## NOTES ON THE CULTIVATED ASTERS.—VII.

(Continued from p. 13.)

**SUBGENUS II. CALLIASTRUM.**—Differs from *Euaster* only by its narrower achenes, more rigid pappus-bristles, and fewer and larger heads of flowers.

32. *A. amellus*, Linn. *A. amelloides*, Roem. *A. pseudo-amellus*, DC., non Hook, fil. *A. tinctorius*, Wallr. *A. bessarabicus*, Bernh. *A. ibericus*, Steud.—Stems 1—1½ foot long, erect, hairy, bearing a few corymbose heads. Leaves numerous, growing gradually smaller from the lower part of the stem to the upper, firm in texture, scabrous beneath, the lower ones oblong, about 1 inch broad, entire or obscurely serrated, tapering gradually into a short petiole, the upper sessile and oblong-lanceolate. Involucre broadly campanulate, ½ inch in diameter, not much imbricated, the bracts oblong-lanceolate, obtuse, with large foliaceous spreading tips, the outer not much shorter than the inner. Ligules about thirty, bright lilac, ½ inch long. Achene oblong-lanceolate, compressed, hispid, ¼ inch long; pappus of very numerous pale red bristles of firm texture, ¼ inch long.

Widely spread through Central and Eastern Europe, and extending to Armenia and the Caucasus. *A. bessarabicus* and *ibericus* are fine varieties, with larger heads than in the type. The closely-allied West Himalayan *A. pseudo-amellus*, Hook. fil., differs mainly by its very large outer involucre bracts, which exceed the inner in length.

33. *A. spectabilis*, Ait.; Lindl., in Bot. Reg., t. 1527. *A. elegans*, Willd. *A. speciosus*, Hornem.—Stems 1—1½ foot long, erect, slightly hairy towards the top, bearing a few heads arranged corymbosely. Leaves smooth, moderately firm in texture; lower oblong 1—1½ inch broad, entire or obscurely serrated, narrowed gradually into a short petiole; upper distant, oblong or lanceolate, sessile, amplexicaul. Involucre campanulate, ½ inch in diameter, well imbricated; bracts in several rows, lanceolate, with very distinct, squarrose, foliaceous tips. Ligules 20—30, bright lilac, ½ inch long. Achene narrow, slightly pubescent, ¼ inch long; pappus copious, moderately firm, reddish-white. ¼ inch long.

Sandy soil near the coast, Massachusetts to Delaware.

34. *A. surculosus*, Michx.—Closely allied to the last, but with a long trailing underground rootstock. Stems slender, erect, ½—1 foot long, bearing a few corymbose heads. Lower leaves oblong-lanceolate, entire, or obscurely serrated, narrowed into a petiole, which is sometimes as long as the blade; upper sessile, lanceolate, amplexicaul. Involucre campanulate, ¼—½ inch in diameter; bracts in several rows, all with distinct, squarrose, green tips, of firm texture. Ligules about twenty, bright lilac, ½ inch long. Achene slender, hairy, ¼ inch long; pappus dirty-white, flexuose, twice as long as the achene.

Coast of New Jersey southward to Georgia, and abundant on the Blue Ridge Mountains in North and South Carolina.

35. *A. sibiricus*, Linn. *A. montanus*, Richardson. *A. Richardsonii*, Spreng. *A. espenbergensis*, Nees. *A. Prescottii*, Lindl.—Stems pubescent, varying in length from a few inches to 1½ foot. Stem-leaves oblong-lanceolate, sessile, acute, sharply serrated, the lower 1 inch broad. Heads few, arranged corymbosely, sometimes in the dwarf mountain forms solitary. Involucre broadly campanulate, ½ inch in diameter; bracts in few rows, all with large erect green pilose leafy points. Ligules about twenty, lilac, ½ inch long. Achene slender, pilose, ½ inch long; pappus dirty-white or reddish, moderately firm in texture, rather longer than the achene.

A widely diffused species of boreal geographical type. It occurs in Lapland and stretches through Siberia to Arctic America, and southward along the Rocky Mountains to Wyoming and Montana.

36. *A. Radula*, Ait. *A. nudiflorus*, Nutt.—Stems slender, erect, 2—3 feet long, slightly hairy towards the top. Stem leaves sessile, oblong-lanceolate, acute, sharply serrated, thin in texture, scabrous, the lower 3—4 inches long, about 1 inch broad. Heads few, arranged in a lax corymb. Involucre broadly campanulate, ½ inch in diameter, well imbricated; bracts with short obtuse, rather spreading, green leafy tips. Ligules about twenty, bright lilac, ½ inch long. Achene cylindrical, glabrous, ¼ inch long; pappus pale red, firm in texture, rather longer than the achene.

Delaware to Massachusetts and Pennsylvania, and thence northward to Nova Scotia, Newfoundland and Labrador. *A. strictus*, Pursh. (*A. biflorus*, Michx.),



is a dwarf mountain variety, closely resembling forms of the preceding.

37. *A. Curtisii*, Torrey and Gray.—Stems 2–3 feet, long, slightly hairy upwards. Lower leaves oblong, acute, sharply serrated,  $1\frac{1}{2}$  inch broad, narrowed suddenly to a long petiole; stem-leaves sessile, lanceolate. Heads few, arranged in a very lax deltoid panicle. Involucre broadly campanulate,  $\frac{3}{4}$ – $\frac{1}{2}$  inch diameter; bracts in several rows, furnished with large spreading green tips, of firm texture. Ligules thirty, bright lilac,  $\frac{1}{2}$  inch long. Achenes compressed, oblanolate, glabrous; pappus dirty white or pale reddish,  $\frac{1}{2}$  inch long.

Alleghanies of North Carolina and Tennessee, in dry soil on the margin of woods. A fine species for garden purposes.

38. *A. Hoveyi*, A. Gray. *Biotia commixta*, DC. *Eurybia commixta*, Nees.—Stems slender, erect, 2–3 feet long, slightly hairy towards the top. Root-leaves and lower stem-leaves distinctly petioled, oblong, acute, finely serrated,  $1\frac{1}{2}$ –2 inches broad, narrowed suddenly at the base; upper stem-leaves lanceolate, sessile. Heads few, arranged in a lax corymbose panicle. Involucre campanulate,  $\frac{1}{2}$  inch diameter, well imbricated; bracts all with small deltoid erect green tips. Ligules about twenty, linear, lilac,  $\frac{1}{2}$  inch long. Achene slender, hairy,  $\frac{1}{2}$  inch long; pappus dirty white, flexuose, twice as long as the achene.

Massachusetts and Rhode Island. A very rare species, suspected by Dr. Gray to be a hybrid between *spectabilis* and *macrophyllus*. At any rate, it connects this subgenus with the next. *J. G. Baker.*

(To be continued.)

## MANURES.

TIME was when, with few exceptions, manure was looked on simply as manure, and provided it was of a sufficiently potent nature to be visibly effective in the increased development of some or other of the parts of the plants to which it was applied, it was considered sufficient, and all that was required. Manures of the commonest kind, rich in ammonia, and consequently conducive to the promotion of leaf-growth, were often supposed as all that was necessary; and unfortunately it may be set down as a certainty that too much of this happy-go-lucky sort of proceeding is still followed with many of the ordinary garden crops—fruits, as well as common vegetables. This especially applies to the host of amateur gardeners, and to the doings of the so-called gardeners who are intrusted with the management of the smaller run of gardens; not but that such mistakes are often to be seen where better things might be looked for. Yet, that the majority of cultivated plants are not only benefited by, but absolutely require more variety in the food supplied to them than has hitherto been generally supposed necessary, is exemplified by the marked results that invariably follow a mixed diet in the shape of different kinds of manure, when these are applied with judgment—that is, with sufficient knowledge of the requirements of the particular kind of plant to be dealt with.

Amongst those engaged in the cultivation of garden produce there are few, if any, whose practice goes so far to confirm this as that of the leading market gardeners in the different things they cultivate. Pot-plants, Grapes, and culinary vegetables, in their hands, alike show what can be done by the use of different manures. The extraordinary growth and profusion of flowers present in plants grown in pots small out of all proportion to the plants they hold—such as may be seen in thousands in any of the leading market gardens—and the astonishing weight of highly-finished Grapes which Vines under their management annually produce, are conclusive evidence of what can be done by the use of different manures, each rich in some or other of the various elements required to give the highest results attainable with the plants and fruits in question.

It is scarcely necessary to point to the practice named as being diametrically different to the course often followed with vegetable crops in old gardens, where for a generation or more nothing has been done but the annual application of stable manure, with possibly the occasional addition of vegetable mould in some shape or other, and with Vines that have had their roots for an indefinite time in borders with nothing to assist them beyond a repetition of the same manure, in which horse-droppings are all but the sole ingredient. Not that there is room to find

fault with this well-proved fertiliser, that has the further merit of being readily obtained and easily applied, but it does not alone contain all the elements required to reach the highest standard in the cultivation of the plants under notice, particularly in soil that has been, with little change, long under the same kind of crop. The highest results attainable in the cultivation of the various plants here noticed, and of most others, can only be reached by providing them with mixed food, varied according to the requirements of the different things to be grown, and still further regulated by the nature of the particular soil with which the cultivator has to deal.

This is a subject which young gardeners who feel an interest in the advancement of the pursuit would do well to direct their attention to. The great body of those engaged in agriculture in this country have long been taunted with groping their way, rather than making acquaintance with sound practice. But the schoolmaster, in the shape of the experimental chemist, is now abroad in earnest, and there is abundant evidence that the intelligent portion of those who cultivate the broad acres have their eyes wide open to receive the lessons taught and put them in practice. Gardeners collectively would do well to avail themselves of the teaching, which, taken in a broader sense, is equally applicable to the crops they cultivate. *T. B.*

## PERIGORD PIE, TRUE AND FALSE.

A YEAR or two ago we showed in the *Gardeners' Chronicle* how, after a microscopic examination of

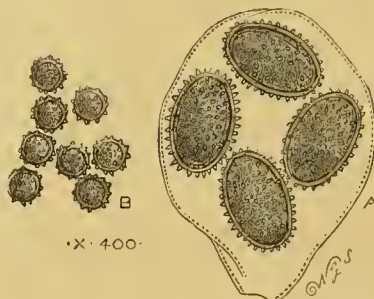


FIG. 10.—A, TRUE, AND B, FALSE TRUFFLE SPORES.

numerous samples, it could be seen of what vile compounds Mushroom ketchup is often made, and how very innocent it too frequently is of all connection with pasture Mushrooms. We have also shown how in a few moments London publicans can make artificial "fungus," or false *Zasmidium* cellare, out of soot, cobwebs, and sawdust, wherewith to garnish their bottles of "prime old port," five minutes in bottle.

Most of the readers of this paper know what Perigord pie is: it is often termed *pâté de foie gras*, or patty of fat liver. The pie is made of the abnormally fat livers of geese; the live geese are said to be fastened to boards at Strasbourg and other places, and then fixed near a fire or stove; the unfortunate geese are allowed no fresh air or exercise, and they are fed on greasy food. When the greasy geese become sufficiently ill and distended they are killed, and the fat livers are taken out, for use as one of the ingredients of Perigord pie. The carcasses are sold cheap to cook-shop keepers. There is plenty of goose at Strasbourg. Mixed with the liver is—or should be—a quantity of black stuffing, made from a delicious underground fungus or Truffle, named *Tuber melanosporum*. There is as much difference between the taste of this delicious Truffle of Perigord and the Truffle of Britain as between chalk and cheese; one is food for the gods, the other is only fit for aldermen. The first, as we have said, is *Tuber melanosporum*, the second *T. aestivum*.

There are different qualities of Perigord pie, the varieties differ according to the views of the makers. The true and luxurious *pâté de foie gras* consists of greasy livers mixed with *Tuber melanosporum*. We are not sufficiently skilled to be able to distinguish the liver of a fat goose from one extracted from a dead donkey (when chopped up and made into a pie), but the pie-

making does not destroy the characteristic points of the Truffles. The spores in their little transparent sacs remain intact. In A, fig. 10, we have engraved, enlarged 400 diameters, the fruit of the genuine Perigord Truffle, taken from a true Perigord pie; and at B a fragment of the black mass, enlarged to the same scale, which sometimes does duty for it. Fungologists will see that the spores at B belong to the internally black, worthless, and often disgusting fungus named *Scleroderma vulgare*, a fungus which is no Truffle at all. We have not only seen *Scleroderma* spores in Perigord pie, but the spores of at least four different species of Truffle, which fact shows that some *pâté* manufacturers are not very particular as to the sort of Truffle they use so long as it is black. We have seen the spores of the offensive white Truffle, *Cheromyces meandriformis*, in Perigord pie.

In some parts of London cooked turkeys are sold, "stuffed with Truffles," at so much a pound. At some shops these birds may be real turkeys, and the black patches real Truffles of some sort. We have not yet been able to detect Truffles of any sort. The black patches generally belong to the abominable fungus named *Scleroderma vulgare*. During the *Scleroderma* season our "turkey" cooking friends hailing from France and Italy visit Epping Forest, where the *Scleroderma* is extremely common, and there they nett a grand harvest, and the fungi are preserved in a dry state all through the winter and summer till the next *Scleroderma* season. The visitors go to Epping Forest on the Saturday, and have a grand long spell at *Scleroderma* hunting all day on Sunday. The *Scleroderma* has got a very hard skin, or rind—hence its name, and any one who can eat and digest it even with a goose or turkey must be a *Sclerogastric* diner. *W. G. Smith.*

## HOPETOUN HOUSE.

THIS fine demesne is situate in Abercorn parish, Linlithgowshire, near the southern shore of the Frith of Forth, and about twelve miles north-west of Edinburgh. On a warm sunny day it is a delightful drive from Edinburgh, over Dean Bridge, by Comely Bank, through the village of Blackhall, with the finely wooded Corstorphine Hill on the left, over Cramond Brig, the "scene of the gallant King James' encounter with the gipsies, and his rescue by John Howieson, who little thought that 'the Gudeman o' Ballangeich' was his sovereign until James discovered himself at Holyrood."

Hopetoun House, the seat of the Earl of Hopetoun, is a stately classical structure; it consists of a centre erected in 1702, from designs by Sir William Bruce, of Kinross, to which, many years after, Robert Adam added north and south wings, that surmounted by octagonal dome-roofed towers and connected with the body of the house by sweeping colonnades. The rooms are spacious, and embellished by many fine works of art. The north wing is occupied by extensive stables, and the spacious apartment—100 × 39 feet—which forms the south wing, and was formerly used as a family riding school, was a few years ago converted into a ball-room on the occasion of the coming of age of the present Earl.

Standing on a raised natural terrace the house commands a magnificent prospect of the Forth's basin, to Ben Lomond, and down the blue widening Forth to the Isle of May. The grounds are of singular beauty: there are 12 acres of garden laid out like those of Versailles, a deer park, &c.; the trees are unrivalled for size and beauty. The grounds are peculiarly rich in Hollies, which attain large proportions, but they were severely punished by the frosts of 1860–61. Then they were cut down almost without an exception; all the branches had to be pruned off, and they subsequently started again into a good growth. There are grand old Yews and venerable Cedars, chief among them one planted in 1748; spreading Chestnuts and tall Oaks—some of the latter prodigious in girth. There is a very fine *Abies Morinda*, a remarkable specimen of the Canadian Tulip tree—a "dark avenue of Beeches, a cluster of noble Oaks, an avenue of fourteen Ash trees, &c."

"The Seaview Walk affords visitors an opportunity of enjoying the glorious panorama of the Forth. This walk is protected on its precipitous side by a Yew hedge so thick and admirably trimmed that one



could walk comfortably upon it for several hundred yards. The shifting view from this delightful terrace walk is enchanting as seen in late summer. The dark and detached mass of Blackness Castle, projecting far into the bosom of the Forth, the bright and variegated colours of the low Fife hills, the density of the dark green woods, and the bold magnificence of the bluffs, with the whitewashed villages nestling on the sheltered beach, or lining the recesses of the creeks, combined with the moving sails of the vessels, or trailing smoke of the steamers, to give life, expression, and feeling to the exquisite picture." At the end of the terrace is the Glen of Abercorn, along what is known as Lord Hope's Walk. Near here is an abrupt knoll crowned by a group of fine Cedars. "This is the site of the old Monastery of Abercorn, mentioned by the Venerable Bede, and of Abercorn Castle, the scene of an historic incident in the annals of Scotland. It was the seat of the gallant Sir John the Grahame, the friend of Wallace, who fell at Falkirk in 1298." It then passed into the hands of several of the historic families of Scotland, and at the time it was held by the Douglasses sustained the memorable siege in which it was dismantled by the forces of James II., in 1455. Eventually it passed into the hands of the Hopes. The ancestor of the Hopetoun family was a cadet of the Craighall or Pinkie Hopes, Sir James Hope of Hopetoun, Lanarkshire, 1614-61. His grandson, Charles, was created Earl of Hopetoun in 1703; and the fourth Earl feasted George IV. at Hopetoun House in August, 1822, prior to the King's embarkation for England, at Port Edgar. The present Earl is the holder of large estates in different parts of Scotland.

There are several of what may be termed arboricultural curiosities in Hopetoun grounds, including an *Abies Morinda* grafted on a Norway Spruce. Mr. Smith, who was gardener here nearly fifty years ago, had a notion of grafting the newer coniferæ on a hardy stock, and this is one of many scattered about the grounds. This particular specimen is some 50 feet in height with the *Moriada* foliage and habit very characteristic. On the west side of the house is the south lawn, and here are some memorial trees—specimens of *Cedrus atlantica*, planted several years ago by the King of Denmark and the Princess of Wales: with others near them. Here also are a pair of very ancient Cedars of Lebanon, nearly 150 years old. It has been observed that the Cedars at Hopetoun are of a more glaucous character of foliage than is generally observed—more like *C. atlantica* than the generally accepted Cedar of Lebanon. This is supposed to be in proof of Sir Joseph Hooker's theory, that all the Cedars are offsets from a common stock.

The pinetum is said to be one of the finest in Scotland, and was begun about thirty years ago on a piece of waste land adjoining the home nursery. The arrangement is admirable, and the health and vigour of the trees remarkable. It embraces numerous specimens of every Conifer introduced into this country, and days might be spent in a detailed study of the progress of the different varieties. In the centre is a Fern bower, in which fossil Conifers are artistically employed to aid the rustic beauty of the secluded wild. A lake also enhances the beauty of the pinetum.

The flower and vegetable gardens, together with the plant-houses, occupy a warm slope falling away towards a valley. Of the plant-houses it is simply necessary to state they are filled with plants of varied character to suit the requirements of each establishment. The vineries and other fruit houses are well managed, and good crops have resulted. The flower garden was charming, thoroughly gay with flowers and foliage; in front of a range of vineries was a fine lot of East Lothian Stocks full of flower, and invaluable for cutting from, both in autumn and spring. *Chrysanthemum frutescens*, between a line of single *Dablias* at the back and one of blue *Ageratum* in the front, was very effective. The old *Gazania splendens* was simply superb, rich in colour and full of flowers, and effectively used in various ways. Mr. Muir keeps somewhat to the old lines of flower-gardening, and makes effective riband borders; but it is all harmonious, and in keeping with the surroundings. *Violas* play an important part at Hopetoun, the moist climate suits them exactly. There was a long border of them, 70 yards long by 7 feet in width. This was charmingly planted with white, yellow, blue, purple, and mauve-coloured varieties,

and was extremely effective. Sunflowers are largely grown, and most useful for the decoration of the walls, Mr. Muir using them with the happiest effect on festal occasions. *R. D.*

## Orchid Notes and Gleanings.

*SACCOLABIUM BLUMEI*, *Orchid Album*, t. 169.

A very handsome Orchid, with evergreen strap-shaped distichous leaves, and pendulous cylindrical racemes densely crowded with rose-tinted flowers, the lip bright rosy-purple. It flowers in August. It requires a high temperature, shaded from the direct sun, but where it can be exposed to plenty of light. It is best grown in baskets suspended from the roof.

*CYPRIPEDIUM GODEFROYÆ*.

This distinct novelty has recently flowered with Baron de Rothschild, at Ferrières, France, and with Mr. Lee, Downside, Leatherhead. In habit of growth this species resembles *C. niveum* in fact, the two plants when not in blossom are undistinguishable the one from the other; the flowers, however, though similar in shape to those of *C. niveum*, are totally distinct, being heavily spotted both on the front and back of the sepals and petals with rich purplish-brown.



FIG. 11.—*CYPRIPEDIUM GODEFROYÆ*: PURPLISH-BROWN SPOTS ON A WHITE GROUND.

The lip is also slightly spotted. In Mr. Lee's flower the spots towards the centre of the petals are so numerous as to form a broken line from base to tip, but in Baron de Rothschild's flower this peculiarity was not apparent. This plant was introduced from Cochin China by M. Godefroy, of Argenteuil, France. Our illustration (fig. 11) is taken from a photograph issued with a recent number of the *Orchidophile*.

*CYMEIDIUM DEVONIANUM*.

An evergreen species, with small pseudobulbs and narrow lanceolate leaves, racemes pendulous from the base of the pseudobulbs of numerous loosely arranged flat flowers, with five ovate oblong acute greenish segments spotted with red, and a trowel-shaped lip of a violet colour, with two side-blotches of darker colour. It is a native of the Khasya Mountains, blooming in this country in June. Mr. Williams recommends it to be grown in rough fibrous peat, with good drainage and a moderate supply of water. *Orchid Album*, t. 170.

*VANDA CATHCARTI*.

An evergreen species, with thick oblong obtuse emarginate leaves; flowers racemose, each about 3 inches across; sepals oblong obtuse, yellowish, with very numerous densely crowded purplish-brown transverse stripes; petals ellipsoidal acute, similarly marked; lip 3-lobed, lateral lobes small, falcate, whitish, with purplish stripes; central lobe projecting, with a long stalk, marked with two purplish streaks, and a central portion cordate, roundish, with an upturned yellow margin. Native of hot valleys in the Eastern Himalaya. *Orchid Album*, t. 168.

## ORCHIDS AT PICKERING LODGE, TIMPERLEY.

THE spirited manner in which Mr. G. Hardy has gone into the matter of Orchid growing is now pretty well known. The many fine groups he has put up at the various exhibitions in connection with the Manchester Botanical Society have always been characterised by examples of high-class culture and exceptional success in the matter of blooming. The end of December certainly is not the season for the grandest of displays, but to a lover of these plants there is a pleasure in looking upon the champions in the past competitions, and also in viewing those plants which are likely to figure in future contests. Whether, however, on exhibition stages, or as now in their present positions, arranged to make a floral display at home, it is interesting to take note and watch their progress, so that future shows may find us in a degree prepared for the wealth of beauty which will certainly be spread out for us. It is not my purpose to go through the different houses and note all deserving of mention. Still, where there are so many, it is difficult to pick out those most worthy, as it is certain to be the case that many not mentioned are equally as fine as those that are described. Some idea of the number of plants grown may be gathered from the fact that there are four ranges of glasshouses each from 70 to 90 feet long, some having three and four divisions.

The Cattleya-house is 80 feet long by about 18 wide, without a break in it, the whole filled with plants, Orchids entirely represented in most divisions, the exception being some grand plants of *Eucharis amazonica* and *candida* and fine-foliage plants in one house, with a few greenhouse plants, &c., in another. Besides these a long range of forcing pits, a fine conservatory filled with *Camellias*, *Palms*, *Rhododendrons*, &c., and a range of vineries 70 feet long, that has recently had a new roof put to it, with the beautiful fernery, the Ferns now getting well established, gives some idea of the resources of the garden and the extent of the collection of plants. The specimen *Hollies*, *Coniferæ*, and choice *Rhododendrons* in the borders are in their way equally perfect, and withal as pleasing, as the best trained and well bloomed plants under glass. Entering the Orchid-houses, some ninety plants of *Odontoglossum vexillarium* arrest attention; these are in robust health, clean, free from spot, and of good colour. One plant, a variety of special merit, has twenty-six leading growths; the flowers of this plant are of a brilliant colour, and its name, *O. v. roseum superbum*, gives no idea of its real beauty. Other grand masses have twelve, sixteen, and twenty leading growths, and many others with only a few. These plants, in their season, will be wonderfully fine. Many plants of *Maxillaria grandiflora* are here mostly just out of flower; a very fine variety has kept its bloom till now—this is broad in the divisions, with a good lip. The late Mr. Snyers always had a favourable word to say for this plant, and it is worthy of all the encomiums that have been passed upon it. It should be more generally grown. *Oncidium crispum*, *O. Forbesi*, *O. Marshallianum*, on rafts and blocks, were making good progress. Several *Lycaste Skinneri alba* are doing well in baskets, in company with such *Masdevallias* as *chimera*, *M. Backhousiana*, *M. bella*, and others. *Ada aurantiaca* was a mass of healthy and green foliage, that produced last spring forty-five spikes of its distinct orange-scarlet blooms.

*DENDROBIUMS*.

These are largely grown, *D. Wardianum* in good clumps, one plant having eighteen flowering stems, many other pieces less in size; a good piece of the white variety is showing well in bloom. Good plants of *D. chrysotoxum*, *D. Farmeri*, *D. suavisimum*, *D. thrysiflorum*, and a nice piece of the true *D. Griffithianum* have made up nice bulbs and will shortly be showing flower. Here was to be noticed a large plant of *D. Paxtonii*, an old acquaintance that some will remember as being one of the showiest varieties that was grown some twenty years ago, and though the flowers are short-lived, still it makes an attractive object. This plant has made growths 5 feet in length, twenty-four being new ones, and the old bulbs number fifty; last spring it produced 123 spikes carrying 126 of its gorgeous golden-orange and purple blooms. *D. clavatum* is also well represented. Numerous plants in baskets of *D. Ainsworthii*, *D. primulinum*, *D. crepidatum*, and *D. crassinode* were getting forward for bloom. *D. Findlayananum* also,



the plants that were first exhibited at the Town Hall, Manchester, when many growers were enabled to see this choice species for the first time, were also doing well—the good stout bulbs now ripening for flower. Mr. Hardy is also very successful with *D. Jamesianum* and *D. infundibulum*, and specimens of these were now looking well.

#### CATTLEYAS.

In the Cattleya-house were a multitude of splendid specimens of *Lælia purpurata*, many established recent importations also furnishing some of the largest masses. The same may be said of *Cattleya Gaskelliana* and *C. Warneri*. These plants, in a short time, will be objects of surpassing beauty. For *C. gigas*, *C. Sanderiana*, and other varieties to be met with in these types, Mr. Hardy is famous. One or two plants of exceptional merit were perhaps among the finest ever seen. *C. Trianae*, *C. Mendelii*, and *C. Mossiæ* are here by scores, stout, healthy, and of good colour. The *Trianae* section just commencing to flower, *C. Skinneri oculata*, a grand plant with fifteen leading growths, a plant with a history; two other masses of *C. Skinneri* 4 feet through, *C. crispa amethystoglossa* were fine plants, whilst among the gems mention must be made of *C. Trianae nobilis*, *C. Mossiæ Rothschildiana*, *C. Trianae Leeana*, *C. Bluntii*, and *C. exoniensis*, the plant that bore the spike with seven flowers exhibited at the Town Hall, Manchester, on the occasion of the *Chrysanthemum* show in November last. *C. Mossiæ Hardyana*, and *C. Trianae Hardyana* (a grand form, and a piece that, strange to say, made no attempt at growth for three years, but during the last season threw out roots in quantity) has developed a nice plump bulb. I need hardly say Mr. Hill showed me this plant with much pleasure and satisfaction.

Many plants of *Lælia anceps* were in flower, and besides the ordinary type there were plants of *Dawsoni*, *Hilli*, and *Williamsii*, in bloom; these latter pure white forms with variously marked labellums are very chaste and beautiful. Of *Cypripediums* there are all the leading sorts. *Sedeni* had eight flower-spikes, and *C. Lowi* and *C. Roezlii* were in flower; *C. Dominianum*, *C. Stenei*, *C. levigatum*, with *C. Lawrenceanum*, *C. Spicerianum*, and *C. niveum*, were in quantities; *C. Schlimii album* and *C. Parishii* were in flower. A fine piece of *Odontoglossum coronarium* is doing well in a basket—its near ally, *O. brevifolium*, just showing three flower-spikes. *Coelogyne cristata* is freely grown, as are the new varieties, such as *C. Lemoniana* and the *Chatsworth* and *Trentham* varieties. On blocks were some large masses of *C. citrina* doing well, some of them just showing for bloom. *Cattleya Wallisii* with pure white flowers and an orange-coloured throat, is in flower, as was *Lælia peduncularis*.

#### THE PHALÆNOPSIS

are good—have made fine leaves during the past season, and are now opening flowers on many spikes. *P. Schilleriana* was seen by dozens with stout and strong leaves, a span to a foot long, firm and of a fine colour; *P. amabilis*, *P. grandiflora*, and *P. g. aurea* were likewise good. *Odontoglossums* occupy two large houses, there being about 1000 plants in all leading sorts, masses of *Masdevallias* being placed among them. In this cool-house a fine plant of *Nanodes Medusæ* was growing in a basket, and which flowers freely. *W. Swan, Fallowsfield.*

#### ORCHIDS AND OTHER PLANTS IN FLOWER AT KEW.

I HAVE visited during the last few years many collections of Orchids near London during the winter months, and I do not think that I have previously seen better or more perfect development in the flowers than was evident at Kew during the closing weeks of December. Entering the large range of span-roofed houses from the cool end, the first and greatest attraction is a very fine group of *Cypripedium insigne*, containing well grown and well bloomed plants of the ordinary kind, and one good plant of the variety *C. Maulei*. This species and its varieties stand in the very front rank, because of their easy culture, long lasting properties, and, in the case of the varieties with nearly white dorsal sepals, their great beauty. In our own collection we have a plant of the ordinary kind which stands in the corner of the cool-house; it is potted once in two years, and does not fail to reward the small attention it receives by flowering profusely for three months out of the twelve. The *Masdevallias*

comprise *M. Chelsoni* and *M. ignea*, both are very brilliant and a striking contrast to *M. towarensis*, also in flower. *M. velifera* is distinct, and though not handsome, is interesting if not examined too closely. *Odontoglossum cariniferum* has a peculiar spike, the flowers having yellowish-brown pointed sepals, and petals with white lip. *Dendrochilum uncatum* is a very pretty species, with arching spikes, like *D. glumaceum*; flowers closely set on the spike, and greenish-white. *Burlingtonia decora picta*, a very richly coloured and handsome form; the lip is white, the sepals densely marked with peculiar maroon-purple spots. *Oncidium excavatum* formed a dense spike of yellow and brown blotched flowers, while the handsome *O. tigrinum* made a brave show with its large primrose coloured lip and powerful perfume. In a warmer house is *Ansellia africana*, a handsome upright growing Orchid, with pale yellow flowers, yellow lip; the sepals and petals marked with brown spots and blotches. *Cattleya luteola* is no great beauty; the flowers are not large, five on a spike, and pale yellow. *Cypripedium longifolium* and *C. Roezlii* were both well in flower; large handsome plants both of them are. *C. Sedeni* and *C. Dominianum*, arranged with those two and also in flower, had a very good effect. An Orchid to be avoided in a well ordered collection is *Liparis cylindrostachya*. It has no beauty, and the smell of it is disgusting.

It is interesting at all times to walk through the various greenhouses, &c., to note and critically examine plants and flowers seldom met with anywhere else. In the succulent-house is a flowering specimen of *Senecio macroglossus*, trained to the rafters for a distance of 30 or 40 feet. The leaves resemble those of the Ivy, and the flowers, which are pale yellow, remind one of Paris Daisies. In the greenhouse there is planted out and in fine flower an excellent specimen of *Luculia gratissima*. Its numerous cymes of pale pinkish flowers charm with their beauty and fragrance. In the temperate-house small plants in pots were also finely in flower. Plants of *Peristrophe speciosa* (*Justicia*) were nicely in flower in the Palm-house; the bright reddish-purple flowers were very attractive. A group of plants in one of the stoves of *Begonia Socotrana* claimed attention; the deep rose flowers, more freely produced than usual, could not fail to please. *Canarina campanula*, a very old plant, was nicely in flower in the Heath-house. It was introduced from the Canary Islands so long ago as 1696. The flowers are formed like those of a *Campanula*; they are orange-red in colour, streaked with bright red. Placed near it in the same house was a flowering plant of *Campanula Vadilii*, a distinct and good species, with smallish white flowers on erect spikes. *J. Douglas.*

#### CALANTHES AT GREENLANDS, HENLEY-ON-TIAMES.

FOR winter decoration this plant has no equal. Some grand examples of cultivation now adorn the houses. Amongst many other novelties at this establishment grand spikes of *Veitchii*, upwards of forty flowers, a good deep bright rose variety (the best I have seen); *vestita lutea* and *vestita rubra* wonderfully good also. These are grown here in very large quantities for indoor decoration, and when mixed with graceful Palms and Ferns produce a grand effect.

#### LÆLIA ANCEPS

is grown also for the same purpose, and will succeed the former nicely. Mr. Perkins is to be congratulated upon his success in the cultivation of these and other useful decorative plants for the same purpose. His demand is very great, but he copes well with it by doing these in large quantities. *A. Outram.*

ORCHIDS AT A RECENT SALE.—It may be interesting to note a few of the highest figures brought by Orchids at the sale of the Fallowfield plants by Messrs. Protheroe & Morris:—A white variety of *Lælia anceps*, from St. Albans, fetched 24 guineas; a fine *Odontoglossum Pescatorei*, with a dark spot on the lip, 20 guineas; another, 10 guineas. A remarkably fine variety of *Cattleya chocoensis* realised 11 guineas. A specimen of the handsome *Cypripedium selligerum* was sold for 20 guineas. The final portion of the Fallowfield Orchid collection will be sold on Tuesday, February 3.

## THE NOMENCLATURE OF COLOURS.

(Concluded from p. 13.)

PERSICINUS AND PERSICOLOR are difficult to describe more intelligibly than by peach coloured. *Armeniacus*, apricot-coloured, is explained by Fries as tawny-cinnamon (*fulvo-cinnamomeus*) or yellowish-tan (*helvolo-alutaceus*).

#### BROWNS.

The browns are as extensive as the greys, and comprise every tint between impure yellow and the deepest burnt-umber. Their distinctions are best understood by grouping them into yellow-browns, red-browns, and true browns.

Of the yellow-browns cinnamonous, cinnamon, a light yellowish brown, is the palest and most familiar. *Gilvus* is a yellower shade; *Agaricus* (*Clitocybe*) *splendens* may be taken in illustrating the type of the colour, a yellowish tan, as it was formerly known as *A. gilvus*; classically, *gilvus* was an epithet of a dun or cream-coloured horse. *Alutaceus* has rather a wide signification, but it seems best translated by buff or tan. When it is lighter and yellower it is *helvolus*, the epithet of "white" wine and "white" grapes in Pliny; in describing *Cortinarius iliopodius*, Fries explains *helvolus* by *alutaceus*, but there must have been some distinction in his mind between the two terms, for he uses the compound, *helvolo-alutaceus* as "dusky cinnamon," a fact which appears to show that even Fries himself was not so clear in the application of colour-names as we should like to be. *Crustulinus* seems to be the colour of toast, much darker and warmer than that of a cracknel-biscuit. *Ochraceus* is yellow-ochre, and *melleus*, honey-yellow, is dingier and less yellow; *luridus*, sallow or wan, is still paler and less yellow, almost like that which builders call "stone-colour." *Rhabarbarinus* is the light brownish-yellow of Turkey Rhabarb. *Isabellinus* is a light brownish-yellow or dirty cream-colour. The word has a history, and was first used of unwashed linen. The Infanta of Spain, daughter of Phillip II., made a vow in 1601 that she would not change her linen until her husband had taken Ostend; as that city did not fall till three years after, she must have saved her washing-bill at the price of some discomfort.

Fawn-colour does not fall very conspicuously into any of my three divisions of browns, but most of us know the hue so denoted; *cervicolor*, *cervinus*, and *hinnuleus* all seem to mean much the same. *Cervinus* is applied to the darkest shade, and Fries explains *hinnuleus* as a tawny-cinnamon (p. 380).

The brownish ochrey-yellow colour known to artists as "gall-stone," only with an inclination to a dirty green, is denoted by *ictericus* or *icterinus*.

The brightest of the red-browns is *lateritius*, the colour of old red tiles; its paler shade, that of *A. (Hypopholoma) sublateritius*, is familiar to us all. *Testaceus*, brick-coloured, is a reddish-brown or rusty bay, almost Venetian-red. *Fulvus* is tawny, the colour of a lion, and is also known as *leoninus* or *leochromus*; *fulvellus* seems to be paler and redder, and very like that which gives its name to *A. (Collybia) nitellinus*, dormouse-colour. *Ielvus* is a light bay or "cow-colour," like *vaccinus*. *Badius* is a reddish-brown, the colour of a "bay" horse; *spadiceus*, date-brown, is a duller and darker shade. *Hepaticus*, liver-coloured, is a darker and redder brown than bay. *Ustalis* denotes a warm reddish bay, between red-ochre and brown-madder.

Of the true browns, the type is *brunneus*, Vandyke-brown. *Colectus*, like roasted coffee, is very similar. *Ligneo-brunneus* is a lighter or wood-brown. The apparently extinct *A. (Lepiota) Poulletii* is described by Fries as *colore "de noisette,"* which must mean a light nut-brown or hazel. *Umbrianus* is a dark brown, brown umber, the colour of a "brown" horse; indeed, the scale of colours used in describing horses, from dun through chestnut, bay, and brown to black, shows how, in ordinary language, the name of a colour is always taken as of a very extensive connotation, because it is hard to decide where one colour ends and another begins.

#### REDS.

We now come to the reds and their varieties. The palest is *carneus*, with *carneolus* and *incarnatus*, flesh-coloured. *Ilysinus* is a more distinctly red flesh-colour. *Rosceus* and *rosaceus* imply a rosy-pink; *rosellus* seems to mean inclined to pink.



There must be some difference between the shades of scarlet or vermilion distinguished as cinnabarinus and miniatus, because each is compounded with the other as cinnabario-miniatus, but I have not succeeded in finding out what the difference is. Coccineus, cochineal red, is a deeper scarlet, carmine. Sanguineus, blood-red, is nearly similar. Rufus, ruber, and rufus are less pure reds. Rubescens is merely becoming red. Rubellus, rufidulus, and rufulus are reddish. Rubens is a brick-red; rutilus, rutilans a purplish brick-red. Vinaceus is reddish rather than claret-coloured, but it does not seem to be ever used in descriptions. Less pure reds are castaneus, chestnut; ferrugineus and rubiginosus, rust-red; and puniceus, which is an almost purple red.

#### BLUES

Are so rare among fungi that very few names are required for them. Cœruleus is a pale blue, azure; cœrulescens is becoming blue. Azureus, luzulinus, and cyaneus are, rather ultramarine. Cyanellus is almost sky-blue. Purpureus is a bluish-purple; violaceus, violet, is a reddish-purple; lilacinus is lilac or mauve. Ianthinus and ionides alike refer to a violet colour. Porphyroleucus should mean purplish-white, but A. (Tricholoma) porphyroleucus, Bulliard, is described by Fries as "sooty or dusky, becoming red."

#### GREENS.

The type of the greens is viridis, but it is of no definite hue; virescens and viridans mean turning green. Virgineus and eruginosus refer to a verdigris, or rather bluish-green. Olivaceus is olive-green, olivascens denoting the preliminary stage of becoming green. Pausiacus describes precisely the same green, from pausea or pausia, a variety of olive; for Fries says of A. (Clitocybe) pausiatus that the gills are olivaceous. H. T. Wharton, in "*Grevillea*."

### JAPANESE VEGETABLE FOOD PRODUCTS.

(Concluded from p. 782, vol. xxii.)

**KASADYUKE.**—This is a preparation of white Melons, To prepare it the Melons are cut open, and the seeds removed with a Bamboo spatula; a small quantity of salt is spread over them. After the juice of the Melons has been absorbed into cotton cloth, a mixture of Sake residuum (a kind of spirit from Rice), and a certain proportion of alcohol, is gradually poured upon the bottom of an empty tub; upon this the salted Melons are laid, then a layer of wine residuum, and another layer of Melons, and so on, till the cask is full; it is then headed up, and kept for four or five months before using.

In Japan at the present day this substance is served at the close of every meal, when warm water or tea is drunk. When taken after eating meat or fish it is very wholesome and delicious. At breakfast, when there is only boiled Rice and miso soup, and no fish or vegetables it helps to complete the meal. It is also a good accompaniment to a cup of tea.

#### SOY.

Two preparations from the Soy Bean (Glycine soja), besides that already referred to, deserve mentioning—namely, miso, a fermented substance; and shoyu, or soy itself. The first is a curious preparation, described as follows:—There are many ways of making miso, differing very little from each other; the kind containing the largest quantity of yeast is considered the best. The usual mode is after soaking Soy Beans in water for about two hours to put them into a suitable vessel and steam them; then, after mixing them with salt and yeast, they are removed to wooden plates; then the ingredients are very evenly mixed, the liquid is put into casks, and is then left untouched for upwards of a year. Another method is to soak a quantity of yellow Soy Beans in water for a night, then boil them in a large kettle, and as soon as the water in the kettle has evaporated, and the beans show a reddish-yellow colour, they are removed to a mortar and pounded, after which they are placed on mats. When they are thoroughly cooled they are shaped into balls as large as hand-balls, cut with a knife into flat pieces about an eighth of an inch thick, and placed on mats shaped like scales of fish. As soon as mould appears upon them they are taken, crushed into small pieces, and exposed to the rays of the sun for a day or two. When nearly dry, salt and

water are added to them, and the whole is pounded in a mortar and then left in a cask for a month or two, and sometimes longer, when the preceding process will be repeated. Finally, if it is sealed up in casks it will never deteriorate. It is in prime condition when three years old. It forms one of the most necessary articles of food in Japan, and has been used from time immemorial, both by nobles and men of inferior rank. It is made into a soup, and is one of the courses served up as a principal article of everyday diet. The mode of preparing the soup is to rub the miso around an earthen bowl, into which a suitable quantity of water has been poured. It is then filtered through a sieve, and vegetables added according to taste; the whole is then boiled and served up. Miso is also used to give an agreeable flavour by mixing it with other food, and it is likewise mixed with condiments, as Japanese Pepper, Ginger, Horse-Radish, Chillies, Sesame, Poppy seeds, &c.

Soy or *Shoyu*, is perhaps the chief product of the Soy Bean. It consists of a mixture of these Beans, Wheat, salt, and water. The mode of preparing it is to thoroughly boil, after washing in a cask with water, fifty parts of Beans, and to parch about fifty parts of Wheat in a pan for a little while and thoroughly boil it, after grinding on a stone mill: when these two substances are mixed together and kept in a warm room for about four days, the substances are converted into a yellow flour-like matter: this is yeast. This yeast is then thrown into a mixture of salt and water, and afterwards thoroughly cooled, then boiled in a large kettle, and stirred with a Bamboo instrument twice a day in summer, and once a day in winter. After the lapse of three years, the sediment is poured into a bag then put into a small tub and submitted to strong pressure by means of a bar at the end of which hangs a heavy weight. The fluid expressed is poured into a kettle and submitted to a heat of not more than 80°; it is again removed to a large tub and set away for a night, when it becomes a deep black colour, and acquires a very delicious taste.

Soy is one of the most valuable foods, and is in daily use; mixed with several kinds of food it imparts to them a delicious flavour. It is universally liked, and is really indispensable in the Japanese kitchen. The quantity annually consumed in Japan is extremely large, and of late years the article has been exported.



### EUCHARIS AMAZONICA.

THE columns of the *Gardeners' Chronicle* have for some time borne strong evidence of the fact that this fine old plant is rapidly becoming a cultural puzzle not easy of solution, and when such recognised clever cultivators as Mr. Hudson have nothing more to offer than the good old-fashioned remedy, "Gregory's Powder," for all diseases—"cleanliness," "size of pot," "airy shading," "moisture," &c.—it is quite clear to me that a correct diagnosis has not been attained of the typical case of Eucharis disease referred to by "A. E." (p. 746, vol. xxii.) and others. I shall, therefore, endeavour to throw a little light upon the subject, with the hope that it may be of some use to such puzzled and muddled mortals as myself. I have been a large grower of Eucharis amazonica for more than twenty-five years, and have been in the habit of keeping up almost a perpetual display of bloom by managing batches of plants for this purpose, and the magnificent "black-green, leathery leaves" and large size of the flowers produced by my plants have been the admiration of thousands of persons during these years.

To some growers having no practical acquaintance with a diseased stock of Eucharis, such as described by "A. E.," it appears somewhat ridiculous that a plant requiring such simple cultural treatment should, in the hands of very clever cultivators, prove quite unmanageable, and distressed mortals like myself are treated to "thick leathery leaves"—twenty, thirty, forty—ah! more—flower-stems on a plant, the usual "Gregory's" regimen of culture, a few egotistical flourishes, and then the writer seems to think that the unfortunate possessor of unhealthy plants has had a great boon conferred upon him. Bah! I have seen

these jaundiced Eucharis in the hands of some of my friends—men capable and excelling in the cultivation of all kinds of plants, however "miffy," except this one of simple requirements—Eucharis amazonica: and a little friendly sarcasm was always at hand to comfort and enlighten them in their difficulties—very valuable ail, no doubt. But my eyes were opened a little when I saw about the grandest stock of large plants in this country smitten and dwindle away month by month, and defying all efforts to revive them to a state of decent health and vigour, well knowing that no man had cultivated Eucharis more successfully than my friend had for many years past. Why, these very plants, house after house, had been the subject of panegyric in your pages and other gardening periodicals time after time, and never did place stink so of the odour of Eucharis as this place, for the flowers were grown to be looked at. I had great faith in my friend's abilities, but having no experience in such an "affected" stock of Eucharis, I wished to experiment upon a plant at home, and the opportunity was cheerfully given. As "cleanliness is next to godliness" in a moral life, so it occupies a very advanced position in successful cultivation. Very careful washing of bulbs took place—most unerring mixture of compost—studied adjustment of size of pot to bulbs—and all the usual "Gregory" of culture most carefully carried out. The plant was placed in a pit not devoted to growing Eucharis, duly labelled, and in the course of a few weeks had made such satisfactory progress that I began to fancy the friend from whom I had obtained the plant must have forgotten his school lessons—had indeed found so much interest in examining and admiring the hairs upon gnat's toes and other similar objects under the revelations of a 25th object glass, that he had neglected the simple guide-posts of culture in Eucharis. A few more weeks, however, dispelled this notion, for the plant failed to make satisfactory progress; more washings of bulbs and transference into new pot, new soil, &c., took place, and the progress was slow, and I somehow lost sight of the plant for several months—indeed forgot all about it. A change had taken place in the charge where this plant was located. A most worthy and methodical young gardener had considered that one plant of Eucharis alone, where there were houses after houses of them, must have been an oversight, and considerably placed it amongst brethren. Some months after this I found this same plant in one of my houses looking pale and sickly, with the usual yellow leaf-margins, and at once had it moved to the rubbish yard. Some six months after this some of our grand plants began to show signs of distress—paler green, and less substance in the leaves—and soon it was clear that Eucharis disease had been introduced. Plant after plant was smitten: I became alarmed, collected all the still healthy plants into one house; still they sickened. I plied lens and microscope vigorously. I could discover neither fungus nor insect to account for the change. More lens and more microscope brought me in sight of game which I must tell you about next week. Z.

— Respecting the inquiry from "A. E.," I quite think with Mr. C. E. Pearson, that disease is the cause of his failure and the bad state of his bulbs, and I have no doubt but they are attacked with the same disease I have seen in some other collections. When so attacked by disease the roots turn to a red colour at the points, and a gummy juice oozes from them; the young rootlets decay as fast as they come, and make but very little leaf, which latter turn yellow and die off, although the bulbs themselves look pretty sound. After trying everything for two years to get them into good health without avail, they had to be thrown away in each case; and I should advise "A. E.," or any one else, to destroy them at once, and start a fresh healthy stock, which readily increase if kept in heat. I consider the cause of the disease and failure to grow to be the result of the treatment the plants received. One lot had been divided and repotted too late in the season, viz., September, and then kept too damp before they had made fresh roots; the other lot consisted of as fine bulbs as I could wish to see; they were in 10 inch pots, well filled with fine bulbs; these were put into a cold house to rest, and kept too damp, and they became diseased in the same way, and had to be destroyed. I always keep my Eucharis in heat when resting them, but keep them tolerably dry for two or three weeks. When growing I give them manure-water. They flower three times in the year. Wm. Smythe, Basing Park.



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Jan. 12	Sale of Immense Importation of Lilies, Seeds, &c., at Stevens' Rooms.
TUESDAY,	Jan. 13	Royal Horticultural Meeting: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.
WEDNESDAY,	Jan. 14	Sale of Roses, Border Plants and Bulbs, at Stevens' Rooms.
		Sale of Lilies, Roses, and Bulbs, at Protheroe & Morris' Rooms.
THURSDAY,	Jan. 15	Linnean Society meets at 8 P.M.
		Sale of Valuable Imported Orchids from Mr. F. Sander, at Stevens' Rooms.
		Sale of Glass Erections, at The Hills Nursery, Fulham, by Protheroe & Morris.
FRIDAY,	Jan. 16	Sale of Established Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	Jan. 17	Sale of Roses, Hardy Plants and Bulbs, at Stevens' Rooms.

**P**ROFITABLE MARKET GARDENING depends on the accumulation of fertility in the soil, and on the existence of a good available market for the produce. If a map could be prepared showing the occupations of the people, market gardens would be found clustered about the centres of population and within reach of the manure of towns; so that whatever industry farmers may aspire to, besides their own special calling—and we have known them thrive as dealers, brewers, publicans, millers, seed growers, tanners, auctioneers, and even as bankers—the business of market gardening is usually beyond their reach. In certain localities, no doubt, they may dabble in it a little, but, as a general rule, farmers can and do find numerous outlets for their enterprise, including not merely the avocations we have mentioned, but also such sports as hunting and shooting, but they cannot, in the long run, farm and garden on the same spot.

A few years since the experiment of market gardening was strenuously urged upon farmers, and examples were given of large profits by the growth of Sprouts and Cabbages, Turnip-tops, and Carrots. Mr. RANDELL, of Worcestershire, told the Commissioners, on the occasion of the inquiry into the causes of agricultural depression, that he had made money by selling Cabbages sometimes instead of giving them to sheep, and Mr. ROBERT RUSSELL, of Kent, has done exactly the same thing, as certain over sanguine writers are in the habit of stating in the agricultural papers. It seems to us that if farmers read the agricultural and gardening papers—and those who contribute to them have bitterly complained that they do not—they would meet with a great deal of very dangerous advice on the subject of growing vegetables. All the world knows that Wheat is at the present moment an unprofitable crop, in most cases, but that is no reason why farmers should speculate in the cultivation of crops which are still more unprofitable, while Barley and Oats and live stock have considerably risen in value. There is really nothing new in regard to the subject before us. Mr. RUSSELL is a large sheep farmer whose pet crop is the Thousand-headed Cabbage. He humorously admitted at the London Farmers' Club, that he had "Cabbages on the brain." But he knows his business well, and in seasons when green stuff is scarce in London, he allows his sheep rather more corn and spares some Cabbages for market. Mr. RANDELL does the same, and the same thing has been done this thirty years past in scarce seasons, when Turnip-tops and other hardy Greens have always come by train from unusual distances. But farmers know better than their inconsiderate advisers appear to do that constant markets are necessary to the development of a great industry. They know that the same horse has never won the Derby two years in succession, and they are not so foolish as to invest heavily in Turnip-tops because they may have gained a trifle on that crop last year. The annual yield of home-grown Wheat is from 12,000,000 to 13,000,000 quarters, worth about £25,000,000—a large sum to be made up by the cultivation of garden crops as substitutes. Farmers, it would seem, have lost the profit of a crop that has usually covered about 3,500,000 acres, and they are

told to seek it in the extension of market gardens, which in England and Wales cover less than 40,000 acres. Mr. RANDELL has added a few hundreds to his income by selling Cabbages in the fertile Vale of Evesham in a dear time, and farmers are exhorted and scolded for not doing likewise to the tune of £25,000,000. The industry and zeal of some writers are admirable, but they should remember that Mr. RUSSELL is a great sheep farmer, and not a market gardener. His sheep are the best in Kent, and he grows green crops for sheep, not for market. He was listened to with interest lately on the subject of agricultural depression, and these misleading writers will perhaps observe that, amongst his remedies, he omitted to mention farm gardening and occasional Sprouts as matters beneath notice in the discussion of an industry so extensive as that of farming.

Those who need instruction on the subject of a very interesting occupation, and farmers who would pick up valuable hints on a system of intensive husbandry, which may teach them much, though they cannot emulate, or, at all events, copy it exactly, might spend a pleasant day in the season among the market gardens of Barking and the surrounding districts. The farm gardens extend as far as carts can travel to and from London, carrying vegetables and bringing back manure. The system of cultivation is dependent on the supply of manure from outside the farm, so that the gardening is strictly confined in its limits, and is replaced by farming beyond them. Other points of great importance upon which an enquirer should satisfy himself by accurate observation, are that the art of market gardening is special in its character, like that of stock farming; that masters and men in market gardens should have served an apprenticeship to their business; and that the union of gardening and farming has rarely proved successful. Manure is "the soul of agriculture;" in market gardening it is soul and body too. "The more manure the more Rhubarb," is a common saying among men who sometimes apply 100 tons of dung per acre at a cost of £30 or £40. In opposition to a great deal of misleading counsel in the papers farmers have had the advantage of listening to Mr. GLENNY, of Barking, who discoursed upon our subject, with full knowledge of all its details, before the London Farmers' Club. Some time since, when we saw Mr. GLENNY's market garden, it consisted of 116 acres under vegetables, the manure bill amounting to about £800 a year, and the labour bill to £1500, the number of horses engaged in cultivation and in the cartage of produce and manure a distance of 8 miles, to and from London, being a dozen, instead of only four which an ordinary farm would require. A prudent farmer living outside the proper limits will pause before he enters upon such a business as Mr. GLENNY's.

In regard to vegetable markets and to those "big Gooseberries" which farmers are advised to cultivate, there are no other markets and no other articles which suffer such sudden depressions, and such violent fluctuations. The "big Gooseberries," too, must be brought to market rapidly and disposed of at once, or they spoil like fish at Billingsgate in summer, and become worthless. All we can hope to do in an article is to bring forward reliable evidence on matters of fact, leaving the verdict to those who are interested. You cannot silence a critic. As regards the occasional over-supply of the vegetable markets, when "big Gooseberries" and other articles become even more unprofitable than Wheat itself, the critics buzz like bees around the subject. London has five great vegetable markets—Covent Garden, Spitalfields, the Borough, Farringdon, and Stratford—and it has hundreds of streets wherein Lord SHAFTESBURY'S friends, the costermongers, ply their trade at a small profit, besides a very large number of "cutting shops," which have greatly

increased in recent years, where vegetables and fruit are sold at a narrow profit. The critics say "break down the monopoly of markets and you may at once double the consumption of market-garden produce, and prevent the glut you complain of;" but surely if the critics cannot or will not farm so as to put their advice to the test in that direction they might and should try what they can do to supply those parts of London which they say are at present almost deprived of vegetables. They might work by barrow or by means of cheap shops, and in spite of the supposed monopoly, in spite of high quotations in the trade journals, they will find that they can purchase in the wholesale market as cheap as they could wish. But we fear our programme will not suit them. They will probably prefer, as heretofore, to stroll about Covent Garden at noon and test the strength of the monopoly by comparing the price of a single Cabbage in the Central Avenue with the value of Mr. GLENNY's waggonload, sold in the street. They might as well complain of the price of a pint of bird seed in the retail shop—and bird seed will keep—as compared with the value of a cargo in the Thames.

On the whole, Mr. ALBERT PELL, M.P., was not far wrong when he applied to these statements of the critics the unvarnished epithet, "Humbug!" But none know better than the farmers that the management of their business must be directed by practice, not by theory. Have any of these critics tested their adventurous policy? French journalists are accustomed to put their names to their articles, and on a point of practical management, involving profit or loss, the critics we refer to may be reasonably asked to produce their credentials. Have they grown these "big Gooseberries" themselves, or only dreamt of them?

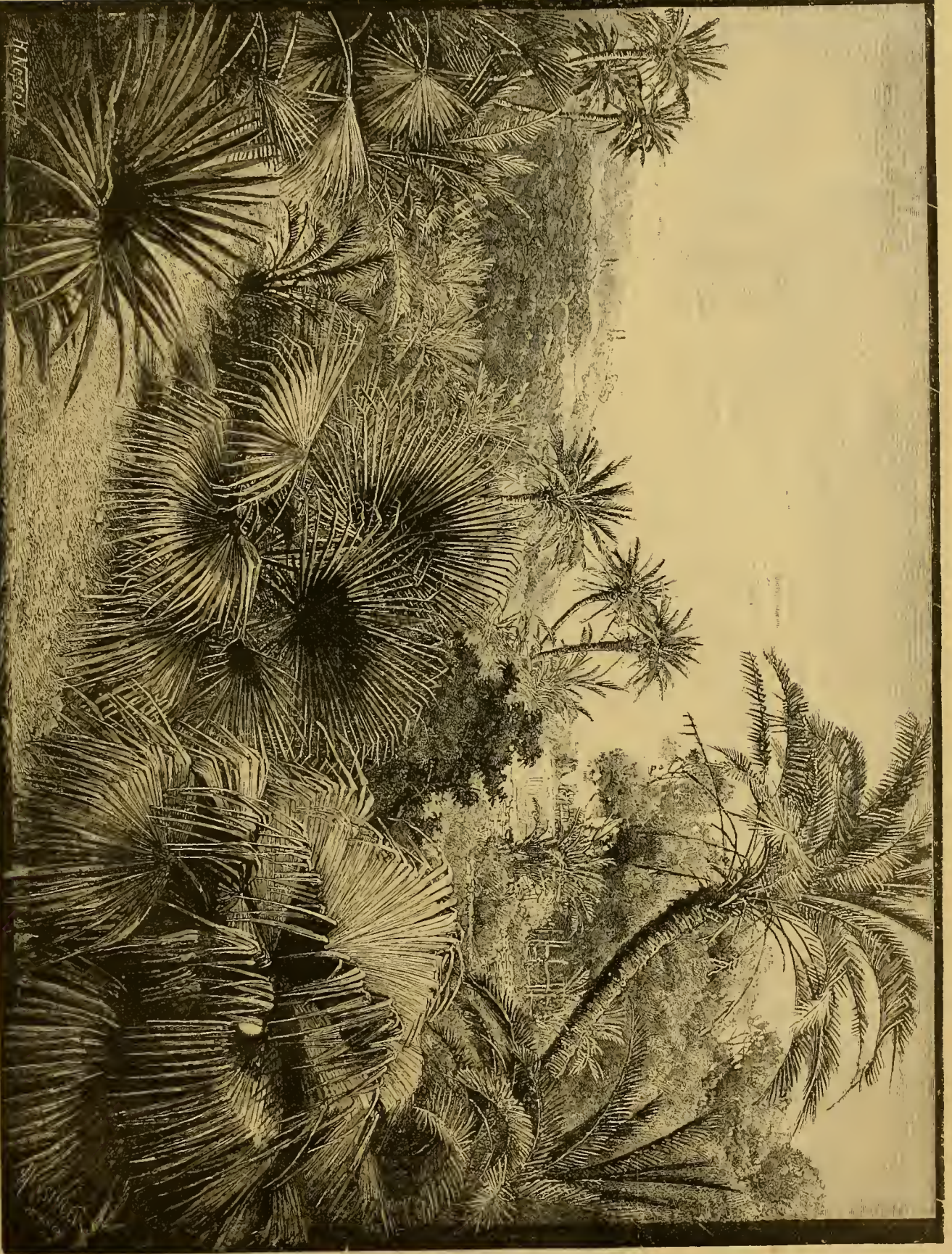
— THE DATE PALM.—We have on various occasions alluded to the culture of the Date Palm at Bordighera and other places in the Riviera for decorative purposes. The leaves are tied together, and thus blanched, and after drying are gilded and used on Palm Sunday and other festivals of the Roman Church. But besides this, which was, we believe, the primary use to which they were put, the leaves are now largely used in the manufacture of ornamental baskets and similar elegancies. Our illustration (fig. 12) shows a portion of a plantation of Date Palms, *Chamerops*, *Latania*, &c., belonging to Mr. WINTER, of Bordighera, from whom we lately received illustrations of very elegant bouquet-holders and similar articles fabricated from the Palm leaves. Although the Date Palm flourishes so well in the Riviera climate, the heat is not sufficient to induce it to flower, though at Genoa on one occasion we remember to have seen a spike of fruit which promised to ripen with the protection of a hand-glass fastened over it.

— NEW ORLEANS INTERNATIONAL EXHIBITION.—Messrs. CHEAL & SONS, of Crawley, Sussex, have been awarded the Gold Medal for the best collection of one hundred varieties of Apples, also five Silver Medals for other collections and classes of Apples and specimens of fruit trees, and money prizes to the amount of 420 dols. The whole collection consisted of about 2000 fruits, in 200 varieties.

— ROYAL APPOINTMENTS.—We are informed that Messrs. ROBERT VEITCH & SONS, seedsmen and nurserymen, Exeter, have been recently appointed seed merchants to Her Majesty the QUEEN.—Messrs. THOMAS GIBBS & Co., Down Street, Piccadilly, London, the seedsmen to the Royal Agricultural Society of England, have received the Royal Warrant appointing them seedsmen to Her Majesty the QUEEN, this firm having for many successive years had the privilege of supplying Her Majesty.

— "BOOK LORE."—This is the title of a new "magazine devoted to old-time literature." It is substantially got up and clearly printed. The articles are varied and interesting. It is published monthly by ELIOT STOCK.







— MR. FORSYTH JOHNSON.—We are requested to state that this gentleman has resigned the management of the proposed Forestry Exhibition at the Alexandra Palace. Mr. JOHNSON'S offices have been removed to Albion Chambers, 60, Haymarket.

— VARRELL'S BRITISH BIRDS (VAN VOORST).—The last part of this new edition, now edited by Mr. HOWARD SAUNDERS, contains the history of the herons, storks, bitterns, and allied birds, and is consequently of exceptional interest. It is needless to say anything in commendation of this well-known publication.

— CALENDAR OF OPERATIONS.—One of the most concise of these is issued by Messrs. ROBERT VEITCH & SONS, Exeter, containing as it does an almanac filled in each day with a single line indicating some seasonable work to be done; thus fulfilling its task of a useful reminder to the gardener by profession and the amateur.

— THE "BOTANICAL MAGAZINE."—The January number of this, the oldest of all horticultural periodicals, opens with a figure of the magnificent *Magnolia Campbellii*, t. 6793. The representation is taken from a tree which flowered in Mr. CRAWFORD'S garden near Cork. The cultivated flowers are very inferior in size and colour to the superb flowers illustrated in the *Illustrations of Himalayan Plants* from specimens collected by Sir JOSEPH HOOKER. The species is near *M. Yulan* and has deciduous leaves. The wood is valuable.

*Idesia polycarpa*, t. 6794, is a large Japanese tree, hardy at Kew, with broad cordate ovate leaves and pendulous slender much-branched many-flowered racemes of small yellowish flowers. The plant belongs to Bixaceæ, and has unisexual flowers, those now figured being the females. The berries, which are as large as small Grapes, stain the herbarium paper black or dark brown, and might possibly be used as a dye.

*Fuchsia triphylla*, t. 6795.—The history of this *Fuchsia*, the type upon which the genus was founded, was given in our columns by Mr. HEMSLEY, 1884, vol. xxii., p. 263. The coloured figure here given is very characteristic.

*Dentaria polyphylla*, t. 6796.—One of the most elegant of spring-flowering plants with a scaly rootstock, pinnately-cleft leaves with lanceolate segments and tall corymbs of white flowers (Cruciferae). Native of mountains in Central Europe.

*Torenia cancolor*, t. 6797 A.—Perhaps a variety of *T. asiatica*, from which it differs in its uniformly-coloured violet flowers.

*T. Fordii*, t. 6797 B, is a less attractive form, with cordate pubescent leaves and greenish-yellow flowers, spotted with violet. Native of the Lo-fan-shan Mountains, opposite Hong Kong. The *Torenia*s are very attractive stove plants, flowering for many months in succession.

— LINNEAN SOCIETY OF LONDON.—A meeting will be held on Thursday, January 15, at 8 P.M., when papers will be read on:—1. "On Plants Collected by Mr. JOSEPH THOMSON in the Mountains of East Equatorial Africa;" by Sir J. D. HOOKER and Professor OLIVER. 2. "The Flora of Madagascar;" by Mr. J. G. BAKER. 3. "The Orchids of Madagascar;" by Mr. H. N. RIDLEY. 4. "On Japanese *Colydiidæ*;" by Mr. D. SHARP.

— THE WESTERHAM NURSERIES.—We are informed that the partnership previously existing between Messrs. T. W. EDMUNDS and JEFFKINS, trading as ARTHUR JEFFKINS & CO., late JOHN CATTEL, has lately been dissolved, and that the business of these nurseries will be carried on under the title of the Westerham Nurseries & Seed Co.

— ARISÆMA FIMBRIATUM.—This extremely interesting new plant, described and illustrated in our columns on November 29 last, pp. 680 and 689, is now in flower in Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea. From the peculiar fringed character of its spadix it is totally unlike any other of the family we have seen.

— POTATOS.—According to some experiments carried out at the New York Agricultural Station, single eyes used as seed yielded a satisfactory crop per hill, and more uniform crop per hill than whole Potatoes or ordinary cuts. Single eyes yielded a smaller

percentage of smaller Potatoes than did ordinary cuts or whole Potatoes used as seed. Ordinary cuts, upon the whole, yielded more favourable results than whole Potatoes, markedly so when the seed used is subtracted from the crop gained. Single eyes cut deeply so as to contain some substance gave a far superior yield to eyes cut shallow. The small seed-end eyes gave results by no means inferior, but rather superior, to those gained from central and butt-end larger eyes. Early planting showed far more favourably in crop than later planting, not alone in quality, but in total yield. Too close planting diminished the yield of good Potatoes, and increased the yield of small Potatoes, by measure. Fertiliser left over from last year's application exercised a marked influence upon the crop.

— DOUBLE ABUTILON.—Some week or two since Messrs. CANNELL were so good as to forward us blooms of a double Abutilon Thomsoni which were unusually perfect and regular. The flowers will surely be welcomed by lovers of double flowers and florists, while those who are not usually enamoured of such flowers will not fail to recognise the merits of the present plant. Botanically it is of much interest as furnishing another illustration of the coincidence of variegated leaves and double flowers, which at one time was denied, and which is indeed a rare occurrence. The flowers in this case are doubled by the substitution of petals for stamens. A coloured plate of the same or a closely allied form is given in the *Revue de l'Horticulture Belge* for 1885.

— LAPAGERIA IN THE OPEN AIR.—The Hon. and Rev. J. T. BOSCAWEN, of Lamorran Rectory, Cornwall, has forwarded to us a fine spray of this plant, dark red in colour, firm in texture, and uninjured in any part. He says:—"I can't help sending you a spray of *Lapageria rosea* growing in a north-west angle of my house. It has been there for ten or a dozen years, and has never been much injured by frost but once during that time, and then only that part of it that was exposed and had grown to the top of a chimney. It was cut at the time in full blossom. It is now a lovely sight in spite of the hard frost we had early in November, and some days since. I am sure that there are many angles facing N.W. in houses 'up the country,' as we say down here, where *Lapagerias* would do well. The white one this year was most striking, and is, if anything, hardier than *rosea*. This is on a north wall not quite to the top of the house, but *rosea* is now climbing over the slates."

— DWARF TREES.—The manner in which the Chinese produce their dwarf trees is stated by the *Gartenflora* to be as follows. The pulp of an Orange is removed by an aperture the size of a florin, and filled with cocoa-nut fibre, tow, and powdered charcoal. In the centre is placed a seed of the tree it is wished to grow. The Orange is placed in a glass or other vessel, and the compost kept moist. The seedling germinates, the stem protrudes through the hole in the Orange, the roots penetrate the rind. The roots as soon as they reach this stage are cut off close to the rind, and this is continued for two or three years. The tree ceases to grow, and assumes the aspect of an old tree. The roots equally cease to grow, and the rind of the Orange is painted and varnished. It would be easy to put this to the test.

— THIRINAX GRAMINIFOLIA.—An elegant Palm with a three-sided stem, and numerous elegant leaves with graceful spineless stalks, and roundish, deeply, palmately-cut limbs, the segments linear-lanceolate. Count de KERCHOVE describes it as especially suitable for room or table decoration. The temperature of a warm greenhouse suits the plant well. It is figured in the *Illustration Horticole*, t. 542.

— THE SOIL OF NEW SOUTH WALES.—The Colony contains an abundance of soil of the richest description for the support of a very large population, when the conditions shall be more favourable for the pursuit of agriculture, for which in most districts the climate is very suitable. On the coast strip eastward of the dividing range there is a large area of very rich land in the river valleys. It has been extensively cleared, and in the southern part of the Colony is mostly under Lucerne, Corn, and Potatoes, and yields immense crops. On the northern river-flats splendid crops of Sugar-cane are grown, as well as of Corn. The Tobacco-plant flourishes on this strip of land, as

well as almost all the cereals and fruits of temperate and semi-tropical climates. Wheat crops formerly were grown extensively here, but for many years past the area planted with Wheat has been very much reduced, owing to the extreme liability of the grain to rust when coming into ear. It is this that has doubtless rendered the production of Wheat in the Colony so far behind the yield of the southern Colonies. However, when we get on to the table-lands we find a large area of soil of very rich quality among the surrounding rocks and country of granite formation, and this promises to be the future granary of the Colony. At present the yield of the crops in some instances amounts to as much as 30 and 40 bushels per acre from the virgin soil of this part of the Colony. Here flourish the English fruits—Gooseberries, Cherries, Currants, and the like. As you go further westward the climate becomes less and less favourable for agriculture, owing to the uncertainty of the rainfall, and, as far as present appearances indicate, the great salt-bush plains of the interior, unrivalled for fattening stock, will for generations to come be chiefly devoted to that pursuit. With regularity of seasons agriculture might be possible, but the rainfall is very irregular in that part of the colony. Briefly summed up, we may say that the coast climate and soil favour the production of almost all kinds of vegetation found in temperate and semi-tropical regions; that the table-lands, with a magnificent climate, will produce all the cereals and fruits of the temperate zone; while away westward are hundreds of thousands of square miles of the finest stock-fattening country to be found in any part of the world.

— SAGITTARIA MONTEVIDENSIS.—A beautiful stove aquatic with erect racemes of flowers, each about 2 inches across, with three roundish petals, each white with a reddish-purple spot at the base. It is an indispensable plant for the aquarium, large or small; in the former case it assorts well with larger species, in the latter it is in itself so beautiful that having it one need not regret the absence of others. It is figured in the *Illustration Horticole*, t. 543, and in a recent number of the *Garden*.

— BANKSIA INTEGRIFOLIA.—Although this is one of the larger species, ultimately attaining treelike dimensions, it forms a conspicuous object for a large and cool conservatory during the winter season. A plant about 10 or 12 feet high has been flowering for many weeks in one of the octagons of the winter garden, Kew. The inflorescence consists of an oblong, erect, dense spike of pale yellow flowers, which, although individually small, are very effective in the aggregate. This cone-like spike becomes woody, persisting for years, and presenting a peculiar appearance shared in by other members of the genus. The leaves are long and lance-shaped, with an entire margin, and white beneath. This species is synonymous with *B. macrophylla* and *B. oleifolia*, and is figured in the *Botanical Magazine*, t. 2770. It belongs to the section *Eubanksia*, or true *Banksias* of the *Genera Plantarum*.

— CROTALARIA SEMPEFLORENS.—Few of these plants are cultivated at the present day, notwithstanding the fact that about 200 species are known to science, and numerous species have been introduced from time to time. They are widely dispersed in tropical countries of both hemispheres, and the plant under notice was originally introduced more than half a century ago from the East Indies. The yellow flowers are produced in axillary racemes, and are rendered rather attractive by the large size of the upper petal or standard. It is figured in VENTENAT'S descriptions of new or rare plants in the garden of J. M. CELS (t. 17), and has been reintroduced lately. A plant in a small pot in the Palm-house, Kew, is well furnished with long arching or drooping, twiggy shoots, and ample foliage of a firm or rigid texture.

— PUBLICATIONS RECEIVED.—*On Nitritification*. By R. WARINGTON. Part III.—*The Garden Oracle*. By SHIRLEY HIBBERD.—*Proceedings of the Academy of Natural Sciences, Philadelphia*. Part II., May–October.—*The Rosarians' Year Book* for 1885.

— GARDENING APPOINTMENTS.—Mr. ROBERT THOMPSON, late Foreman at Alwicks Castle, as Gardener to J. L. RIDDELL, Esq., Felton Park, Northumberland.—Mr. G. BASKETT, late Foreman to Mr. DEEDMAN, Plants, has been appointed Head Gardener to L. W. DOLMAN, Esq., Elm Croft, Parkstone, Dorset.



## THE PROPAGATOR.

### PROPAGATION AND CULTURE OF RHOPALAS.

FOR decorative purposes the Rhopala is amongst the most useful plants the gardener has. For its graceful and ornamental appearance it is demanded and used with advantage at every season of the year. It is used for the decoration of the stove in mid-winter, and when the space taken up is at length required for the development of incoming and more tender plants, the Rhopalas can be removed to decorate the intermediate house; while in the summer and autumn months they can be utilised for the same purpose in the cold greenhouse and conservatory. At all times they are beautiful and lasting objects for indoor decoration.

#### 1. FROM CUTTINGS.

Cuttings of the Rhopala may be taken at any time during the year, provided always that they are fit to be taken, *i.e.*, the wood must be thoroughly ripe, the foliage quite hard, and the top growths well finished up. It is a waste of time to put in soft cuttings, and can only lead to the vexation of the gardener. The cuttings should be selected from the weakest growths and the tops of shoots and each cutting should have three or four leaves upon it. Before potting them the bottom of each one should be cut off with a sharp knife, which should be twice drawn across the level surface, thus made so as to form an X. This operation is favourable to the production of roots.

In potting them long thumb-pots should be used, and the soil must be pressed very firmly around each cutting. In order to economise the room in the case it is well to put a stick to each pot, tying the main stem of the cutting in two places, and then looping up the leaves one by one, as erect as possible without damaging them. After they have been well watered they can be placed in a cutting case or frame which must be situated upon a gentle bottom-heat. While the cuttings are in the case the cocoa-nut fibre, or whatever material is used in the bottom of the case must be well turned, well mixed, and watered once a week, and for ventilation the lights or glasses should be removed for an hour early each day. They should neither be allowed to become dry, nor should they be watered overhead, but they should only be watered with a fine spout-pot. For shading, which is necessary during bright sunshine, a newspaper can be used.

When the cuttings have rooted they should be placed outside the frame for a fortnight to strengthen them before potting into large 60's. As soon as they have been potted they should be placed upon the front platform of the house upon a cold ash bottom until they have again well rooted through, and then the strongest plants can be potted into 32-sized pots, and the remainder into 48's. It is now necessary to remove them to a house of intermediate temperature, and here they must be well supplied with water at the roots, but they must never once be syringed overhead, especially during the formation of new growths. They can be again potted when occasion demands it. The soil for the cuttings should be composed of three-quarters good peat and one-quarter river-sand, to which should be added a small quantity of finely broken potsherds, the whole being well mixed together and sifted through a  $\frac{1}{4}$ -inch sieve; but for the cuttings that have rooted the proportions vary thus:—half turfy loam, half peat, and one-quarter river-sand, a small quantity of finely broken potsherds or ballast being added. The treatment given above can be applied to *R. corcovadensis*, *R. creolata*, *R. Skinnerii*, *R. complicata*, *R. aurea*, *R. elegantissima*, *R. Vervaeana*, *R. granadensis*, *R. magnifica*, *R. javanica*, *R. Leboniana*, and *R. De Jonghii*. The last-named plant is a very strong grower, and the only successful way of propagating it from cuttings is to cut down the old plant, and as fast as it breaks into growth the tops of the shoots should be pinched out until they are hard, and in a fit state for propagating purposes.

#### 2. FROM GRAFTS.

It is necessary to graft *R. De Jonghii* and *R. elegantissima*, for which purpose *R. aurea* and *R. magnifica* should be respectively used as stocks. Side grafting is the best. Beginning with the stock, it should be cut down to within 4 or 5 inches of the soil, the top of the stem should be

made quite level, and down the side of which a cut,  $\frac{1}{4}$  inch in length, should be made; the knife should, however, be withdrawn without completing the cut, which should be done from the outside by an inward and downward cut, so as to leave a cleft, upon which to rest the end of the graft. Care should be taken in making the graft to see that it fits the place made for it on the stock, to which it should be securely bound at both ends with Russian matting. After well watering them place them in a cutting-case or frame upon a gentle bottom-heat, to receive the following treatment:—Ventilation should be regulated and increased by degrees. For the first week the glasses or lights should be taken off for half an hour every morning; after that time they may be removed for an hour each morning. Those that have become dry should be watered, but great care must be taken not to wet the matting the grafts are tied on with, and they should be shaded from all sunshine. When the grafts have thoroughly united a little more ventilation should be given them both day and night for three or four days before they are removed from the frame to be placed in the open part of the house. Here they should remain for about three weeks, to harden and fit them for potting. They can be potted into suitable sized pots, placing a stick to each plant, tying it in such a manner as to prevent the graft being knocked off by accident.

The plants should now be removed to a good growing house, keeping them well supplied with water at the roots, but never syringing them during the formation of young growth, because the woolly covering of the young leaves, if wetted, is liable to cause the foliage to become deformed and stunted. As soon as the plants are strong enough they can be removed to an intermediate-house, and placed upon a cold ash bottom until they are ready for the gardener's use. *T. O.*



#### HERBACEOUS PHLOXES.

TAKEN as a whole the genus *Phlox* may be said to be one of, if not the most useful genera among hardy plants, and one which receives more attention probably at the hands of gardeners generally than do the majority of hardy plants. There is much to be said of these *Phloxes*, too much, indeed, for my present brief note, in which I will endeavour to assist your correspondent and as many more who may wish for similar assistance. Strangely enough, the numerous varieties of the genus *Phlox*, which, taken as a whole, are free seeders, are seldom raised from seed in English nurseries. Nine-tenths of the varieties of these charming flowers owe their origin to the enterprise of Continental florists. There is, however, nothing to prevent their being raised with equal freedom on this side of the Channel. The herbaceous or decussate section seed much more freely than do the alpine section, seeing that the flowers and fertilising organs are much larger, as is also the tube. As with all other florists' flowers, the numerous fine kinds of *Phloxes* now in commerce are the outcome of many thousands—of seedlings, all of which, while not attaining the standard of perfection, are good and useful for the shrubbery. The only special mode of fertilisation is in the judicious selection of varieties about to be operated upon. After the crosses are made the heads may be covered with fine muslin, and secured to the main stem, so as to shut out the bees, who invariably work busily among them, and especially so among the more fragrant kinds. It will not be necessary to have many covered up, seeing that the panicles in most cases are large; consequently several crosses may be made upon each, numbering or marking them separately if occasion requires.

Special attention should be paid to good formed flowers, vigorous constitution, fine proportioned trusses, and so forth. There is no better time for sowing the seed than the end of the year or the early part of the new year, or as soon as possible after being collected and dressed. Seeds thus treated will not germinate till the ensuing spring, and these, if grown without a check, will flower during the early autumn months, making, as a

rule, a good succession to the general collection. With regard to the rarity of self-sown plants, to which a correspondent alludes, a word or two may suffice to make it obvious. It must be borne in mind that the flower-stems, if allowed to remain on the plants, will retain the capsules intact for several months; in fact, I have known instances where they have remained as stated till several inches of new growth has been made, but the flower-stems being removed the seed goes with them to the rubbish-heap. Another reason why self-sown plants are rare is from the extreme and unusual hardness of the capsules, so much so that they may be buried for months in the soil and remain uninjured, and the seeds which it contains, being uninfluenced by light and heat, remain dormant. Seeds may, if placed in air-tight vessels, be kept till February, and then sown in pots or pans and placed in slight warmth. Liberal treatment, a deep, well enriched soil, and an abundance of water at flowering time are essential. Of the many and various means of employing them I may refer on a more seasonable day. *E. Jenkins.*

#### THE POLYANTHUS.

THESE are wintered in cold frames in the same way as *Auriculas* are, but they do not thrive if allowed to become very dry at the roots. *Auriculas* would, perhaps, not suffer much if they did not receive any water from now until the end of January, but the *Polyanthus* would; they are quite as liable to be attacked by greenfly as the *Auricula*. Their desperate enemy is red spider which attacks them during the summer months; they suffered very much last season, and the pest has considerably reduced our stock of plants. I had some hope of growing them in our new garden, where the soil is heavy with a clay subsoil underneath, but they gradually disappear with the double *Primroses*, or any other of the named kinds. Our greatest success with all classes of *Polyanthuses* and *Primroses* has been by raising seedlings annually. The seeds are sown in March for the laced *Polyanthuses*, and in April for the fancy kinds.

The seeds of the poorest quality will perhaps produce the best quality plants; and in order to get the thin and poor seeds to vegetate well we place the pots or pans containing the seeds on a hotbed with a very mild bottom-heat. As soon as the plants are well up they are removed to a cold frame, and when large enough are pricked-out in boxes an inch apart, to be planted where they are to flower after they have grown to a considerable size in the boxes. The seedlings possess sufficient vigour to withstand the assaults of red-spider. *J. Douglas.*

## The Flower Garden.

#### ROSES.

ALL dead plants should be made good; remove 18 inches of the surface soil and replace it with rotten dung and fresh loam, and afterwards have all staked and made secure. They will be greatly benefited if mulched with manure, which will also serve to protect them from frost. If the Rose Briers are not planted this should be looked to at once, as the sooner those that are intended for budding in July are got in the better. Cuttings of *Manetti* should be put in at once if not already done. Hard, well-ripened wood strikes freely if planted in light sandy soil in rows 18 inches apart and 6 inches in the rows. Make the cuttings 6 inches in length and plant 4 inches deep, making them very firm in the soil.

#### BEDDING ROSES.

I prefer for bedding-out Roses those on their own roots, such plants throwing no suckers; and most of the hybrid perpetuals strike freely from cuttings if taken off with a slight heel of the old wood and planted as above described for *Manetti*. They make nice plants in twelve months, and prevent much of the disappointment that is occasioned by the loss of plants from improper pruning of worked stocks. I find to grow Roses successfully, if the soil is poor and sandy or exhausted, it is much better to remove it altogether to the depth of 18 inches and replace with rich soil. *Wm. Smythe, Basing Park, Alton.*



## Plants and their Culture.

### INSECTS.

NEXT to the mealy-bug, I consider the white-scale to be the most troublesome insect; there is some of this but not on the Pines, I am glad to say. The conservatory climbers have been troubled with it but now I hope to get rid of it from among them. Had I feared it as I do the bug, there would not have been any left. Our practice for white-scale has been to use an insecticide at double the strength advised on printed instructions; this I have found to be more than they can withstand. Brown-scale, thrips, red-spider, and aphides, are likewise very troublesome pests. A watchful eye needs be kept on each and all of them, and measures taken to destroy them. It is grievous to see the damage that is done by omitting to take such matters in hand at an early date, the effects not being obliterated for a long time to come in some cases. At the present season I strongly advise means to be taken to ensure cleanliness in each department before the increased amount of work presses upon us. A clean start in the spring will go a long way towards securing a healthy growth and eventually a more satisfactory floral and foliar display.

### FUTURE ARRANGEMENTS.

All arrangements for the ensuing season should be well considered. Any fresh introduction or variation, whether in the kinds or quantities of plants that are to be grown, or any diversity that can be made in the mode of arrangement, should receive attention. It is always a good plan to vary the features as much as can be done; the mode of procedure of one season being repeated again and again, even if it is ever so good, will be monotonous, and should be avoided where possible. If in any particular instance there should have been a partial failure during the past season endeavour by extra attention to that particular case to prevent its recurrence. If it is observed that any particular plant is not of service in some form or other then it will be by far the better way to dispense with it, and so make more room for those that are more valued. *James Hudson, Gunnersbury House Gardens, Acton, W.*

## The Kitchen Garden.

### FORCING DEPARTMENT.

**ASPARAGUS.**—Where the old system of forcing this on stable-litter and leaves is still practised, considerable labour must be employed in keeping up a supply. The most expeditious way is to force in frames heated with hot-water at this time of the year; here it can be given more air, and at the same time a steady temperature can be maintained during all kinds of weather. The "grass" is equally as fine under this treatment, and certainly of a better colour and flavour, at least so we find it. I force it in an old Pine pit, where it succeeds admirably.

### FRENCH BEANS.

Keep up the supply by planting in 8-inch pots three-parts filled with light soil. As soon as the Beans are 2 or 3 inches above the rims of the pots earth them up, and supports may be placed to them at once. Place them as near the glass as possible, and do not apply any stimulants until the Beans commence setting.

### CUCUMBERS.

A few seeds of Telegraph should now be sown, in order to have some plants for early planting. Plants in bearing will now require careful treatment in the way of watering and airing.

### TOMATOS.

Old plants with still a few fruits on must be kept thin, and regularly tied once a week, to give all light and sun possible to the fruit. Some seed should now be sown to raise plants for planting-out under glass, or pot work.

### POTATOS AND RADISHES

well above ground, must be freely aired during mild

and sunny weather, and in the absence of cutting winds. The first-named of course will be in hot-water frames, or growing in pots or boxes in houses.

### TARRAGON, CHIVES, AND MINT.

A few roots of each should be put in heat at intervals.

### SALADS.

**Endive.**—Lift from the store frames according to demand, plant in boxes, and place in the Mushroom-house, or in a dark cellar free from frost, where it will blanch, and be fit for use in five or six days.

**Chicory** can be put in suitable sized pots, eight or ten in a pot, and placed in gentle heat in a dark place. *G. H. Richards, Somerley, Ringwood.*



## THE MEXICAN SILVER FIR.

**ABIES RELIGIOSA.**—I forward you cones of two forms of the above Silver Fir. Seldom have we the two forms in cone at the same time; but these, like many other Pines, coned very freely last season, and thus I have the opportunity of sending them for comparison. The dark coloured cone was taken from a tree that was introduced here from Messrs. Veitch's nursery, of Exeter, about thirty-five years ago, I think, under the name of *Picea sp. nova*. A few years ago I was requested by Sir Joseph Hooker to send cones to Kew, and on comparing them with dried specimens of *P. religiosa* it was found to be identical. The lighter coloured cone is taken from a tree that has a more spreading habit than A, and, although it is at the same elevation, and only 40 yards from A, it is much more tender, having had the top and some side branches killed by frost in 1880 and 1881. The leaves of this specimen are not so dark, neither is the tree so healthy in appearance. This may, in a great measure, be caused by the difference in the age, the latter being much older than the other. *W. Osborne, Fota Island, Co. Cork.*

[The specimens sent are of much interest, and both of much beauty.]

The branches of A, with the dark purple cones, are cinnamon-brown in colour; the young shoots brownish above, olive-coloured beneath, slightly hirtellous. The largest leaves measure  $1\frac{1}{2}$  inch, linear-pointed, curved, deeply grooved on the deep green upper surface along the midrib, silvery-grey on the under-surface between the prominent midrib and the strongly recurved margins.

The leaves start from all sides of the branches, but are so twisted as to form about four lines, one on each side of the branch, from which the leaves come off, at an angle of about  $40^\circ$ , and two others disposed along the centre of the horizontal branches, the individual leaves being given off at an angle of  $10^\circ$ , the lateral leaves thus spreading more or less horizontally away from the branch, the uppermost ones appressed to it, and more or less parallel in direction to it. The buds at the end of the lateral shoots are subglobose, covered with whitish or pale violet obtuse scales.

The cones are erect, 5 by  $2\frac{1}{2}$  inches, cylindric, oblong, slightly narrowed towards the top, rich dark violet covered with whitish resin, with prominent bracts ending in an acuminate point and markedly reflected.

On a cross section of the leaf the deep central groove on the upper surface is very conspicuous, as also are the revolute margins, the two resin canals are close to the epidermis on the lower surface, and the strengthening cells or hypoderm do not form a continuous layer, but are broken up into detached masses.

In the second specimen, B, the old wood is not so deeply coloured though the rind on the younger shoots is more so and more hirtellous, but both in colour and amount of hairiness there is a considerable range of variation.

The leaves are arranged as in the other specimen, but shorter ( $1-1\frac{1}{4}$  inch), narrower, and of a yellowish-green colour. The buds, too, are smaller. The cone is of the same form and dimensions, but not so deep violet.

A cross section of a leaf shows a narrower leaf not so much depressed in the centre, with the same general

arrangement as in the other specimen, but with continuous hypoderm.

The variations in this beautiful Silver Fir are interesting, because they serve to elucidate its history, and they show, as Mr. Osborne says, that some varieties are hardier than others, and hence that there is a possibility that the disparagement expressed against this tree by reason of its insufficient hardihood may be obviated by careful selection of variety as well as by judicious choice of locality. At one time A. hirtella was considered distinct from religiosa, the latter being said to have glabrous shoots. The specimens before us show considerable variation in this respect, and Seemann, who investigated the matter, came to the conclusion that the two forms are specifically identical. The condition of the layer of woody fibres beneath the epiderm is also variable. In the darker green, healthier specimen sent, these fibres do not form a continuous layer, but are broken up into detached masses. This is of some moment, because there is in the Kew Herbarium a specimen collected by Skinner in Guatemala, a good deal south of the Mexican habitat, which Dr. MacNab refers to religiosa, but in which "the hypoderm cells are more scattered."

From our own observations we are not inclined to place much reliance on the hypoderm as a character, for in the two specimens sent to us, as has been shown, the arrangement differs; while an examination of a leaf from the same Guatemalan specimen as that examined by Professor MacNab showed distinctly continuous hypoderm; indeed, it might be expected that this, which is a mere mechanical arrangement, would vary according to altitude, exposure to wind, &c. In all the native Mexican specimens examined by us (Bourgeau 1143, Linden, three, Parry and Palmer 847) we found the hypoderm continuous.

*Abies religiosa* is one of the most beautiful of the Silver Firs, forming a tree of 150 feet high on the mountains ranging between  $15^\circ$  and  $22^\circ$  of N. latitude, and ascending to an elevation of 9000 feet. It derives its name "religiosa" from the fact that the Mexicans make use of the branches to decorate their churches.

The tree produced cones some years ago in Mr. Boscawen's garden at Lamorran, Cornwall, from one of which our figure, here repeated (fig. 13), was taken. It corresponds almost exactly with Mr. Smith Barry's, above described. *Ed. J.*

## HOME CORRESPONDENCE.

**The Phylloxera Laws.**—In the *Gardeners' Chronicle* of January 3, p. 20, a note is given from Mr. Vertegans, to the effect that plants of any kind, except Grape Vines, can be introduced freely into Germany under the conditions that they be accompanied by a certificate from a magistrate in reference to Phylloxera. This is certainly the case if the plants come from countries which have adhered to the Convention of Berne, but I doubt very much if it is actually the case for plants coming from other countries, especially from Great Britain. Such plants are accepted with the said certificate without any difficulty into the kingdom of the Netherlands, but for Germany—as far as I know, at least—there is wanted for every consignment the permission of the imperial authorities, which, however, it is said, is usually given with a very short delay. The latest documents about this question have been published in the *Garten Zeitung* of Dr. Wittmack, published at Berlin, No. xlix., pp. 580-589 (1884). There will be found, as I suppose, the exact particulars of the present state of the question. In that article it is said that plants may be easily sent through Holland to Germany. This is not the case, and those who would like to try it would certainly be disappointed. I have sent a note to the Editor of the *Garten Zeitung* to contradict this statement. *J. H. Krelage.*

—Mr. R. H. Vertegans' note in the last number of the *Gardeners' Chronicle*, referring to the sending of plants to Germany, might lead English plant merchants exporting to Germany to believe that a certificate of any sort from a magistrate in reference to Phylloxera is sufficient. This, however, is not the case. I had quite lately a package of plants from England refused entry at Hamburg, though accompanied by a certificate from a magistrate, and furthermore testified to by a German Consul. The certificate, which contained everything



that would have satisfied a practical man, was pronounced insufficient by the authorities, and even an appeal to the "Reichskanzler" himself proved of no avail. To protect others from loss and annoyance, I may be allowed to state that the certificates, signed by the sender and a magistrate respectively, are of no use unless drawn up in the exact wording of the forms published in your paper of February 23, 1884, p. 246—never mind its repetitions and apparent contradictions. We have tried, and continue to try, hard on this side to rid ourselves of these nearly disastrous *Phylloxera* regulations, but while the respective laws are in force the only thing to be done is to comply strictly with their requirements. *Otto Putz, Erfurt.*

tion. Apart from its uses as an arbour, its beauty as a tree is deserving of notice, and, as seen from the house, shows to full advantage. I do not know of any tree of the same species in the area of the metropolis covering a similar space, but if one exist I should be glad to be informed through the medium of the *Gardeners' Chronicle*. *G. Woodman, Moray Lodge, Kensington.*

*Achimenes picta*.—This old, bright-flowered winter variety has almost gone out of cultivation. The flowers are as vivid as the brightest of the summer flowering section, and it does really well under winter cultivation. When plants have been accustomed to be started in August and September,

with me proceeds downwards, from the top of the outer scales. This is less injurious and less rapid in destruction than when it commences below, for once this "rot" takes hold of the central root-stem—if I may use the term—destruction is inevitable. Now I want some information about this so-called "rot." Perhaps Mr. Worthington Smith, or some of your correspondents, have made microscopical observations thereon, and can tell us is it of fungoid origin? Is it imported in an incipient state, with the bulbs, or has it its origin in this country or its atmosphere? Before I come to the next point I want information on I may remark that for several years I have had mine from a large London firm, imported directly, and received invariably in fine condition.

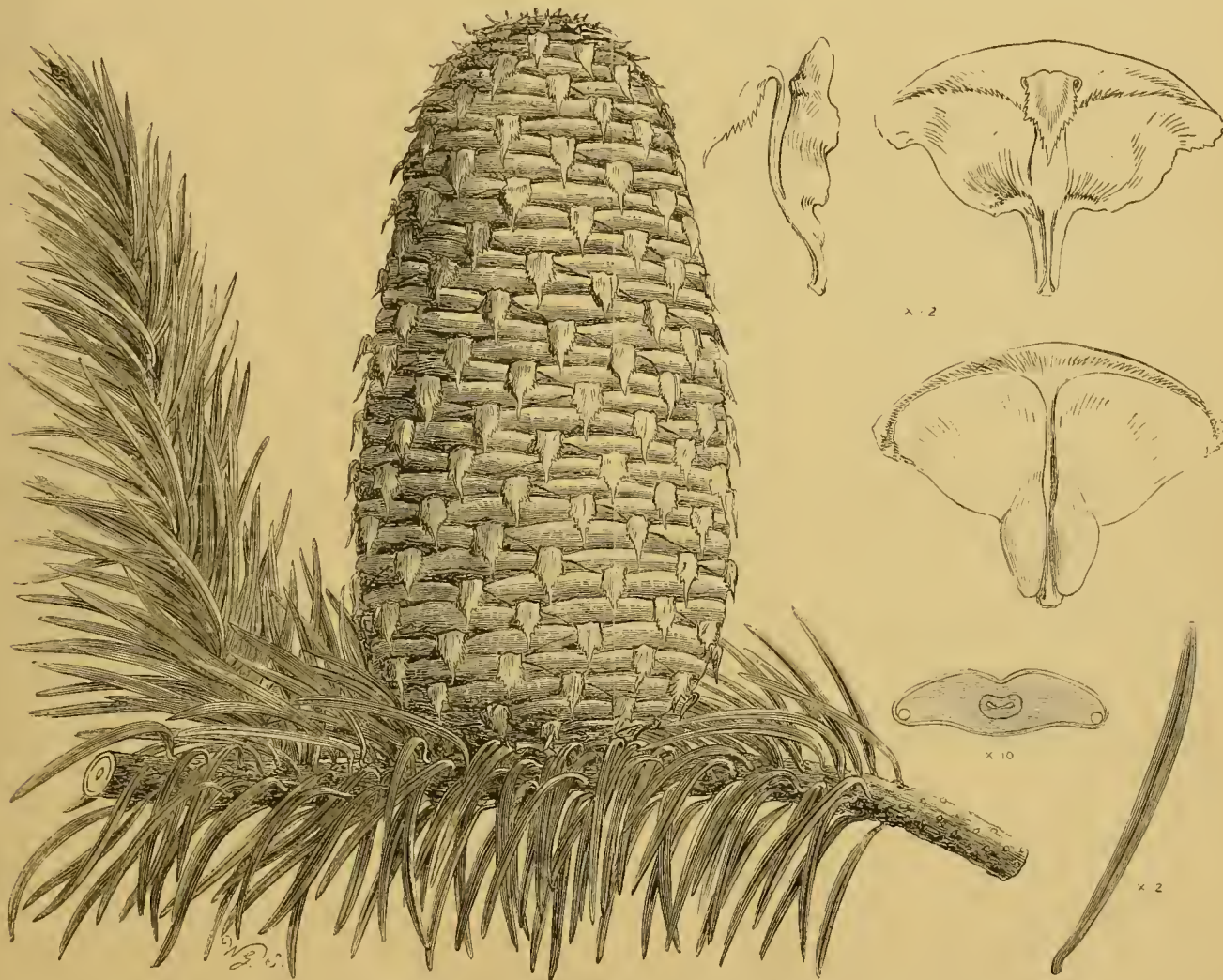


FIG. 13.—MEXICAN SILVER FIR, *ABIES RELIGIOSA*: CONE PURPLISH-BROWN. (SEE P. 56.)

**Large Weeping Ash.**—It may be interesting to some of your readers who are admirers of specimen trees to learn that in the grounds of A. J. Lewis, Esq., Moray Lodge, Campden Hill, Kensington, there is a magnificent specimen of the well-known Weeping Ash, measuring round the outer branches 150 feet. Iron girders with upright iron supports radiate from the trunk and sustain the branches in a horizontal position; other girders cross the former ones, and form a circle at some distance from the trunk. From the outside ring of girders the branches are allowed to droop to the ground, thus forming in the summer months, when the tree is clothed with its dense foliage, a natural arbour—a retreat to which in the hot days of July and August is indeed a pleasure. An additional charm is that any one when inside is so obscured from view that the birds—which, by the way, are plentiful here—slog on the branches of neighbouring trees without the least fear of interrup-

and grown on in a warm pit or pine stove, they can be had in bloom at Christmas and onwards. After the bloom is over the plants can be dried off gradually, not otherwise, the stems and foliage being of a considerable size and substance. When the stems are dry they can be cut off close to the soil, and the pots of rhizomes stored away in any dry, cool place during the summer months. *M. W.*

**Imported Lily Bulbs and their Treatment.**—I recently drew attention to this subject, but there is still much to say and much to learn. Mr. Richard Dean (p. 790, last volume) says:—"It is well known that imported roots of Japan Lilies die in large numbers; a kind of rot sets in at the base of the scales of the bulb, and the decay works upwards from the base to the apex, effectually destroying it." My experience is very similar to this, with but the trifling exception that rot in nine cases out of ten

But Potatoes might similarly be sent from this country to Japan or California, arrive in apparently a healthy condition, and yet be latently infected with the "resting-spores" of a fungus. I use this as an illustration, for the progress of the rot in both presents some features in common. Lastly, has any satisfactory remedy been found, either partial or complete? I have been carrying on experiments for some years as to the best method of treating the bulbs when received, so as to minimise, if not wholly prevent, this rot. One of the great points to aim at is immediate root-action. This is most difficult. Heat or cold—drought or moisture—soil or fibre, or their combinations, will not, so far as I saw, start bulbs received in the end of November before the middle of January. In the meantime this fell rot is active. I have potted up and put into a hotbed some years ago—that was bad; but potted and put into a cold frame was worse—that is, the fraction of losses was more. You, about



three years since, recommended cocoa-nut fibre to plunge in until roots are emitted, and then to pot. This is a far better system. This year I used slightly moist peat-mould with river-sand beneath the roots, and roots are now peeping. But I have had to examine them four times within six weeks, cut out the fungus or fungoid parts, and dress with powdered charcoal. But still we want more information in the interests of exporters and purchasers. Has any one tried dipping the bulbs when received in any of the mineral oils, and with what result? *W. J. M.*

*Cyrtodeira fulgida*.—This is a pretty plant for a warm greenhouse or stove; the soft velvety foliage and bright scarlet tubular flowers making it an admirable plant to grow in a pan, or in a basket, to be suspended. It will form a pleasing contrast to the rather monotonous edgings of *Panicum variegatum* and *Isolepis gracilis* that is so often found bordering beds and benches in warm houses. Fastened to a wall with *Fittonias*, *Begonias*, and the like, it makes such places bright with the scarlet colour of its flowers. *M. W.*

**The Proposed Forestry Exhibition.**—I observe the prospectus for another Forestry Exhibition is issued, to be held this year. I consider such an exhibition, following so close upon the one just closed in Edinburgh, cannot be received by foresters and foreign countries with much attention. It cannot be expected that exhibitors who contributed to the last will care to join. They may not have the time or means to come forward for the same object every year. Surely one exhibition a year is enough. Is there not to be a very interesting exhibition of inventions, &c., at South Kensington? How many of the London public will visit the Alexandra Palace? The position of an exhibition is everything. Let a Forestry Exhibition be held at South Kensington in 1886, and then it will receive full support both at home and abroad. *F. Alexander, Ceylon, Dec. 6, 1884.*

**The National Dahlia Society.**—Whilst trusting that Mr. Moore's appeal on behalf of this Society may meet with a hearty response, I would still urge upon the committee the desirability of endeavouring to do something to meet the more popular requirements in Dahlias, because it must be admitted that the plants and the flowers they produce are valued chiefly according to their decorative capacities. A show Dahlia is, without doubt, a noble, massive, and wondrously perfect flower, but it has the demerit, on the other hand, of being so large, so massive, and so perfect, that these absolutely massive and perfect flowers sooner pall upon the public taste than do those more irregular in form, and more amenable to cultural improvements. Hence it is that, grand as the show Dahlia may be, it yet fails to command so much popularity as does the single kinds, or even those irregularly formed doubles of the *Juarez* type that are such valuable aids for decorative purposes in the autumn. At a National Dahlia Show we see hundred after hundred of big round painfully and monotonously perfect blooms, duplicates of each other, following in constant succession. Naturally so much sameness produces satiety, even in the breast of a florist, whilst in the minds of the general public, lovers of flowers in the widest sense, it is presently apt to create a sense of disappointment. The introduction of boxes of pompon, bedding, and single forms, hardly saves a great Dahlia show from monotony, because even these flowers also are set up in what is at the best a stereotyped form—showily, no doubt, but still artificially. The Dahlia-loving public now want to learn something more than has been shown in the past of the habits of the plants which produce these flowers, their height, their floriferousness or otherwise, their adaptability for common garden cultivation, and the sort of figure they cut when so grown. Notoriously the exhibition blooms are produced by plants upon which skill and labour and high cultivation have been lavished, conditions such as could not be afforded ordinarily. To learn how Dahlia plants would figure under ordinary conditions of culture is of the first moment to the public, and the Dahlia committee should endeavour to supply the information. Why not call for Dahlia plants in pots, especially of those kinds that are specially recommended for garden decoration and the furnishing of cut blooms? Classes of twelve plants in pots, for both double and single kinds, would, if filled, enable intending purchasers to see whether habits and flowers were conveniently allied. As long

as flowers may be shown in a cut state only, no inducement whatever is given to raisers or growers to produce plants that are dwarf, compact, and free blooming. To secure a race of Dahlias that have these features in common is now of more value than is the production of show blooms only, however fine or perfect. The Dahlia has a very limited constituency indeed of fanciers, but now has a remarkably wide one of lovers. Perhaps the Chrysanthemum stands at the head of all flowers in the breadth of its popularity, then comes the Rose, and it seems now as if, thanks to the numerous decorative and single kinds, the Dahlia took third place in the public estimation. If the committee of the National Dahlia Show will get outside the small circle of Dahlia florists, they may find much sympathy and support. *D.*

**Flowers by Post.**—There is no doubt, I think, but that the parcel post would be made more use of for sending flowers [and fruit if the boxes did not get smashed in the way they do, which damage I believe occurs not so much from the stamping, as from putting a large number of packages in one hamper, which gets pitched into a cart in such a rough manner, and out again on to the station platform, that boxes must be strong indeed if they can withstand the concussion. Sent singly by rail they go much safer, as there is none of that banging about that there is when they are together in bulk, for when at all heavy, neither postmen nor porters ever think of lifting anything, but let whatever it may be down, or throw it up all of a lump, when things, unless of great strength, get shaken to pieces. If the Post-office hampers are to be left to the mercy of *employés*, and used so roughly, they ought surely to be padded or have springs, after the manner of mattresses, when perhaps it would be possible to send things a little safer than they go now. Deal boxes, unless very stout, get split to pieces, and arrive in a state of collapse, but though tin becomes bent about a good deal, one generally has the satisfaction of receiving them whole, although the contents are not often in that happy condition. Why flowers travel best in tin boxes is, that they mostly fit tight, besides which, they are non-absorbent, and this is a fault with wood which, in its dry state, sucks the moisture out of flowers, and leaves them withered up or flagging if they remain long enclosed. To counteract all this I find it is a good plan to soak the boxes before using them, as, instead of robbing the flowers then, the gradual escape of moisture keeps the internal air damp, and both petals and foliage look as fresh after a long journey as they do when the blooms are fresh cut from the plants. Tin boxes do very well if they are packed in a non-conducting cover, such as brown paper, but without something of the sort over them they are quickly affected by cold or heat, and the contents become frozen or roasted according to what the weather may be, and the amount of exposure they get. *J. S.*

**Undressed Chrysanthemum Blooms for Exhibition.**—Not a year passes but complaints are made that Chrysanthemum flowers are far too much dressed at shows, and thereby presented in a form altogether different to what the flowers are produced naturally on the plants. It is said that a skilful dresser can do so much to give a character to the flowers, that another cultivator who can produce equally good flowers but is not so successful in dressing them for the exhibition table, stands no chance in competition with him. Growers for exhibition purposes throw the whole strength of a plant into two or three or more flowers according to the variety. There is nothing to complain of in this, as it is a universal practice. But some varieties will come with loose, open, mop-like flowers, and in order to transform these into the fine symmetrical blooms one sees on the exhibition table a certain amount of waxing or dressing has to be gone through. As the blossoms advance the irregular florets are pulled out; the petals that are inclined to reflex rather than become incurved are poked up towards the centre by a process well known to dressers, and the centre of the flowers is made to close up in a complete manner: or if this be not already accomplished, it is consummated after cutting the bloom, when the stem is drawn down into a cup or some such vessel, which operates to squeeze the back petals up, and makes an otherwise loose bloom compact. These are a few of the methods of dressing resorted to by exhibitors. For many years past protests have occa-

sionally been entered against the practice, and resolutions have been passed by societies that only undressed flowers should be exhibited, but they have come to nought. The difficulty appears to be to make an authoritative statement that such and such flowers are undressed. Every year the National Chrysanthemum Society is adjured to provide classes for undressed flowers, but the difficulty just stated has to be faced and overcome. Unless the entire system of dressing flowers for exhibition is set aside, the difficulty is how to legislate in the case of one particular subject. Auriculas are subject to a good deal of dressing, so are Carnations, Picotees, Pinks, and Dahlias. Rough blooms of Pansies otherwise perfect can be flattened into shape by placing weights upon them. Pelargoniums can be made shapely by a judicious manipulation, and if it is irregular to gum the petals of Roses, why should it be permitted in the case of Pelargoniums? Unless all dressing can be put aside (and it is not easy to see how this can be brought about), dressed Chrysanthemums cannot be banished from our autumn exhibitions. *R. D.* [Why not have separate classes for dressed and undressed flowers? *ED.*]

**Destruction of Slugs and Grubs.**—Those who have had any experience in the cultivation of old gardens, where the land happens to be of a heavy tenacious nature, are familiar with the destruction effected by slugs, grubs, and the like pests that often abound in quantities in soil of this description, especially when it happens that the labour available is not sufficient to keep the hoe and other tools often enough at work, for it is a well known fact that where means do not exist to carry out a system of high cultivation by frequently stirring the surface, these marauders are plentiful to an extent that often makes it a difficult matter in showery spring weather to prevent Lettuce, young Peas, and other important crops being devoured, to say nothing of the trouble they give in the autumn and winter by preying on everything that suits their taste. The ordinary manures applied to gardens do nothing to discourage the increase and ravages of such pests as these, but there are other things, such, for instance, as gas-lime and salt, that, independent of their manurial properties, are much more effective in the destruction of the pests in question than those would imagine who are located where these materials are not so plentiful as to admit of their being used to such an extent as they might be, or at all. A good dressing of salt at this time of the year to those parts of a garden that are not occupied by crops, letting it lie at the top for some weeks until it has time to dissolve, destroys a vast amount of grubs, slugs, and also the eggs of the latter. Gas-lime is even more effective in ridding the land of their presence; the lime should be scattered about half an inch thick on the ground, and allowed to remain for three or four weeks before being dug in; it is more lasting in its effects for the purpose in question than salt. Soot, well known as it is for its manurial properties, and also for the dislike that animal life in any form has to it, is much less used for garden purposes than it might with advantage be. A good dressing every other year or so is an excellent means for the destruction of slugs and the embryo of insects, with the farther advantage that it can be applied to ground occupied by crops in a way not possible with salt or gas-lime. The destructive effects of newly slaked lime on slugs and their eggs is so well known as to make a reminder unnecessary; it and the soot are best applied in spring, whereas the winter affords the best opportunity for using the other materials. *T. B.*

**Transplanted Trees and Shrubs.**—At this season of the year, nurserymen's catalogues of forest, fruit trees, &c., are very plentiful, and in looking over them the reader sees remarks similar to the following: "1-year transplanted, 2-year do," and so on. This is a matter of much more importance to the planter than appears on the face of it. It is of great importance that trees and shrubs intended to be transplanted should not be left more than two years without being moved. The longer they remain in the soil undisturbed, the greater is the risk in transplanting. It is a practice in nurseries to "spade" trees that have grown into size preparatory to moving them. The process consists in passing the spade round and under the ball of the tree so as to cut off the tap-root, and confine the branching roots within a given space. It is customary to do this early in the autumn, the earlier the better, because it affords time for the roots within the ball to put forth other root-



lets. Plants treated in this way can be moved with success; when moved to a new locality, and the ball surrounded with fresh soil, they soon push forth fresh roots without being appreciably inconvenienced by the removal. As an invariable rule trees bear removal from light soils better than they do from heavy soils. "The reason is," writes an experienced planter, "that in light and porous soils the roots are mostly globed into fibrous tufts near the stem, whereas in strong land the roots of plants wander further in search of moisture, &c., and through a denser medium, so that they become elongated and coarse." It is an axiom with planters that tap-rooted plants, whatever may be the predisposing cause of the root taking this shape, should be transplanted young, otherwise the chances of surviving the process are small. It is very difficult indeed to lift such plants with balls of earth about the roots. It is different with plants forming fibrous roots, the soil is gathered about them in a dense mass, and they can be transplanted in safety and with comparative ease. The Rhododendron furnishes an admirable illustration of this fact. Planters found the subsoil very dry this autumn: what rains did fall had but moistened the surface, and scarcely reached root-deep. Many delayed planting in consequence until the autumnal rains fell. Those who find themselves under the necessity of planting at once, must see to it that the subsoil be moistened in plenty. The season, so favourable generally to outdoor gardening operations, is clearly against planting, unless adequate precautions be taken. *D. E. G.*

**Brussels Sprouts.**—This has been an unfavourable year for this useful vegetable, the dry summer and numerous insects in many districts have all but destroyed them. The flat under my charge is as good as could be wished, only the Sprouts are pronounced at table too large. A new disease has now attacked them; the firm hard Sprouts, apparently perfect, when cut in two are found to have a layer of decayed black leaves near the centre, so that it is requisite to cut each Sprout in half before cooking, which spoils the appearance for table. Any that remain the day after cooking give out a very offensive smell. So extensive is the disease in some of the Midland Counties, that they are unusable. *Ebor.*

**The Committees of the Royal Horticultural Society.**—I had hoped that my letter of November 29, 1884, would have met with some response, and that many horticulturists would have given their ideas publicity. This lethargy and silence bodes ill for horticulture pure and simple, and makes one fear that the downward tendency of the committees has become too pronounced for any, short of the most radical, remedies. Although speaking of committees in the plural I refer especially to the effete "A." and "B." sections of the Floral Committee, whose principal use appears to consist in its being a nursery to raise members for the Fruit Committee. Some might argue that this is only following Nature, since flowers are produced before fruit; however, be this as it may, certain it is that the business of the Fruit Committee seems to be conducted on much higher principles, and to be less biased by what "A. B. C." calls "personal considerations" than that of the Floral one, and this is the most serious phase of the whole matter, for there seems to be some apprehension that undue influence is used by the selectors of the committee, and certainly there has been no meeting during the last twelve months without signs of disapproval, smothered for the time, but sure to gain strength and burst forth again more powerful for their temporary suppression. "A. B. C." justly urges that the counties are not sufficiently represented; indeed, with the exception of a few "speciality" men, who are valuable, but who should not be in the ascendant, they are scarcely represented at all. In my opinion, age and experience, and the having had opportunity for travel, should have far greater weight than the special study, conducted possibly in one or two Orchid-houses, or from visits to ten or twenty gardens in different counties. The counties should select their best men—men of ability and varied attainments, who, without undue bias, would honestly adjudicate on what they saw before them, without reference to what Mr. So-and-So had seen at Mr. —'s place, or to what Mr. So-and-So had left at home; there might then be a chance of escape from the puerility that occupies meeting after meeting in

discussing whether a Primrose be blue or slate-colour, or if a Chrysanthemum or Aster be more incurved or quilled by the thousandth part of an inch than any previously seen—questions of interest doubtless, but whose importance to horticulture is not comparable to the introduction of a new hardy tree or shrub. Take, as an instance, Mahonia Aquifolium, and Mignonne—the originals are beyond all praise, and the former remains the sterling and valuable thing it was, but the latter has been "improved" (word of now evil omen, and more especially so in our culinary products) beyond the comprehension of the unsophisticated lover of beauty, who fails to see in the rough, coarse, "big brother," lacking even that delicacy of perfume which is the plant's greatest charm, any resemblance to his cherished "little darling" of years ago. Yet while much time has been spent in adjudicating on these "improvements," certain sections of hardy shrubs are never brought before the committee at all, nor have been for years, although the varieties raised might be counted by fifties or even hundreds. Why is this? Simply because raisers have no confidence in the committee's judgment, and prefer to introduce their novelties to the public in their own way, which they, for the most part, do successfully. If something be not quickly done to restore confidence, the central authority is doomed. Once let the counties form their own committees, and we shall be riven in all directions, never again to unite. Let us make a mighty effort before it is too late—let us strive to make the committees more representative in every way, let us increase the members, if necessary, a hundredfold, and give permanent seats to those who have done good service and earned experience, but whose energies may, perhaps, be flagging, and who cannot always face the wild north-easter as they did in years gone by. Let us—But enough: after all I am but a wandering stranger, who in his passings to and fro has heard and seen sufficient of the general feeling to fear that the forthcoming list will probably contain names (forgive the bull) "not in it!" *A Wandering Pleiad.*

**Premature Growths.**—It is sometimes said that the past summer and autumn were what is termed "rushing"—that is to say, that plants came forward with great rapidity, and developed their flowers earlier than usual, and almost all together. And this rushing tendency appears to have imparted itself to some of the Cape and other bulbs. *Ixias* and *Sparaxis* that flowered in pots last spring that were stood out-of-doors and repotted in August, when at rest, have come away unusually early, though standing in a cold frame on a north border without any covering, and the plants are now 4 to 5 inches in height. *Gladiolus Colvillei albus* may be said scarcely to have rested, for almost as soon as the foliage died down the bulbs again commenced to grow, and the growths from pots in the open air are 1 foot or more in height. These are representative cases. Probably the dry weather and marked absence of rain has kept the soil warm and assisted growth; many hardy plants in the open ground have grown quickly almost up to the middle of November. *R. D.*

**The National Auricula, Carnation and Picotee Societies (Southern Section).**—In reference to Mr. Dodwell's letter at p. 24, wherein I am accused of foisting a fictitious vote upon the meeting, I beg to say that the accusation is unfounded. Mr. Wright joined the Societies some weeks before the general meeting. The want of rules is constantly being felt. There is none to say how members are to be received, or what amount of subscription gives them power to vote; but the usual course was followed with Mr. Wright. He had paid his subscriptions of a guinea before he voted. No one complained of the *status* of most of the unknown men who came to vote for Mr. Dodwell. Young Mr. Pohlman, for instance, has long been accustomed to attend the exhibitions with his father; but I do not find his name on the last list of subscriptions. How much was his subscription—when, or for what purpose was it paid? Dr. Hogg was not entitled to pay any subscription in 1883; he had previously resigned, but at my solicitation he again became a member. Again, I declare that the meeting of October 14 was summoned in the usual way, and with no evil intention on my part, as has been alleged. It was summoned in the same way as that of July 8, for instance, which was called by Mr. Dodwell. There was a complaint at that meeting that some members

had been left out. Probably Mr. Dean was forgotten, at any rate he was not present. Mr. Fraser is not a member of either Society, consequently he was not invited, and was not present. Mr. Dodwell objects to Dr. Hogg and Mr. Veitch being present. They both attended at the meeting on July 8, hence they were asked to attend on October 14. It may seem to outsiders not quite in order to ask members not on committees to take part in the proceedings, but it had been done before as a matter of courtesy. So few members of committee used to attend, and if there happened to be any members present at the Royal Horticultural Society's meetings who had knowledge of the business, they were invited to sit down. It was a graceful act of courtesy: it had been done before with the approval of Mr. Dodwell. I see nothing objectionable in the practice, nor did Mr. Dodwell hitherto. If there were rules to say that the business should be transacted by a committee, and that no other member on any account should be present, that would make all the difference. When Mr. Dodwell claims freedom of action for himself he should allow the same to his co-secretary, and not be so ready to impute bad motives without cause. I must allude here to Mr. Dean's grievance. Mr. Dean's last attendance at a meeting, either general, special, or committee, was on March 14, 1882. When a member of any society absents himself from its meetings for two years and seven months, and when at the end of that time he gets up at a meeting and declares his deep interest in the society he has thus neglected, the secretaries may be pardoned if they forget to send him a notice. I say emphatically that Mr. Dodwell had not a majority of votes in his favour on December 9. I come now to the question of proxy voting. Mr. Dodwell put his case to the members in his own way, very pathetically. There was no other side. Nobody asked for votes but Mr. Dodwell. He sent the members a circular containing a copy of a letter he had addressed to the Editor of the *Gardeners' Magazine*. It was a one-sided letter altogether. Mr. Dodwell ought to have sent my answer to it, which appeared in the same paper. He brought his proxies to the meeting, but they were very properly not admitted. He says he had a vote in his favour—fifty-three against twenty-two.

It may be a fair question to ask who are the twenty-two? I answer that question. Amongst them are the foremost florists in the Northern and Southern Sections. When there are no rules to guide the Executive of any society it would puzzle the wisdom of Solomon to know how to act so that Mr. Dodwell should find no fault, if he felt inclined to do so. Mr. Dodwell objects to rules. He says in a circular dated December 27, 1884 (the fifth or sixth of the series)—it is addressed to Mr. Shirley Hibberd—"Rules by their very nature restrict; I resist restriction." Just so. He is an autocrat in his way, and acts just as he pleases. Last summer, for instance, he would not be controlled. I draw particular attention to his words, "I will maintain the position of leader I was pressed into eight years ago; and except as following a direct vote of the committee, which I shall always uphold, I will tolerate no interference with my direction." At this time he was involving the President of the Carnation Society, the Vice-Presidents and committee, in legal proceedings, entirely without their knowledge and consent. I tried in vain to restrain him, warning him that the committee would not support him in such irregular proceedings—and what was the result? He summoned a committee for July 8, with the President of the Carnation Society in the chair, and the committee unanimously refused to support Mr. Dodwell in any further action. He might have got out of his difficulty in the usual way, but he retained office. Before this he "would always uphold a direct vote of the committee;" but after the rebuff he received on July 8 he could not be very sure of their support in future.

Besides Mr. Dodwell's action in this matter, he sent other letters, telling me that "he had received indications from men high in office that they would not suffer me to lead." To save my self-respect, I determined to act no longer as co-secretary with Mr. Dodwell. This proceeding I could not avoid, and yet on this honourable action Mr. Dodwell pours his gall, and shamefully misrepresented me. As soon as I determined to resign I told him first, and asked him to summon a meeting to allow me to do so. He sent an evasive reply. The



subsequent results are well known. I will just allude to another circular from Mr. Dodwell—the seventh, I think, of the series—in which it is stated by Mr. Dodwell that I perpetrated a fraud on the societies; it is dated December 30: and yet another from Mr. Dean, dated December 31, repeating the libel in another form. Mr. Dean's circular was sent in the form of a "statement" to the Editor of a contemporary, but was returned as unsuitable for its pages. When communications are unsuitable for publication in the usual gardening papers they can be issued in the form of circulars, but their authors must not forget that there is a law for libel. I shall make no more comments on any circulars or letters published by Mr. Dodwell or Mr. Richard Dean. *J. Douglas, Great Gearies, Ilford.* [Mr. Dodwell and Mr. Douglas having now expressed their views on the question at issue we must request them to reserve any further statements for the meetings of the Society, or seek publicity in whatever other form they please. We can insert no more communications on the subject. ED.]

## ON POTATO DISEASES.

(Concluded from p. 15.)

SCAB.—This well-known affection of the exterior of the tubers compared to the Phytophthora and other diseases is comparatively unimportant. Certainly it spoils the look of the Potatos, and injures them to a certain extent. Kühn\* seems to have regarded scab ("schorf" or "grind") as being caused by *Rhizoctonia solani*, a fungus which is frequently seen, but which appears to me neither to be the cause of scab on the one hand, nor to have anything to do with *Tubercinia scabies* on the other. The last-named fungus was described many years ago by Mr. Berkeley,† and figured by him as well as by Martius.‡ I have never met with it myself. Specimens were published by Dr. Cooke,§ but in my copy of his *Exsiccati* no spores exist.

Of the cause of true scabbing we know very little. As usually met with, each scab consists of a circumscribed cork formation of the rind of the tuber, as if each spot had at some earlier period of its existence been the seat of an injury. Most likely this precursory injury will be found to be due to a fungus of some sort, possibly to some mould, to prevent the penetration of which the tuber has developed a cork plate. I am the more inclined to adopt this surmise because in the early part of this summer I brought home some tubers affected with the early stages of scab and placed them in a damp atmosphere under a bell-glass. In the course of a few days each affected spot gave origin to a minute pustule of some whitish fungus, which to the naked eye looked very much like a mould, but which, owing to the pressure of other matters, I had not the opportunity of further investigating.

MOTTLED OR SPOTTED TUBERS. (See fig. 135 B, p. 788, vol. xxii.).

As far as I am aware this affection is not mentioned by any writer upon the subject. It may be, however, for aught I know, for there are few subjects which have been written more about than Potato diseases. Twenty years ago De Bary speaks of over two hundred separate memoirs and communications on this subject which existed at that time, so that to obtain a perfect acquaintance with the literature of the subject is well nigh impossible when it is remembered that these communications are scattered over the literature of every European country. In September last many of the Potatos grown at Chiswick were found to be curiously marked internally with brown spots or discolorations, which bore a very close resemblance to the brown spots produced by *Phytophthora*, so much indeed was this the case that they were regarded at the time that they were first observed by all who saw them as being due to this cause. In two particulars, however, they differed from true disease spots. Firstly, they were confined to the interior of the tubers, which externally appeared perfectly healthy. Secondly, the spots were neither so opaque, nor so dry, nor so deep in colour as the true *Phytophthora* spots are. Having obtained specimens I carefully examined them for mycelium, but failed entirely in finding any trace whatever of it. It is very easy to say offhand that

mycelium does or does not exist in any tissue of a Potato plant, but those who have had most to do with searching for it amongst the discoloured or the healthy tissues will bear me out when I say that it is easier to say it exists than to demonstrate its presence satisfactorily. Of course it can be traced, and I have traced it myself many times, but I felt that mere negative assertions on my part would deservedly have but little weight one way or the other. Slices of the mottled tubers were placed under a bell-glass, but gave rise to no conidia formation. Mr. Henslow also kindly examined these spots for me, but, like myself, found neither mycelium nor conidia. Specimens were sent to Mr. Jensen, who likewise failed to discover mycelium or to induce the development of conidia.

I then sent specimens to Professor De Bary, who most kindly examined them, and informed me by letter that he found neither *Phytophthora*, nor any other fungus, nor *Bacterium* in the discoloured spots. He further investigated the affected tubers, but found by culture under bell-glasses no conidia were produced. Of course, his dictum, that the brown spots were not due to *Phytophthora*, was amply sufficient to settle the question, for it is to him we owe nine-tenths of our information concerning the physiology of this fungus. He found, however, that after keeping the slices under observation some days (as also occurred to myself and to Mr. Rostrup) that a minute *Verticillium* or *Acrostalagus* appeared upon the slices; this *Verticillium* I had observed many times during the past winter upon my cultures, and it has, I believe, nothing to do with the mottling of the tubers.

Mr. Rostrup also examined specimens of the Chiswick tubers, with the same result. Mr. Jensen then suggested that these mottlings might possibly be the incipient stage of dry rot. I therefore sent specimens to Professor Kühn, of Halle; he, too, very kindly examined them, and found, like De Bary, neither fungi nor bacteria in the spots. He informed me that he was familiar with the affection for many years, but was unable to assign any cause for it or give me any further information about it. Moreover, he added, that it had nothing whatever to do with dry rot. More recently Mr. Murray has examined this mottling, with the same result. Hence it is obvious that we have to do with a disease affecting the interior of the tubers which bears a close resemblance to the browning caused by *Phytophthora*, but that this fungus has nothing whatever to do with it. This conclusion has not been hurriedly arrived at, for the affection has been examined by the most eminent authorities upon Potato diseases on the continent of Europe—Professors De Bary and Kühn, Mr. Rostrup, and Mr. Jensen—and the above is their unanimous verdict; besides which it has been examined by Mr. Henslow, Mr. Murray, and myself, with a like result. Further investigations of this affection, extending over the winter months, are desirable for the elucidation of this obscure affection, but the prospects of elucidating its cause are not hopeful when so many eminent authorities have been baffled by it.

An instance has recently come under my notice in which a crop of Potatos have been rendered unsaleable from this disease. The grower, an intelligent working man, recognised the difference between it and the "old disease." The crop was unsaleable because it is impossible to tell how many tubers are affected, their exterior being perfectly healthy. The same grower noticed the disease last year, but not to so great an extent. *C. B. Flourish.*

## FRUIT NOTES.

BERZENCY QUETCHE.—The Quetche, or Prune Damsen, are as yet not commonly found here, but as fruit preserving by drying and otherwise is likely to form an important industry in the near future, these sugary, prolific, perennial bearing varieties will be largely grown. All of them are less juicy than our best Plums, and, therefore, contain a smaller quantity of water to be got rid of by boiling or drying. The above-named excellent sort is commonly grown in Upper Hungary, in the cool mountainous region, near the sources of the Theis, and should prove well adapted to our climate. Its other name is Muskataly Szvilva, or Muscat-flavoured Plum.

RASPBERRY MERVEILLE DE QUATRE SAISON.

This is an excellent late fruiting kind, well worthy of being grown on a large scale. It is almost a continuous fruiter, of robust growth, therefore requiring

plenty of space and liberal manuring. The fruit is dark crimson, large, and bluntly conical, coming in clusters. It bears fruit freely to the end of October.

BEURRE BOSC.

As a market Pear this is highly recommended in the December number of the *Bulletin d'Agriculture*, where a coloured figure is given. It should be grown as a standard, and if not very productive when quite young, is a good and regular cropper at a later period. The shape of the Pear is elongate, top-shaped, the skin reddish-brown, the flesh very white, of good quality. Season, October and November.

## Reports of Societies.

### Scottish Horticultural Association.

THE PROGRESS OF HORTICULTURE.—A meeting of the above Association was held on Tuesday last, at 5, St. Andrew Square, Edinburgh, Mr. MacKenzie in the chair. Mr. James Grieve read a paper on the progress of horticulture during the last quarter of a century. He enumerated the improvements effected and new introductions made within that period in Conifers, ornamental trees, shrubs, florists' flowers, stove plants, fruits, and vegetables. Among other points referred to was the great increase of Orchids, which were said to have been of late years placed within reach of the million. In regard to table plants, it was stated that the amount of money now changing hands for these alone would astonish the wisacres who were for ever talking of the good old days. As to cut flowers, again, what with births, deaths, and marriages, and the decoration of churches at Christmas, as much money now changed hands in a week as did in a year twenty-five years ago. Of fruit trees the Apple had been very much improved, and several varieties, if not new in the correct sense of the word, had been brought to the front to displace sorts formerly recommended. The Pear had not been so much improved; we had any quantity of fine Pears, but what we wanted in regard to this fruit was a better climate. In Peaches and Nectarines great changes had been introduced, especially with very early and very late sorts. The Apricot had not been so much taken in hand as it ought; and the Cherry remained, to a great degree, what it was twenty-five years ago. Of Gooseberries, Currants, and Raspberries the number had been thinned, the better sorts having come to the front and been retained. Strawberries had become a great favourite; various sorts had been added, and there were 10 acres grown in Scotland now for one twenty-five years ago. There had also been a great increase in the growth of vegetables. The wages of working men in nurseries had increased about 50 per cent.; and although at present horticulturists, like every other profession, were undergoing a season of dull trade, they trusted soon to see a return to the golden harvests of former years.

In the course of some discussion that followed Mr. Todd said there might be some flowers better developed than twenty-five years ago, but, with the exception of Roses, there had been very little progress; and the progress made had not been made in recent years, but in the beginning of the quarter of a century under review. In vegetables many things had been improved, but the improvement had not been so very great. Peas had been introduced that were to be ten days earlier, or to produce double the crop; but still their Peas came in about the same week, and they had just about the same quantity. A great many of the introductions mentioned by Mr. Grieve had improved gardens immensely. The great change that had taken place during the last twenty-five years had been that the people had interested themselves more, and had become greater lovers of flowers and plants; but he was not quite sure that horticulture as a science had very much advanced during that period. The great increase in the means of communication had in some cases contributed to progress, while in some it had rather hindered progress by bringing the gardener into competition with foreign growers who enjoyed a better climate. Proceeding to ask if the gardener was a better gardener than twenty-five years ago, he desired to mention, as showing that he was not, a sad fact that took place last year. The Council of the Royal Caledonian Horticultural Society, having to award the Neil Prize, which was given once in three years to the most distinguished horticulturist of his time, could not find in Scotland a gardener worthy of it, and so had to give it to an amateur, and not one gardener in Scotland could be found to raise his voice against the award.—Mr. Lindsay contended that, on the whole, there could be no question that during the last twenty-five years horticulture had progressed very much.—Mr. Munro remarked that the teaching of Mr. Darwin, although it had not done all that it ought to have done, had done more for horticulture as a science than anything else that had occurred during the last twenty-five years.—The Chairman submitted that there had been as great progress in practical horticulture during the period in question as there had been in the science of that period. Gardeners all over the country at the present day were in possession of modes of cultivation and produced results that the gardeners of dukes, earls, and princes could not produce thirty years ago. Some horticultural specimens were afterwards exhibited.

\* Kühn, *loc. cit.*, pp. 222–228, t. vii., p. 17–20.

† Berkeley, *Horticultural Journal*, vol. i., t. 4, p. 30–31.

‡ Martius, *Die Kartoffel Krankheit*, t. 3, p. 36–38.

§ Cooke's *Exsicc.*, Series I., No. 445.





STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, JANUARY 7, 1885.

MONTH AND DAY.	BAROMETER		TEMPERATURE OF THE AIR.				HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition		WIND.	RAINFALL.
	Mean Reading reduced to 32° Fahr.	Departure from Average of 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 18 years.	Dew Point.		
Jan.	In.	In.	°	°	°	°	°	°	E. S. E.	In.
1	30.20	+0.03	34.0	26.0	8.0	32.8	+0.1	26.1	81	0.00
2	30.95	+0.16	34.5	29.0	5.5	31.9	-0.5	25.5	78	0.00
3	30.85	+0.09	35.5	31.5	4.0	33.1	-0.6	31.0	92	0.00
4	30.95	+0.19	39.0	32.0	7.0	36.0	-0.6	35.0	96	0.00
5	30.93	+0.18	46.5	36.0	10.5	42.2	+5.7	40.0	92	0.00
6	30.08	+0.34	41.0	29.0	12.0	34.8	-1.6	32.6	92	0.01
7	30.19	+0.45	40.2	29.0	11.2	34.8	-1.5	32.2	89	0.00
Mean	30.02	+0.25	38.7	30.4	8.3	34.8	-1.9	31.8	89	0.01

- Jan. 1.—Fine day and night; very cold.  
 2.—Fine day and night; very cold.  
 3.—Fine day and night; very cold.  
 4.—Dull day and night.  
 5.—Dull day and night.  
 6.—Dense fog in early morning. Very fine day and night.  
 7.—Very fine day and night.

LONDON: *Atmospheric Pressure.*—During the week ending January 3, the reading of the barometer at the level of the sea decreased from 30.17 inches at the beginning of the week to 29.78 inches by 3 P.M. on the 29th, increased to 30.41 inches by 9 A.M. on the 1st, decreased to 30 inches by 3 P.M. on the 3d, and was 30.09 inches by the end of the week.

The mean reading of the barometer for the week was 30.08 inches, being 0.03 inch lower than last week, and 0.05 inch above the average of the week.

*Temperature.*—The highest temperature was 40° on December 31. The highest on January 1 was 34°. The mean of the seven high day temperatures was 36°.

The lowest temperature was 26°, on January 1; the highest on December 28 was 35°. The mean of the seven low night temperatures was 30°.

The greatest range of temperature in one day was 12° on December 31; the smallest was 2°, on December 28. The mean of the seven daily ranges was 5°.

The mean temperatures were—on December 28, 35°; on the 29th, 35°; on the 30th, 32°; on the 31st, 36°; on January 1, 30°; on the 2d, 31°; on the 3d, 33°; and these were all below their averages by 1° 6', 2° 1', 4° 4', 0° 6', 6° 4', 5°, and 3° 6' respectively.

The mean temperature of the week was 33° 8', being 2° 8' lower than last week, and 3° 4' below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 54°, on December 31. The mean of the seven readings was 43°.

The lowest reading of a minimum thermometer with its bulb placed on grass was 18°, on January 1. The mean of the seven readings was 23° 2'.

*Rain.*—No rain fell during the week.

ENGLAND: *Temperature.*—During the week ending January 3 the highest temperatures were 52°, at Truro, 49° at Plymouth, 43° at Bristol. The highest at Bradford was 36° 8', at Sheffield 37°, at Nottingham 37° 2'. The general mean was 40° 3'.

The lowest temperatures were 22° at Cambridge, 24° 9' at Wolverhampton, 25° at Sheffield; the lowest at Plymouth was 32° 5', at Truro 32°, at Sunderland and Preston 30°. The general mean was 27° 7'.

The greatest ranges were 20°, at Truro, 16° 8' at Bristol, 16° 5' at Plymouth; the smallest ranges were

8°, at Bradford, 8° 4' at Nottingham, 9° at Sunderland. The general mean was 12° 6'.

The mean of the seven high day temperatures was highest at Truro, 46° 3', at Plymouth 42° 7', at Sunderland 38°; and was lowest at Wolverhampton, 33° 9', at Bolton, 34° 3', at Liverpool 34° 9'. The general mean was 37° 2'.

The mean of the seven low night temperatures was highest at Truro, 36° 7', at Plymouth 35° 5', at Sunderland 31° 6'; and was lowest at Bolton, 27° 6', at Wolverhampton 27° 9', and at Cambridge 30°. The general mean was 31° 2'.

The mean daily range was greatest at Truro, 9° 6', at Leeds 7° 3', at Plymouth 7° 2'; and was least at Liverpool, 3° 6', at Preston 4° 7', at Brighton 4° 9'. The general mean was 6°.

The mean temperature was highest at Truro, 41° 4', at Plymouth 39° 1', at Sunderland 34° 6'; and was lowest at Wolverhampton and Bolton, 30° 8', at Cambridge 32° 8'. The general mean was 34° 1'.

*Rain.*—The largest falls were 0.22 inch at Truro, 0.05 inch at Sunderland, 0.03 inch at Preston; the smallest falls were 0.01 inch at Cambridge, Nottingham, and Bradford. The general mean fall was 0.02 inch. No rain fell at Brighton, Bristol, Blackheath, Wolverhampton, Sheffield, Liverpool, Bolton, or Leeds.

SCOTLAND: *Temperature.*—During the week ending January 3, the highest temperature was 43° 2', at Leith; at Perth the highest was 38° 5'. The general mean was 41° 7'.

The lowest temperature was 22°, at Glasgow; at Greenock the lowest temperature was 29° 2'. The general mean was 26° 7'.

The mean temperature was highest at Aberdeen, 37° 1'; and lowest at Perth, 32° 5'. The general mean was 34° 3'.

*Rain.*—The largest fall was 0.43 inch, at Aberdeen, and the smallest fall was 0.07 inch at Greenock. The general mean fall was 0.09 inch. No rain fell at Edinburgh, Dundee, Leith, or Paisley.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, January 5, 1885; issued by the Meteorological Office, 116, Victoria Street, London, S.W.—The weather has continued very dull, cold, and dry over England, but in Ireland and the west and north of Scotland it has been unsettled and milder, with showers of rain, hail, or sleet.

The temperature has been 1° or 2° above the mean in Ireland and "Scotland, N.," but elsewhere it has varied from 1° to 4° below. The maxima, which were recorded on the 4th or 5th, ranged from 54° in "Ireland, S.," to 47° in "England, E." The minima were registered on different days in the various parts of the Kingdom, and ranged from 21° in "England, S.," and between 23° and 28° in most other districts, to 33° in "Ireland, N.," and 34° in "Scotland, N." The diurnal range over England was generally very slight.

The rainfall has been a little more than the mean over Ireland and about equal to it in "Scotland, W.," but less in all other districts. Over the greater part of England the fall has been scarcely appreciable.

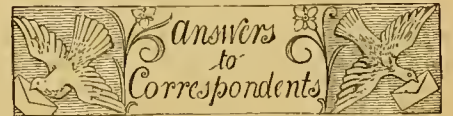
*Bright sunshine* has been unusually deficient. In "England, N.E.," "England, N.W.," and "England, S.," none at all has been recorded, while elsewhere the percentages of the possible number of hours have varied from 2 in "Scotland, N.," to 7 in "England, E.," and to 10 or 11 over Ireland.

*Depressions observed.*—A large area of high pressure has held steadily over the Continent, but soon after the commencement of the period the barometer fell at our western stations, and depressions began to move northwards outside the Irish and Scotch coasts. On January 3 an irregularly shaped disturbance had appeared over our south-western districts, on the 4th a large and rather deep depression was passing north-north-eastwards off the west of Scotland, while on the 5th some subsidiary disturbances were passing in a similar direction over the United Kingdom. Under these conditions fresh or strong southerly winds have prevailed at all our western and north-western stations, while light or moderate south-easterly to southerly breezes have been general in the south-east and east.

## Obituary.

### DEATH OF MR. KINGSBURY, OF SOUTH-AMPTON.

THE South of England has been deprived by death of one of its well known trade horticulturists in the person of Mr. James Kingsbury, of the Bevois Valley Nursery, Southampton, who expired at his residence on the 27th ult. A few weeks previously, when engaged in advising a local tradesman in one of the principal streets of the town with respect to the best arrangement of some shrubs, Mr. Kingsbury stepped back and unfortunately fell down an open trap, and though his fall was materially broken, yet the injuries received sufficed to bring about his decease at the age of sixty-three years. Coming to Southampton some years ago, somewhat in the capacity of an amateur florist, the deceased joined himself to the business then being in course of establishment by the late Mr. Windebank, and though the business was a comparatively small one, yet as a florist's it was very active. Mr. Kingsbury possessed great taste for floral hybridisation, and taking in hand Chinese Primroses, raised many fine double forms, and secured one of the best single strains to be found in the kingdom sixteen years ago. With the zonal Pelargonium in its various forms very great things were done, especially in the production of beautiful tricolors, bronzes, silver bicolors, and plain-leaved kinds. Kingsburyana is still well known as a silver bicolor in many gardens, and one of the finest double Fuchsias bears the same name, and is but one of Mr. Kingsbury's many triumphs as a raiser. A record of all that he accomplished in this direction would indeed be full of interest. He was an active promoter of the Southampton Horticultural Society, and amidst a wide circle was greatly esteemed and respected.



BEGONIA: *A. Carter.* B. metallica folio variegata; the spray is Goldfussia anisophylla.

BOOK: *C. Warner.* Kemp's *How to Lay Out a Garden.* It is published by Messrs. Bradbury, Agnew, & Co., Bouverie Street, Fleet Street.

B.S.C.: *J. R.* By all means make yourself practically familiar with the use of the simple and of the compound microscope. Read Hentley's *Elementary Course*, 4th edition, and Sach's *Text-Book*, the 2d English edition, or, if you read French, Van Tieghem's *Traité*.

CAULIFLOWER FOR TRIAL: *Seedsman.* You can send it to Mr. A. Barron, the Superintendent, Chiswick, for that purpose, free of cost.

GOUTY SWELLINGS ON CONIFERS: *Lower Norwood.* See our columns for July 22, 1882. The remedy for the attacks is Fir-tree Oil.

CHRYSANTHEMUMS, &c.: *Rash Behary Roy.* The list of Mr. Ware, of Hale Farm, Tottenham, or that of Mr. Charles Turner, Slough, will give you the names of the best in each section. There is none that describes the whole of the old as well as the new kinds. We do not know any sort named "Hillieg." Six sweet-scented annuals for Calcutta might consist of Martynia fragrans, Mignonette, Ten-week Stocks, Sweet Peas, Marigolds, common, French and African, Heliotrope, and Petunias. To get seeds of Sweet Rocket and Larkspur in an unimpaired state, have them balled in soft clay, which can then be hardened by drying in the sun, or in an airy shady place. This is a good method to pursue with any seeds going to a hot climate when the transit takes some months. — *H. H.* The Chrysanthemums, if for show purposes, must be propagated in the autumn, as soon as it is possible to get good cuttings. Some plants are shy of making cuttings at that time; these may be encouraged late in the winter by gentle warmth to produce them, when they can be taken off. Early autumn-struck cuttings do very well in a cold frame, but for those later struck a very mild bottom-heat, in a bed covered with fine coal-ashes, in which the pots are plugged, may be employed. These late-struck cuttings will require considerable attention to prevent them damping off.

The Amaryllis will take about seven or eight weeks to bring into bloom in the winter season. To make sure of having plants in bloom when you want them the stock should be a large one. It is better to top-dress with rich sandy loam, unless the plants are very much potbound.

Spiraea japonica may be started any time during the next few months. Do not take them at once from the cold outside bed and plunge them into bottom-heat, but let the process of starting be a more gradual one. You may then expect good results.



The preparatory stage need not be more than two or three weeks—not five or six. You will not succeed with these unless the clumps have been well grown. They will require about two months in a mild heat from first introducing them from outside.

GRAPE VINE: *J. N.* The Claret Vine; so named from the leaves assuming a claret colour in autumn.

GROS COLMAR GRAPE: *E. Bland.* Such doubling of the berries is not at all unusual.

PRIMULA BLOOMS: *C. Whitaker.* These were uncommonly fine in colour and size, with forms sufficiently good for all decorative purposes.

### CATALOGUES RECEIVED.

JOHN DOWNIE, Edinburgh—Descriptive Catalogue of Vegetable and Flower Seeds, Gladioli, &c.

IRELAND & THOMSON, Edinburgh—Vegetable and Flower Seeds.

ALF. WATKINS, Hockerill and North Street, Bishop's Stortford—Flower and Vegetable Seeds.

ROBERT VEITCH & SONS, Exeter—Kitchen Garden and Flower Seeds.

KELWAY & SONS, Langport, Somerset—General List of Seeds, Gladioli, Herbaceous Plants, and Florists' Flowers.

J. CHEAL & SONS, Crawley, Sussex—Vegetable and Flower Seeds.

W. FELL & CO., Hexham, Northumberland—Spring Seed Guide.

CHARLES TURNER, Slough—Kitchen Garden, Flower and Farm Seeds.

W. PAUL & SON, Waltham Cross—Vegetable, Flower, and Agricultural Seeds.

JAMES DICKSON & SONS, Edinburgh—Vegetable and Flower Seeds.

W. TOOGOOD, Southampton—Kitchen and Flower Garden Seeds.

W. CUTBUSH & SONS, Highgate and Barnet—Vegetable, Flower, and Farm Seeds.

WEBB & SONS, Wordsley, Stourbridge—General Spring Catalogue of Seeds, Potatoes, Gladioli, &c.

GODWIN & SON, Ashbourne, Derbyshire—Select Forest, Ornamental Trees, Roses, Shrubs, and Fruit Trees.

JAMES BACKHOUSE & SON, York—Garden Seeds.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Holloway, London—Flower, Vegetable, and Agricultural Seeds.

BIDDLE & CO. (The Penny Packet Company), Loughborough—Illustrated Catalogue of Seeds, Bulbs, &c.

HAAGE & SCHMIDT, Erfurt, Prussia—Plant and Seed Lists.

P. DIXON, Hull—Garden and Farm Seeds.

JOHN JONES & CO., Oswestry—Wholesale Garden and Agricultural Seeds.

T. KENNEDY & CO., Dumfries—Select Vegetable and Flower Seeds.

FRANCIS & ARTHUR DICKSON & SONS, Chester—Vegetable and Flower Seeds.

C. FIDLER, Reading—Seed Potatoes.

LITTLE & BALLANTYNE, Carlisle—Descriptive List of Garden Seeds.

BARR & SON, Covent Garden, London—Flower Seeds, Vegetable Seeds, and Spring Catalogue.

G. E. ELLIOTT, Huddersfield—List of Garden Seeds.

LOUIS VAN HOUTTE, Ghent—Gesneraceous Plants, Amaranth, Begonias, Caladiums, Dahlias, Lilies, and Choice Seeds.

Messrs. W. DRUMMOND & SONS, Stirling—Vegetable and Flower Seeds.

A. LEGERTON, 5, Aldgate, London—Trade List of Garden, Agricultural, and Flower Seeds.

COMMUNICATIONS RECEIVED.—G. A. Paris, R. S.—W. S.—B. P.—C. Koopman.—R. M.—C. A. Y.—W. C. Inverness.—F. G.—R. D.—W. Divers.—H.—J. Horsefield.—R. M. N.—J. R.—J. T. R.—G. T. M. (with thanks).—R. P.—C. Lucas.—J. S.—C. P.—W. H.—A. O. W.—A. B.—T. B.—W. L.—W. W.—J. J. B.—A. F. J.—J. D. H.

DIED, on the 5th inst., at Llandudno, CHARLES EDWARD, second son of the Rev. CHARLES WOLLEY DOD, of Edge Hall, Malpas; aged 27.

## Markets.

COVENT GARDEN, January 8.

TRADE again quiet. All classes of goods heavy. *James Webber, Wholesale Apple Market.*

### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-24 0	Ferns, in variety, per dozen .. 4 0-18 0
Arbor-vitæ (golden), per dozen .. 6 0-18 0	Ficus elastica, each 1 6-7 0
— (common), dozen 6 0-12 0	Foliage Plants, various, each .. 2 0-10 0
Arum Lilies, dozen 9 0-15 0	Hyacinths, per doz. 8 0-10 0
Azaleas, per dozen .. 18 0-42 0	— Roman, per pot 1 0-1 3
Begonias, per doz. .. 6 0-12 0	Marguerite Daisy, per dozen .. 8 0-15 0
Bouvardia, dozen .. 9 0-18 0	Myrtles, per doz. .. 4 0-12 0
Cinerarias, per doz. .. 9 0-12 0	Palm in variety, each .. 2 6-21 0
Cyclamens, per doz. 9 0-24 0	Pelargoniums, scarlet, per dozen .. 4 0-6 0
Cyperus, per dozen 4 0-12 0	Poinsettia, per doz. 9 0-15 0
Dracena terminalis, per dozen .. 30 0-60 0	Primula sinensis, per dozen .. 4 0-6 0
— viridis, per doz. .. 12 0-24 0	Solanums, dozen .. 9 0-12 0
Epiphyllum, doz. .. 18 0-24 0	Tulips, dozen pots .. 8 0-10 0
Erica, various, doz. 9 0-18 0	
Eucalyptus, various, per dozen .. 6 0-18 0	
Evergreens, in var., per dozen .. 6 0-24 0	

### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilon, 12 bunches 2 0-4 0	Mignonette, 12 bun. 6 0-9 0
Arum Lilies, 12 blms. 6 0-9 0	Narcissus, Paper-white, 12 sprays .. 2 6-3 0
Azalea, 12 sprays .. 1 0-1 6	— French, 12 bun. 6 0-12 0
Bouvardias, per bun. 1 0-1 6	Pelargoniums, per 12 sprays .. 1 0-2 0
Camellias, per doz. 3 0-8 0	— scarlet, 12 sprays 9 0-1 0
Carnations, 12 blms. 1 0-3 0	Poinsettia, 12 blooms 3 0-9 0
Chrysanth., 12 bun. 12 0-24 0	Primula, double, bun. 1 0-1 6
— large, 12 blooms 2 0-4 0	— sinensis, 12 bun. 4 0-6 0
Cyclamens, 12 blms. 3 0-6 0	Roses (indoor), doz. 2 0-6 0
Epiphyllum, 12 blms. 9 0-6 0	— French, per doz. 1 0-3 0
Eucharis, per doz. 4 0-8 0	Stokesia, 12 blooms 1 0-1 0
Euphorbia jacquini-flora, 12 sprays .. 1 6-3 0	Tropæolum, 12 bun. 10 0-2 0
Gardenias, 12 blms. 18 0-30 0	Tuberose, per doz. 2 0-4 0
Heliotropes, 12 sp. .. 0 6-1 0	Tulips, 12 blooms .. 1 0-1 6
Hyacinths, Roman, 12 sprays .. 1 0-1 6	Violets, 12 bun. .. 1 0-1 6
Lapageria, white, 12 blooms .. 2 0-3 0	— French, bunch .. 2 6-3 6
— red, 12 .. 2 0-3 0	— Parme, French, per bunch .. 7 0-8 6
Lily-of-Val, 12 sprays 1 0-2 0	Wallflower, 12 bun. 4 0-6 0
Marguerites, 12 bun. 6 0-9 0	White Jasmine, per bunch .. 0 6-1 0

### FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, ½-sieve .. 1 6-4 0	Lemons, per case .. 12 0-18 0
— Nova Scotia and Canadian, barrel 10 0-18 0	Pine-apples, Eng. lb. 1 0-2 0
Cobs, per 100 lb. .. 6 0-9 0	— St. Michael, each 5 0-10 0
Grapes, per lb. .. 1 6-4 0	Pears, French, doz. 1 6-3 6

### VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz. .. 4 0-6 0	Lettuces, Cab., doz. 1 6-..
Asparagus, English, per bundle .. 12 0-..	— French Cos, each 6 0-..
— French, bundle 15 0-20 0	Mint, green, bunch .. 1 6-..
Beans, French, lb. 1 6-..	Mushrooms, p. basket 1 0-2 0
Beet, per doz. .. 1 0-..	Onions, per bushel .. 0 0-..
Cabbages, per doz. 1 6-2 0	— Spring, per bun. 6 0-..
Carrots, per bun. .. 0 6-..	Parsley, per bunch .. 0 4-..
Cauliflowers, English, dozen .. 2 0-4 0	Peas, per lb. .. 1 0-..
Celery, per root .. 2 0-4 0	Potatoes, new, per lb. 6 0-..
Celery, per bundle .. 1 6-2 6	Radishes, per doz. 1 0-..
Cucumbers, each .. 1 0-2 6	Rhubarb, bundle .. 0 6-..
Endive, Eng., dozen 1 0-..	Salsify, per bun. 1 0-..
Garlic, per lb. .. 0 6-..	Seakale, per punnet 2 0-2 6
Herbs, per bunch 0 2-0 4	Small salad, per punnet .. 0 4-..
Horse Radish, bun. 3 0-4 0	Spinach, per bushel 3 0-..
POTATOS.—Magnum Bonums, 40s. to 70s.; Regents, 70s. to 90s.; Champions, 45s. to 60s. per ton. Markets have a downward tendency.	Tomatoes, per lb. .. 1 0-1 6
	Turnips, bun. .. 0 5-..

### SEEDS.

LONDON: Jan. 7.—During the last few days there has been rather more business doing in field seeds, and some quantity, more particularly of red Clover seed, has changed hands. As regards Alsike, white, and Trefoil, there is no quotable variation. In grasses there is nothing doing. Spring Tares are dearer. Blue Peas and Haricot Beans, in sympathy with the advance in corn, are firmer. Feeding Linseed still tends upwards. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

### CORN.

At Mark Lane on Monday there was a more animated trade than for some time past, partly speculative, political as well as statistical movements having influence. English Wheat sold quite 2s., and foreign 2s. to 3s., above the rates of Monday se'night, the white Wheats showing the largest rise. Flour sold at a general advance of 2s. per sack, and the official top price of town flour was raised 4s., making 37s. the present quotation. Maize advanced 6d. to 1s. for the week, malting Barley 1s., grinding Barley 6d., and Peas 1s. per quarter. Beans remaining firm at late rates.—On Wednesday the rates for Wheat above recorded were not readily obtainable. The market for flour was quiet, and prices nominally unaltered. Barley was firmer, and met a good inquiry forward. Maize was firm on the spot, but weaker forward. Oats showed an occasional advance of 3d. over Monday.—Average prices of corn for the week ending Jan. 3:—Wheat, 31s. 11d.; Barley, 31s. 4d.; Oats, 19s. 6d. For the corresponding period last year:—Wheat, 39s.; Barley, 32s.; Oats, 19s. 3d.

### HAY.

Tuesday's Whitechapel Market report states that the Clover trade was dull; hay was in good demand, and the top price of straw advanced 1s. Supplies moderate. Quotations:—Clover, prime, 90s. to 107s.; inferior, 46s. to 73s.; prime second cut, 90s. to 100s.; hay, prime, 80s. to 95s.; inferior, 30s. to 63s.; and straw, 22s. to 36s. per load.—The Cumberland Market report states that there was a fair supply, with better demand, at the following rates:—Clover, best, 95s. to 108s.; inferior, 50s. to 80s.; meadow hay, best, 80s. to 90s.; inferior, 50s. to 70s.; and straw, 26s. to 35s. per load.

### POTATOS.

The Borough and Spitalfields Markets reports state that the demand was slow, and supply plentiful. Quotations:—Kent Regents, 70s. to 80s.; Scotch ditto, 80s. to 100s.; Victorias, 70s. to 90s.; Magnum Bonums, 50s. to 80s.; Champions, 50s. to 60s.; French, 40s. to 50s. per ton.—The imports into London last week were 215 bags from Hamburg, and 5 bags from Harlingen.

Government Stock.—Consols closed on Monday at 99½ for delivery, and 99½ to 99½ for the account. Tuesday's figures were 99½ to 99½ for delivery, and 99½ to 99½ for the account. The final quotations of Wednesday were 99½ to 99½ for delivery, and 99½ to 99½ for the account.—Thursday's closing figures were 99½ to 99½ for delivery, and 99½ to 99½ for the account.

FOR SALE, CUCUMBER and STRAW-BERRY PLANTS; also CAMELIAS, from 3 to 7 feet high; EUCHARIS AMAZONICA, from 32 to No. 4 pots; GARDENIAS, from 48 to No. 12 pots. *G. WALKING, College Park Nursery, Lewisham, S.E.*

### Forcing Asparagus.

R. AND G. NEAL beg to offer the above by the hundred or thousand (own growth, and transplanted last spring). Samples with Price on application. Also beg to call the attention of Nurserymen, Builders, and others to their exceptionally fine stock of FRUIT, FOREST, and ORNAMENTAL TREES and SHRUBS.

The Nurseries, Wandsworth Common, S.W.

### To the Trade.

#### BROAD BEANS.

H. AND F. SHARPE have fine samples of H. WINDSOR and LONGFORD BEANS to offer. Samples and Prices may be had on application. Seed Growing Establishment, Wisbech.

### MANETTI STOCKS,

finely netted, 23s. per 1000.  
APPLE, LORD SUFFIELD, strong maidens, 45s. per 100.  
" RIBSTON PIPPIN, } strong maidens, 50s. per 100.  
" LORD DERBY, }  
Cash with order.  
*J. M. JEFFREY, Denham Road Nursery, Uxbridge.*

### Notices.

CUT LILIES of the VALLEY and MAIDENHAIR FERN.—I beg to inform my Customers and the Trade generally that daily supplies of the above can be sent from December 22. Particulars on application. A few hundred ADIANTUM GRACILINUM in 48 pots, at 6s. per dozen, cash.  
*T. JANNICH, The Lily Nursery, Dersingham, Norfolk.*

ASH, common, 2 to 3 feet, clean, 17s. per 1000; 3 to 4 feet, 20s. per 1000. ELMS, 1½ to 2 feet, 14s. per 1000; 2 to 3 feet, 17s. per 1000; English, 3 feet, 25s. per 1000. CHESTNUT, Spanish, 2 to 3 feet, 22s. per 1000; 15 to 20 inches, 16s. per 1000. LARCH, 14 to 24 inches, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 4 feet, 18s. per 1000; 4 to 5 feet, 24s. per 1000. SPRUCE FIR, 1 to 1½ foot, 12s. per 1000; 1½ to 2 feet, 12s. per 1000; 2 to 2½ feet, bushy, 16s. per 1000; 2½ to 3 feet, 2-yr. transplanted, 12s. per 1000; 2 to 2½ and 3 feet, 18s. per 1000. SILVER FIR, 4-yr. transplanted, 22s. per 1000. HAZEL, 2 to 3 feet, 20s. per 1000. OAKS, 18 to 20 inches, 16s. per 1000; 2 feet, 20s. per 1000. PRIVET, Evergreen, 2 feet, 15s. per 1000; 1 to 1½ foot, 12s. per 1000; OVALIFOLIUM, 2 to 2½ feet, 30s. per 1000; Oval, 1 foot, 20s. per 1000. SYCAMORE, 1½ to 2 feet, 14s. per 1000. THORN, 1½ to 2 feet, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 3½ feet, 18s. per 1000.

CATALOGUES on application to *GARLIES MITCHELL, Nurseryman, Stranraer, N.B.*

### To the Trade only.

CHAS. KERSHAW offers strong Crowns of his PARAGON RHUBARB at 25s. per 100. Strong plants with several crowns—price on application. DECIDUOUS SHRUBS in variety, fine transplanted stuff, 45s. per 1000. He can still supply extra strong plants in pots of MARECHAL NIEL, GLOIRE DE DIJON, BELLE LYONNAISE, REINE MARIE HENRIETTE, and other ROSES. *The Slead Syke Nurseries, Brighouse.*

ANDRE LEROY'S Nurseries, at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELIAS, ROSES, SEEDLINGS, STOCK, FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition at Paris in 1878. Orders must be addressed to Messrs. WATSON AND SCULL, 95, Lower Thames Street, London, E.C.

IMPORTANT NOTICE.—Any Nobleman, Gentleman, or Landscape Gardener requiring an extra fine specimen ARAUCARIA IMBRICATA, well furnished, and not less than 15 to 16 feet high, that would move well, can be suited with the same on application to *GODWIN AND SON, The Rosarium, Ashburne, Derby.* Also Two good Specimens of WEEPING HOLLY, for Single Trees.

*J. CHEAL & SONS,*  
CRAWLEY,

Have now posted a Copy of their

NEW CATALOGUE OF SEEDS  
AND CULTURAL GUIDE FOR 1885

to all their Customers. Should any not receive them please intimate at once.

SEEDS,  
VEGETABLE, FLOWER, and FARM,  
Carefully Selected,

AND FROM WHICH MAY BE EXPECTED

THE BEST RESULTS

EVER YET ATTAINED.

ILLUSTRATED LIST,  
Containing Copious, Interesting, and Reliable  
Information, Free.

RICHARD SMITH & CO.,  
SEED MERCHANTS and NURSERYMEN,  
WORCESTER.



## New Roses and excellent.

PAUL AND SON recommend the under-mentioned as amongst the sorts worth adding to collections:—  
H.P. GLOIRE LYONNAISE at Guillot's (the raiser's) price, 8s. strong plants.  
H.P. GRANDEUR OF CHESHUNT, 2s. 6d. each.  
TEA SUNSET, the new American yellow Perle des Jardins, 5s. each.

## The New White Roses.

MERVEILLE DE LYON, standards 3s., dwarfs 2s. 6d.  
WHITE BARONESS, standards 2s. 6d., dwarfs 2s.

## New Roses of 1884.

ALPHONSE SOUPERT  
BENOIT COMTE,  
ECLAIRE, } dwarfs, 3s. 6d. each, 30s. per doz.  
JOSEPH METRAL.  
QUEEN OF QUEENS, }

## Best New of 1883.

BARON NATHANIEL DE RUTHSCHILD,  
BRIGHTNESS OF CHESHUNT,  
COMTESSE DE MAILLE NESLE,  
DE PARIS (new), } dwarf, 2s.  
DUCHESS OF CONNAUGHT, } each, 18s.  
EARL OF PEMROKE, } per dozen.  
HENRI SCHULTHEISS,  
MARGUERITE DE ROMAN,  
MARIE LEGRANGE.

Magnificently strong DWARF PLANTS of the older sorts, 9s. per dozen, 60s. per 100.  
PAUL AND SON'S selection.  
PAUL AND SON, The Old Nurseries, Cheshunt, N.

## HERBACEOUS AND ALPINE PLANTS.

—New Descriptive CATALOGUE, No. 296, post-free on application.  
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

FOR SALE, to clear out, Fifty Pots of EUCHARISAMAZONICA, Three large GARDENIAS, Thirty smaller; Twenty-four large forcing DEUZIAS, IMANTOPHYLLUMS, ANTHURIUMS, large forcing AZALEAS, &c.  
D., 72, Eden Street, Kingston-on-Thames.

## DAHLIA TUBERS.

A grand lot of strong, healthy tubers, consisting of Double, Show and Fancy. All the best Double Pompons—a unique collection. Cactus and Semi-Cactus varieties—a splendid group. Singles—the finest collection in the world. Priced Descriptive LIST upon application.

## THOMAS S. WARE,

HALE FARM NURSERIES, TOTTENHAM, LONDON.

## GRAPES THIS YEAR.

FRUITING CANES, 7s. 6d. and 10s. 6d. each.  
PLANTING CANES, 3s. 6d. to 7s. 6d. each.  
Leading kinds, perfectly ripened without bottom-heat.

DUKE OF BUCLEUCH, grafted, 15s. each.  
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

## TO PLANTERS OF FOREST AND OTHER TREES.

## Cranston's Nursery &amp; Seed Co. (LIMITED)

Have splendid stocks of transplanted and well-rooted

LARCH FIR	.. ..	1 to 1½ feet.
" "	.. ..	1½ to 2 feet.
" "	.. ..	2 to 2½ feet.
" "	.. ..	2½ to 3 feet.
" "	.. ..	3 to 3½ feet.
" "	.. ..	4 to 5 feet.
SCOTCH FIR	.. ..	2 to 2½ feet.
" "	.. ..	2½ to 3 feet.
THORNS	.. ..	2 to 2½ feet.
" "	.. ..	2½ to 3 feet.

&c., &c.,

and will be pleased to quote lowest prices on receipt of a list of requirements.

Full truckloads Carriage Paid to nearest Railway Station.

CATALOGUES on application.

## CRANSTON'S NURSERY &amp; SEED CO. (LIMITED)

KING'S ACRE, near HEREFORD.

## THE NEW RASPBERRY

LORD BEACONSFIELD (a Seedling).

The finest Raspberry and best cropper ever known. First-class Certificates, Royal Horticultural Society, 1883. Strong Canes, 1s. per dozen, 45s. per 100; 4 feet Fruiting Canes, 9s. per dozen, 43 per 100. Usual allowance to the Trade.

A. FAULKNER,  
INKPEN, HUNGERFORD.

*Hooper's*  
*The Covent Garden*  
*Seed Warehouse*  
*Catalogues free to buyers*  
*Splendid Seeds and Bulbs at low prices*

## PALMS, strong, healthy, splendidly foliaged.

—Latania borbonica and Seaforthia elegans, 20 inches high, 12s. per dozen; sample plant, 1s. 3d.; Latania borbonica and Seaforthia elegans, 12 inches high, 2s. per 100; sample dozen, 4s.; Maidenhair FERNS, splendidly grown, 20s. per 100; sample dozen, 3s. Packages and parcels post-free.—Postal orders to the GARDENER, Holly Lodge, Stamford Hill, N.

## RASPBERRY CANES.—

An immense quantity of the choicest Carters' Prolific and Fastoff for disposal.

The Advertiser being the most extensive cultivator of Raspberries in England, special care will be taken to select Canes most suitable for a vigorous growth and an early fruiting. Lowest cash terms on application to

R. BATH, Crayford, Kent.

## WHITE PAMPAS PLUMES,

subject to being unsold on receipt of price.

18 to 24 inches long, \$35 per 1000.

24 to 30 inches long, \$5 per 100.

## BALES OF TOBACCO STEMS,

weighing 500 lb., \$20 per bale, 3 bales for \$50.

Cash with order, or reference to

H. WATERER, 3809, Pewlton Avenue, Philadelphia, U.S.A.

## GARDEN REQUISITES.

## COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton, in 2-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c. Write for Free

Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.



## THE SECRET.

Not one, but all; and it is a surprise and the conversation with all wherever we exhibit; and whoever comes to see our flowers remarks, "How do they get such size, brilliancy of colour, and lovely foliage?" The answer is, "Their REAL MANURE" and Fumigating Material.

## COCOA-NUT FIBRE REFUSE, newly

made, same as supplied to the Royal Horticultural Society of England. Sacks, 12. each; 15 sacks, 12s.; 30 sacks, 17s.; 30 sacks, 25s.; 40 sacks, 30s., sacks included; truckload of 2 tons, loose, 25s. All goods free on to rail. Cash with all orders will oblige.—J. STEVENS AND CO., "Greyhound" Yard, and 153, High Street, Battersea, S.W.—Established 1872.

## 12-oz. Sample Packets, free by post, 12 stamps.

## FIBROUS PEAT FOR ORCHIDS, &amp;c.—

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., 66s. per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bag, 5s.; 5 Bags, 22s. 6d.; 10 Bags, 45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per Bag.

SILVER SAND, Coarse or Fine, 5s. per Truck of 4 tons. WALKER AND CO., Farnborough Station, Hants.

## EUREKA INSECTICIDE.—The only In-

secticide worth using. Recommended by the Principal Gardeners in Scotland. The only Insecticide awarded Diploma, Forestry Exhibition, Edinburgh.—Wholesale Agents, CORRY, SOPER, FOWLER AND CO., Finsbury Street, London, E.C.

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Royal Gardens.—Best Quality. Cocoa-Nut Fibre Refuse, 1s. per sack; 30 for 25s.—bags included. Trucks (containing 2 Tons) 25s., free on Rail. Best Brown Fibrous Kent Peat, 5s. per sack; 5 for 22s. 6d.; 10 for 35s. Black Fibrous Peat, 3s. 6d. per sack; 10 for 30s. Coarse Bedford Sand, 1s. 3d. per bushel; 12s. per ½ ton; 22s. per ton. Loam, Leaf-Mould, and Peat-Mould, 2s. per bushel. Guano, Crushed Bones, &c. Finest Tobacco Cloth, 8d. per lb.; 28 lb. for 18s. Spécialité Tobacco Paper, 10d. per lb.; 28 lb. for 21s.; 70s. per cwt. Second quality, 7d. per lb.; 28 lb. for 16s. Archangel and Petersburg Mats. Price LIST sent free. Special quotations to the Trade for cash.

W. HERBERT AND CO.,  
HOP EXCHANGE WAREHOUSE, SOUTHWARK STREET, S.E. (near London Bridge).

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The LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, will in future sell their celebrated MANURE under the name of "COWAN'S VINE and PLANT MANURE," in place of "Thomson's Vine and Plant Manure." The composition will be the same, and the high quality in every way be maintained. Bags containing 1 cwt., 20s.; ½ cwt., 10s. 6d.; ¼ cwt., 6s.; ⅓ cwt., 3s. 6d. Circulars, with full particulars, on application to THE LIVERPOOL HORTICULTURAL CO. (JOHN COWAN), LIMITED, THE VINEYARD, GARSTON.

GIVEN MEDAL-1884



## GARDEN REQUISITES.

GIVEN MEDAL-1884



TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.)

PEAT, best brown fibrous .. 4s. 6d. per sack; 5 sacks for 20s.

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PEAT, extra selected Orchard .. 5s. od. " "

LOAM, best yellow fibrous .. 1s. per bush. (sacks included)

PREPARED COMPOST, best .. 1s. per bush. (sacks included)

LEAF MOULD, best only .. 1s. per bush. (sacks included)

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SILVER SAND, coarse, 1s. 3d. per bush., 12s. half ton, 22s. ton

RAFFIA FIBRE, best only .. 8d. per lb.

TOBACCO CLOTH, finest imported .. 8d. lb., 28 lb. 18s.

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MUSHROOM SPAWN, finest Milltrack .. 5s. per bushel.

SPHAGNUM MOSS, all selected .. 2s. per bush., 6s. per sack.

COCOA-NUT FIBRE REFUSE (by Chubb's special process),

sacks, 1s. each; 10 sacks, 9s.; 15 sacks, 13s.; 20 sacks, 17s.

30 sacks, 25s.; 40 sacks, 30s. Truck-load, loose, free on rail,

30s. Limited quantities of G., special quality, granulated, in

sacks only, 2s. each. Terms, strictly Cash with order.

CHUBB, ROUND & CO.,

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## BEESON'S MANURE

Is the best for all Horticultural Purposes.

Sold in Tins at 1s., 2s. 6d., and 10s. 6d. each; also in

Sealed Air-tight Bags, containing 1 cwt., 13s.

The 10s. 6d. Tins serve as a strong substantial receptacle to

refill from the 1 cwt. bags.

Supplies can be obtained through all respectable Nurseriesmen,

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MANUFACTURER,

W. H. Beeson, Carbrook Bone Mills, Sheffield.

Testimonials from the Rev. Canon Hole, and most of the

leading Gardeners, free on application.

Pure Crushed Unboiled BONES, any size, for Vine

Borders, &c.

WHOLESALE AGENTS IN LONDON,

CORRY, SOPER, FOWLER & CO. (Limited).

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## INSECTICIDE.

Prepared by

WILLIAM SMITH, Chemist, Stockbridge, Edinburgh

Highest Award, Forestry Exhibition, Edinburgh.

"Clovefords," by Galashiels, N.B., July 25, 1883.

"Mr. Smith, Dear Sir,—We have now tried your Insecti-

cide on all the Insects we can find on any of our Plants, includ-

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destruction to them all, while it neither stains nor injures the

tenderest leaf. We shall in future use no Fir-tree Oil, or other

Insecticide but yours.—We are, yours truly,

"WILLIAM THOMSON AND SONS."

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Oil Paint no Longer Necessary.

HILL AND SMITH'S BLACK VARNISH

for Preserving Ironwork, Wood, or Stone.

(Registered Trade Mark.)

This VARNISH is an excellent substitute for oil paint on

all outdoor work, while it is fully two-thirds cheaper. It was

introduced upwards of thirty years ago by the Advertisers, and

its genuine good quality, notwithstanding a host of unprincipled

imitators, is fully attested by its constantly increasing sale. It

may be applied by an ordinary labourer, requires no mixing

or thinning, and is used cold. It is used in the grounds at

Windsor Castle, Kew Gardens, and at the seats of many

hundreds of the Nobility and Gentry, from whom the most

flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon,

at the Manufactory, or 1s. 8d. per gallon carriage paid to any

Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Pierrefield Park, June 21, 1876.—Sir,—I have this day

forwarded from Chepstow to your address a black varnish cask,

to be filled and returned with as good Varnish as the last we

had, which I candidly admit was the best we ever had. Address

Varnish to Pierrefield Park, Chepstow.—I am, Sirs, yours respec-

tfully, Wm. Cox."

CAUTION.—HILL & SMITH would particularly warn their

Customers against the various cheap Varnishes now so much

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H. & S.'s Varnish has been an article of common use on most

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and their constantly increasing trade in it, and the numerous

Testimonials they receive, stamp it as a truly genuine article.

Every cask is legibly marked with their name and Registered

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Large illustrated CATALOGUE of Fencing Hurdles, Field

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HILL AND SMITH, Brierley Hill Ironworks, Staffordshire;

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Street, Glasgow.



**THOMSON'S VINE and PLANT MANURE.**—This Manure is now solely manufactured by us, on our premises here, and to be had through all Nursery and Seedsmen, or direct from us. We will be happy to forward descriptive circulars in reply to applications, containing terms, &c.

W. THOMSON AND SONS, Tweed Vineyard, Clouefords by Galashiels.

**GISHURST COMPOUND**, used by leading Gardeners since 1850 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft water; 4 to 15 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

**GISHURSTINE** keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s. from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

### PURE WOOD CHARCOAL

FOR VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES, AND GENERAL HORTICULTURAL PURPOSES. HIRST, BROOKE, AND HIRST, Manufacturers, Leeds, Yorkshire.

Under the Patronage of the Queen.

**J. SMITH'S IMPERISHABLE STRATFORD LABELS.**



The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardener's Magazine* says:—"We must give these the palm before all other plant labels, as the very first to merit." Samples and Price Lists free.

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

**SILVER SAND**, coarse 6s., 8s. and 10s. per ton. Sussex and Kent PEAT and LOAM, 6s., 8s. and 10s. per cubic yard. Free on rail by truckloads. In sacks at moderate prices.—W. SHORT, Horticultural Company, Midhurst, Sussex. Established 1862.

**TANNED NETTING**, 2 yards wide, 1½d. per yard; 4 yards wide, 3d. per yard; 2 yards wide, 1s. per 100 yards; 4 yards wide, 2s. per 100 yards. NEW TWINE NETTING, 1 inch mesh, 1 yard wide, 2d.; 2 yards wide, 4d.; 4 yards wide, 8d. per yard. HEXAGON GARDEN NETTING, seventy-six meshes to the square inch, 5d. per yard. RABBIT NETS, BAT-FOLDING NETS, on Bamboo poles, 20s. CLAP NETS for birds, 30s. complete.

W. CULLINGFORD, Forest Gate, London, E.

### RUSSIA MATS.

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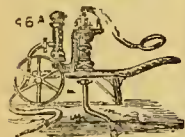
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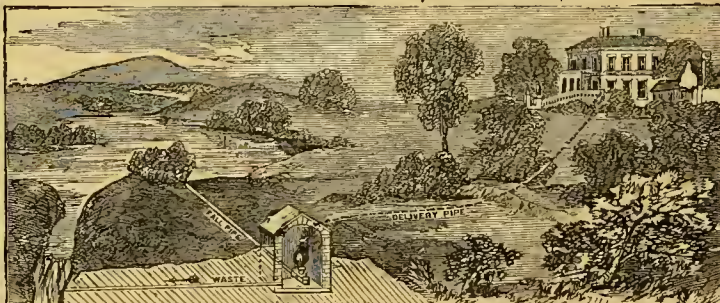
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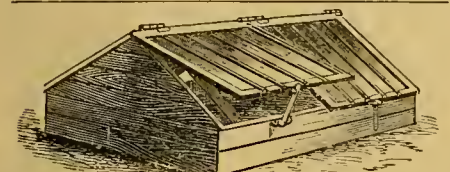
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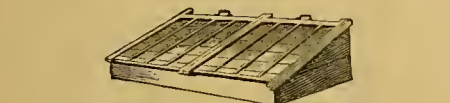
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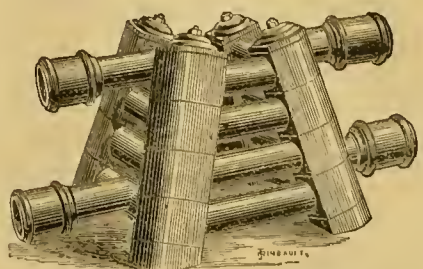
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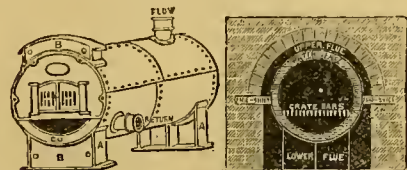
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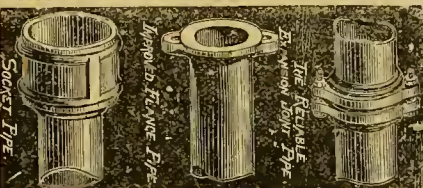
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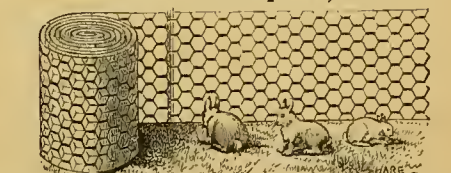
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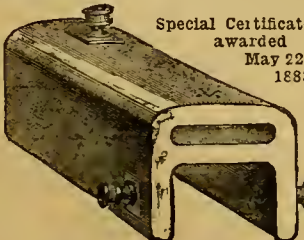
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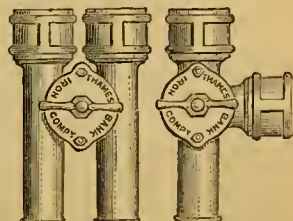
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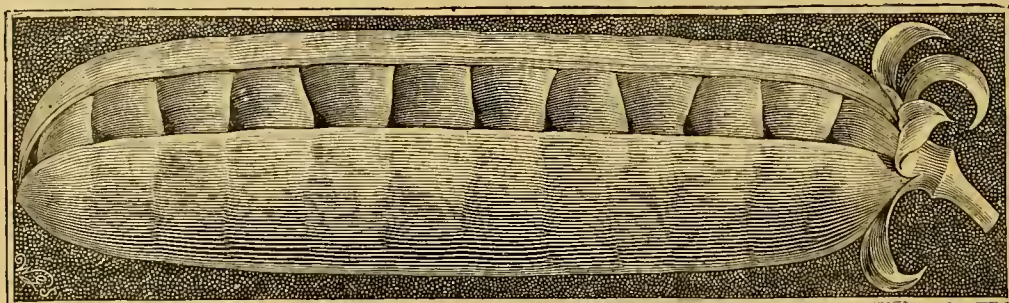
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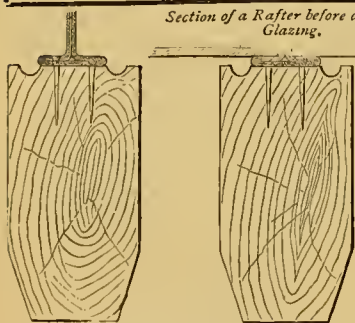
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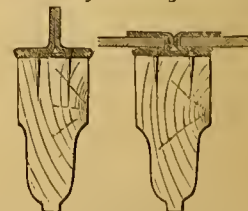
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# THE GARDENERS' CHRONICLE.

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EARLIEST and BEST in CULTIVATION.  
Strong Roots, 1s. each, 9s. per dozen. Trade price on application.  
W. P. LAIRD and SINCLAIR, Nurserymen, Dundee, N.B.

SAGE PLANTS, 1s. 6d. per dozen. Order of  
R. BATH, Crayford, Kent.

GRAPE VINES, strong Fruiting and Planting Canes; also STRAWBERRIES in pots. LIST on application.  
FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey.

GOOSEBERRY TREES and Carter's Prolific RASPBERRY.—Strong 2-yr. and 3-yr. old Lancashire Lad and Raspberry Canes for Sale. Apply to  
W. WARREN, Worton Gardens, Isleworth, W.

FOR SALE, CHEAP, a few hundred strong OAK, 6 to 10 feet, or would EXCHANGE for strong ASH.  
JOHN WATKINS, Fruit and Potato Grower, Pemona Farm, Withington, near Hereford.

To Nurserymen, Private Growers, &c.  
A. CATTANEO, COMMISSION SALESMAN,  
44, Hart Street, and New Flower Market, Covent Garden, W.C., is open to RECEIVE CONSIGNMENTS of CHOICE CUT FLOWERS in quantities. Terms on application.

SQUELCH and BARNHAM, Long Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatoes, Cucumbers, choice Flowers, &c.

SQUELCH and BARNHAM, giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

SQUELCH and BARNHAM, ACCOUNT SALES sent daily, and CHEQUES forwarded weekly.  
BANKERS and TRADE REFERENCES.  
BASKETS and LABELS supplied.

WISE and RIDES, Covent Garden, W.C., beg to inform Senders that GARDENIAS, EUCHARIS, and STEPHANOTIS are in demand.

WISE and RIDES, Covent Garden, W.C., have now a demand for Tuberoses, Arum Lilies, White Bouvardias, good Roses, Chrysanthemums, &c.

WISE and RIDES, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Tomatoes, Cucumbers, Gros Colmar, Alicante, and Muscat Grapes.

WANTED, large ARECAS, SEAFORTHIAS, KENTIAS, ASPIDISTRAS, and other ORNAMENTAL FOLIAGED PLANTS, State size and Price.  
NEUMAN and CORNISH, Portman Floral Hall, 29, Orchard Street, Portman Square, London, W.

WANTED, Lancashire Lad GOOSEBERRIES, and Standard Victoria PLUMS, Quota price per 1000.  
IRELAND and THOMSON, 20, Waterloo Place, Edinburgh.

STOLEN.—A number of ADDRESSED COPIES of CARTER'S CATALOGUE of GARDEN SEEDS for 1885, having been STOLEN from their Warehouse, Messrs. Carter & Co., respectfully ask those Customers who have not received the book to communicate to them, in order that a fresh copy may be posted.

JAMES CARTER and CO., Seedsmen, by Royal Warrant, to H.R.H. the Prince of Wales, 237 and 238, High Holborn, London, W.C.

Garden Flower Seeds, and Spring Bulbs.

C. G. VAN TUBERGEN, Jun., BULB GROWER and SEEDSMAN, Haarlem, Holland, begs to announce that his CATALOGUE of the above is now ready, and may be had free on application to  
Messrs. P. SILBERRAD and SON, 25, Savage Gardens, London, E.C.

GENUINE SEEDS.—General CATALOGUE of Kitchen Garden, Flower, and Agricultural Seeds, Plants, Roses, Vines, &c., Implements, Garden Requisites, &c., is now ready. Free to Customers.  
LAING and CO., Stanstead Park, Forest Hill, S.E.

NEW CHRYSANTHEMUMS.—Orders are now being booked for the New Varieties of 1884 at 10s. per doz.; Cuttings, 1883 Varieties, 4s. per doz.; best Old Varieties, 1s. 6d. per doz., my selection. Post-free for P.O. CATALOGUE one stamp.—R. OWEN, Floral Nurseries, Maidenhead.

ROSES.—The finest Show and Decorative varieties, strong, robust, hardly grow plants. Dwarfs, from 6s. per dozen, 45s. per 100 and upwards. Standards, from 12s. per dozen, 90s. per 100 and upwards. Many thousands to select from.  
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

Hyacinthus candicans.  
BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland, offer the above, splendid white flowering bulb, at 50s. per 1000.

CHESTNUT (Spanish), Larch, Hazel, Ash, Birch, Willow, Oak, and Thorn Quick. Stout, well-rooted, transplanted. A large quantity to be sold.  
GEO. CHORLEY, Coaster's Nursery, Midhurst.

LILIAM KRAMERI.—Good flowering Bulbs of this handsome and scarce Lily can now be supplied by the dozen or hundred.  
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, 536, King's Road, Chelsea, London, S.W.

Trade List of Home-grown Seeds.  
CHARLES SHARPE and CO.'S Wholesale CATALOGUE of Seeds is now ready, and will be forwarded, post-free, on application.  
CHARLES SHARPE and CO., Seed Merchants and Growers, Slough.

RHODODENDRON PONTICUM.—For sale, at reasonable prices, many thousands of fine healthy plants, bushy and well rooted; two years transplanted. Trade supplied on liberal terms. For prices and further particulars apply to  
H. CROSS, Woodcote, Newport, Salop.

GLADIOLI.—The best in cultivation, cheap. From the grand collection of varieties which gained the First Prize at Crystal Palace, Dundee International, and other principal Flower Shows. Intending purchasers should send for CATALOGUE to  
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WILLIAM FLETCHER has a quantity of Maiden PEACHES, NECTARINES, APRICOTS, APPLES, PLUMS, and PEARS, also Trained APRICOTS and PEARS.  
Ottershaw Nursery, Chertsey, Surrey.

IRELAND and THOMSON'S Descriptive CATALOGUE of Genuine Vegetable and Flower Seeds has now been Posted to all their Customers. Any one not having received it another Copy will be sent post-free on application.  
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BULBS for SPRING PLANTING of all sorts.  
JAPANESE MAPLES, JAPANESE LILIES, choice Seeds of our own saving; choice New Zealand Seeds; NEW MAGNOLIAS, ZAMIAS from the Cape, North American Hardy Plants.  
See our Spring LIST, No. 72, just issued.  
NEW PLANT and BULB COMPANY, Colchester.

To the Trade.  
VINES.—VINES.—VINES. STRONG PLANTING CANES, 3s. each. EXTRA STRONG FRUITING CANES, 5s. each. Well ripened and short-jointed.  
CALDWELL and SONS, The Nurseries, Knutsford, Cheshire.

For Sale.  
RHUBARB SETS, of a Selected Growth.  
R. BATH, Wansunt Farm, Crayford.

To the Trade.  
SEED POTATOS.  
H. and F. SHARPE'S Wholesale Priced LIST of SEED POTATOS is now ready, and can be had on application. It comprises the best kinds in cultivation, and the prices are very reasonable.  
Seed Growing Establishment, Wisbech.



## SALES BY AUCTION.

Wednesday Next.

10,000 LILUM AURATUM, and 400 JAPANESE IRIS.  
**MESSRS. PROTHEROE AND MORRIS**  
 will include in their SALE, on WEDNESDAY  
 NEXT, January 21, 10,000 very fine bulbs of LILUM  
 AURATUM, and 400 clumps of IRIS KÄMPFERI, in  
 various colours, just received from Japan.

Wednesday Next.

LILUM AURATUM, ROSES, and PLANTS.  
**MESSRS. PROTHEROE AND MORRIS**  
 will SELL by AUCTION, at their Central Sale Rooms,  
 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT,  
 January 21, at half-past 12 o'clock precisely, 10,000 very fine  
 bulbs of LILUM AURATUM, and 400 clumps of Japanese  
 IRIS (Kämpferi) of various colours, just arrived from Japan, in  
 splendid condition; 2000 English-grown LILIES of various  
 kinds, 2000 Berlin crowns of LILY OF THE VALLEY,  
 CARNATIONS, PICOTEES, 400 Standard ROSES, 10,000  
 double African TUBEROSES, Christmas ROSES, from an  
 English nursery; 200 lots of Dutch and other BULBS, being the  
 surplus stock of one of the principal London Seedsmen; and a  
 variety of PALMS, YUCCAS, and other Decorative PLANTS,  
 from St. Michaels.

On view morning of Sale, and Catalogues had.

Friday Next.—Valuable Importations.

**MESSRS. PROTHEROE AND MORRIS**  
 are instructed by Mr. F. Sander to SELL by AUC-  
 TION, at their Central Sale Rooms, 67 and 68, Cheapside,  
 E.C., on FRIDAY, January 23, at half-past 12 o'clock pre-  
 cisely, a grand importation of CYPRIPEDUM NIVEUM, in  
 large masses and splendid condition; C. VITTATUM and C.  
 LINDEYANUM, a superb batch of ONCIDIUM LANCEA-  
 NUM, large-flowering and brilliant coloured variety; several  
 fine YANDAS and SACCOLABIUMS, DENDROBIUM  
 LOWI, many CATTLEYAS, &c.

On view morning of Sale, and Catalogues had.

Wood Green, N.

UNRESERVED CLEARANCE SALE.

**MESSRS. PROTHEROE AND MORRIS**  
 will SELL by AUCTION, on the Premises, The  
 Vineries, Nightingale Road, Wood Green, N., on TUESDAY,  
 January 27, at 12 o'clock precisely, by order of the Proprietor,  
 who is retiring from the business, the whole of the well-grown  
 stock of STOVE and GREENHOUSE PLANTS, including  
 10,000 Adiantum cuneatum, in various sized pots; 1000 Chrys-  
 anthemums of sorts, Lomarias, Gardenias, Eucharis, &c.;  
 1000 BOXES, covered spring Market VAN, and other effects.

May be viewed. Catalogues can be on the Premises, or of the

Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

N.B.—The valuable FREEHOLD NURSERY FOR SALE.

Comprises an Acre of Land, Five GREENHOUSES, all

Heated, SHEDS and DWELLING-HOUSE. Price and

particulars of the Auctioneers.

Flowering Orchids.

**MESSRS. PROTHEROE AND MORRIS**  
 beg to announce that their NEXT SPECIAL SALE of  
 ORCHIDS IN FLOWER will take place on TUESDAY,  
 January 27, and they will be glad to receive notice of Entries  
 as soon as possible.

Monday Next.—(Sale No. 6822.)

5000 LILUM AURATUM and other HARDY BULBS, &c.  
**MR. J. C. STEVENS** will SELL by  
 AUCTION, at his Great Rooms, 38, King Street,  
 Covent Garden, W.C., on MONDAY NEXT, January 19, at  
 half-past 12 o'clock precisely, a consignment of 5000 LILUM  
 AURATUM, and 15 cases each containing a Collection of  
 LILIES in 9 sorts, as received from Japan; 3500 LILV of the  
 VALLEY, English grown LILIES, 1500 GLOXINIAS, BE-  
 GONIAS, and AMARYLLIS, from celebrated Continental  
 Collections, 600 LILUM TENUIFOLIUM from America,  
 TUBEROSES from South Africa and Genoa, 100 GLADI-  
 OLUS SAUNDERSII, a consignment of PLANTS from Ger-  
 many, and a variety of other HARDY BULBS and ROOTS.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6823.)

HARDY PLANTS and BULBS.

**MR. J. C. STEVENS** will SELL by  
 AUCTION, at his Great Rooms, 38, King Street,  
 Covent Garden, W.C., on WEDNESDAY NEXT, January 21,  
 at half-past 12 o'clock precisely, First-class Standard and Dwarf  
 ROSES, Pyramid and Dwarf-trained FRUIT TREES,  
 Flowering and other SHRUBS, BORDER PLANTS in  
 quantity, LILIES, GLADIOLI, and other HARDY BULBS  
 and ROOTS.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6824.)

FLOWERING ORCHIDS.

**MR. J. C. STEVENS** will SELL by  
 AUCTION, at his Great Rooms, 38, King Street,  
 Covent Garden, W.C., on THURSDAY NEXT, January 22,  
 at half-past 12 o'clock precisely, a collection of ORCHIDS  
 in FLOWER, including a very fine plant of the best form of  
 Lycaste Skinneri, with 8 bulbs; many fine types of Odonto-  
 glossum Alexandrae, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6824.)

Valuable IMPORTED ORCHIDS, 3000 LILUM AURA-  
 TUM, and Four Cases of ARAUCARIA, as received.

**MR. J. C. STEVENS** will SELL by  
 AUCTION, at his Great Rooms, 38, King Street,  
 Covent Garden, W.C., on THURSDAY NEXT, January 22,  
 at half-past 12 o'clock precisely, an importation of ODONTO-  
 GLOSSUM CRISPUM (Alexandrae) of the best type, O.  
 CITROSUM, LILIA AUTUMNALIS (received as atro-  
 rubens), EPIDENDRUM NEMORALE (received as atro-  
 rubens), PINGICULACADATA, and other ORCHIDS  
 from Messrs. Shuttleworth, Carder & Co. Also 3000 LILUM  
 AURATUM, just received from Japan in the finest possible  
 condition; and Four Cases of ARAUCARIA EXCELSA,  
 containing many hundred plants.

On view morning of Sale, and Catalogues had.

**WANTED**, a Detached Country HOUSE,  
 with Garden of  $\frac{1}{2}$  to 1 acre, and some Glass if possible.  
 Three Sitting-rooms (one at least 20 feet x 18 feet), five good  
 Bedrooms, and Offices. Must be close to station, about thirty  
 or forty minutes from London (City). Rent not exceeding £90.  
 J. F. K., 2, Clifton Terrace, Southend, Essex.

## TO BE DISPOSED OF, the GOODWILL

of a FLORIST. Most central position.  
 Apply on the Premises, or by letter to Messrs. A. PALMER,  
 Florist, Charing Cross Station, London, W.C.

## A Well-established Nursery Business.

**TO BE DISPOSED OF**, in consequence  
 of Proprietor's ill-health, about 6 ACRES of LAND,  
 with several Glass Erections, well situated in a fast improving  
 neighbourhood, 10 miles south of London. Small premium.  
 Stock at valuation, about £1000. Arrangements as to future  
 payment of part might be made. Apply, in first instance, to  
 Messrs. HURST AND SON, 152, Houndsditch, E.

## Important to Florists, Nurserymen, Market

**TO BE LET**, on LEASE, or SOLD with  
 possession, the valuable FREEHOLD ESTATE known  
 as Osborn's Nursery, Sunbury, Middlesex, comprising 17 Acres  
 of excellent Land with Dwelling-house, Stabling, Sheds, and  
 all the extensive range of modern and recently erected Green-  
 houses. The Estate having a frontage of 1100 feet to the high  
 road, possesses a great prospective value for Building purposes.  
 Full particulars may be obtained of Messrs. PROTHEROE  
 AND MORRIS, Auctioneers, 67 and 68, Cheapside, E.C.

## TO BE LET, AT ONCE, 11 Acres of good

FRUIT GROUND, in full bearing, with Greenhouses.  
 Easy terms—about £400.  
 W. F. VERRELL, Solicitor, Worthing, Sussex.

**PROTHEROE AND MORRIS, HORTICUL-  
 TURAL MARKET GARDEN and ESTATE AUCTIONEERS** and  
 VALUERS, 67 and 68, Cheapside, London, E.C., and at Leyton-  
 stone, E. Monthly Horticultural Register had on application.

**T. MILLINGTON AND CO., ENGLISH  
 and FOREIGN SHEET and PLATE GLASS, WHITE LEAD,  
 MILLED LEAD, OILS, and COLOUR MERCHANTS,**  
 43, Commercial Street, E.

**JOHN KENNARD'S HORTICULTURAL  
 SUNDRIES, Peat, Loam, Sand, and Berkshire Pottery  
 Depot. Catalogue post-free of every Horticultural Requisite.**  
 Swan Place, Old Kent Road, S.E. Established 1854.

## GRAPES THIS YEAR.

FRUITING CANES, 75. 6d. and 105. 6d. each.  
 PLANTING CANES, 35. 6d. to 75. 6d. each.  
 Leading kinds, perfectly ripened without bottom-heat.  
 DUKE OF BUCCELECH, grafted, 155. each.

JAMES DICKSON &amp; SONS, "Newton" Nurseries, Chester.

## TRAINED INDOOR PEACH TREES

for SALE.—Several Early Waterloo and Early Beatrice,  
 &c., young trees; one large Early Beatrice, and one Downton  
 Nectarine, all well ripened and healthy; also some large trained  
 Cherry Trees, May Duke, Governor Wood, &c. Full particu-  
 lars on application to

W. H. DIVERS, Ketton Hall, Stamford.

## HENDER'S BALSAMS.—We save only

from finest double Camellia-like flowers, and we are con-  
 fident our strain is far superior to any other offered. Colours  
 rich, beautifully mottled and striped. Eight varieties, separate,  
 25. 6d. HENDER'S PETUNIA GRANDIFLORA, well  
 known to be the finest strain; flowers beautifully mottled and  
 striped. Single, 25. per packet.

HENDER AND SONS, Nursery, Plymouth.

## CAULIFLOWER PLANTS, Autumn-Sown,

strong, 25. 6d. 120. 185. 1200. CABBAGE PLANTS,  
 HERBS, LETTUCE, &c., PLANTS, cheap, carriage paid.  
 LIST free of  
 EDWARD LEIGH, Ivy House, Cranleigh, Surrey.

## STRAWBERRIES FOR FORCING.—The

following three varieties are offered in very fine Plants,  
 well established in 32-pots, and ready for immediate forcing:—  
 PRINCESS ALICE MAUD,  
 SIR CHARLES NAPIER,  
 SIR JOSEPH PAXTON.

Price 75. 6d. per doz., 505. per 100.

THE WESTERHAM NURSERIES AND SEED CO.

(late JOHN CATTRELL), Westerham, Kent.

## TO THE TRADE.

Excellent quality.  
 APPLES, Dwarf Maidens, 75. per dozen, 355. per 100.  
 APRICOTS, ditto, 75. per dozen, 405. per 100.  
 CHERRIES, ditto, 75. per dozen, 405. per 100.  
 PEACHES and NECTARINES, ditto, 85. p. doz. 555. p. 100.  
 PEARS, ditto, 55. per dozen, 305. per 100.  
 PLUMS, ditto, 45. per dozen, 255. per 100.  
 PEACHES and NECTARINES, established in pots, 35. 6d.  
 each, 365. per dozen,  
 VINES, fruiting Canes, 55. each, 485. per dozen  
 planting Canes, 25. each, 215. per dozen.  
 SEAKALE for planting, 45. per 100, 355. per 1000.  
 BRUSSELS STOCKS, transplanted for quartering, 55. per  
 100, 455. per 1000.  
 Terms monthly. LIST of varieties on application.  
 WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

## LILUM AURATUM.—Special Offer.—

Good sound dry BULBS, 4 to 6 inches in circumference,  
 45. per dozen, 235. per 100. Cheapest for quality ever offered.  
 Samples twelve stamps.  
 Messrs. MORLE AND CO., 1 and 2, and 162, Fenchurch  
 Street, E.C.

## To Osier Growers, Basket Makers, and Nurserymen.

**BRADFORD AND SONS, Yeovil, Somerset,**  
 now Grow and Cut yearly 100 acres and upwards of  
 OSIER BEDS, and will quote prices to the Trade, according  
 to quantity required.  
 Samples and prices of Osier "Sets" on application.

## Orchids.

**THE LIVERPOOL HORTICULTURAL  
 CO. (John Cowan), Limited,** have at present a grand  
 stock of DENDROBIUMS, in variety, and other East Indian  
 ORCHIDS, also CATTLEYAS and other valuable ORCHIDS  
 from South America, and they are constantly receiving fresh  
 importations. Price LISTS and full particulars on application.  
 The MANAGER, The Vineyard and Nurseries, Garston,  
 Liverpool.

## ANDRÉ LEROY'S Nurseries, at Angers

France, the largest and richest in Europe in Collec-  
 tions of FRUIT and ORNAMENTAL TREES, SHRUBS,  
 CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT  
 TREES, &c. CATALOGUES sent on application. Freight  
 from Angers to London is very moderate. Medal of Honour  
 at the Universal Exhibition at Paris in 1878.  
 Orders must be addressed to Messrs. WATSON AND SCULL  
 99, Lower Thames Street, London, E.C.

## ASH, common, 2 to 3 feet, clean, 175. per

1000; 3 to 4 feet, 205. per 1000. ELMS, 1½ to 2 feet,  
 145. per 1000; 2 to 3 feet, 175. per 1000; 1 English, 3 feet, 255.  
 per 1000. CHESTNUT, Spanish, 2 to 3 feet, 225. per 1000; 15  
 to 20 inches, 165. per 1000. LARCH, 14 to 24 inches, 125. 6d.  
 per 1000; 2 to 2½ feet, 165. per 1000; 3 to 4 feet, 185. per 1000; 4  
 to 5 feet, 245. per 1000. SPRUCE FIR, 1 to 1½ foot, 125.  
 per 1000; 1½ to 2 feet, 135. per 1000; 2 to 2½ feet, bushy, 165.  
 per 1000. SCOTCH FIR, 1-yr., 2 yr. transplanted, 125. per 1000;  
 2 to 2½ and 3 feet, 185. per 1000. SILVER FIR, 4-yr. trans-  
 planted, 225. per 1000. HAZEL, 2 to 3 feet, 205. per 1000.  
 OAKS, 12 to 20 inches, 165. per 1000; 2 feet, 205. per 1000.  
 PRIVET, Evergreen, 2 feet, 125. per 1000; 1 to 1½ foot, 125.  
 per 1000; 1½ to 2 feet, 135. per 1000; 2 to 2½ feet, 305. per 1000.  
 1 foot, 205. per 1000. SYCAMORE, 1½ to 2 feet, 145. per 1000.  
 THORNS, 1½ to 2 feet, 125. 6d. per 1000; 2 to 2½ feet, 165.  
 per 1000; 3 to 3½ feet, 185. per 1000.

CATALOGUES on application to

CARLIES MITCHELL, Nurseryman, Stranraer, N.B.

To the Trade.

BROAD BEANS.

**H. AND F. SHARPE** have fine samples of  
 WINDSOR and LONGPOD BEANS to offer.  
 Samples and Prices may be had on application.  
 Seed Growing Establishment, Wilbech.

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**R. AND G. NEAL** beg to offer the above  
 by the hundred or thousand (own growth, and trans-  
 planted last spring). Samples with Price on application. Also  
 beg to call the attention of Nurserymen, Builders, and others to  
 their exceptionally fine stock of FRUIT, FOREST, and  
 ORNAMENTAL TREES and SHRUBS.  
 The Nurseries, Wandsworth Common, S.W.

## RASPBERRY CANES.—

An immense quantity of the choicest Carters' Prolific  
 and Fastoff for disposal.  
 The Advertiser being the most extensive cultivator of Rasp-  
 berries in England, special care will be taken to select Canes  
 most suitable for a vigorous growth and an early fruiting.  
 Lowest cash terms on application to  
 R. BATH, Crayford, Kent.

## WRIGHT'S well-known CELERIES:

the finest in cultivation:—  
 GROVE RED, GROVE WHITE, GROVE PINK, and  
 GIANT WHITE, each per packet, 15., the four 35.,  
 post-free, or 45. per 100 packets.

WRIGHT'S PERFECTION BROCCOLI, 15. packets.

EARLY MARKET CABBAGE, finest early variety

known, 15. per packet.

CUCUMBERS—TELEGRAPH, good true stock, packet 15.;

100 seeds, 45.; per ounce, 125. PARAGON, good,

packet, 15.; 100 seeds, 45.; per ounce, 125. PRINCE

OF WALES, fine show variety, packets, 15.; 100 seeds,

45.; per ounce, 125.

All my own careful saving, and strongly recommended.

Cash from unknown correspondents.

WILLIAM WRIGHT, Seedsman, Retford, Notts.

## To the Trade Only.

## FERNS—FERNS—FERNS.

—Adiantum cuneatum, A. trapeziforme, A. gracillimum,  
 Lomaria gibba, Lastrea aristata variegata, Pteris serrulata  
 cristata Cowan, P. serrulata: nice plants in 60's, 205. per 100.  
 Adiantum cuneatum, A. gracillimum, A. trapeziforme, in 4 and  
 4½ inch pots, 405. to 505. per 100, according to size; Adiantum  
 Pacotii, in 60's, 305. per 100; ditto, in 4 and 4½ inch pots, 505.  
 per 100.

THE LIVERPOOL HORTICULTURAL CO. (John  
 Cowan), Limited, The Vineyard and Nurseries, Garston,  
 Liverpool.

## SPECIAL CHEAP OFFER.—

ALDER, ASH, BIRCH, ELM, Austrian PINE,  
 MAPLE, OAK (English), PRIVET avallifolia, PRIVET  
 Evergreen. All the above good stout stuff, from 2 to  
 4 feet. POPLAR in variety, from 4 to 10 feet; THORN  
 QUICK, 3, 4 and 5 feet; YEWs, extra strong; SYCA-  
 MORES, 3 to 6 feet; BERBERIS AQUIFOLIA, 1½ to 2  
 feet; CUPRESSUS, various, 2 to 10 feet; Golden ELDER,  
 Ribes CURRANTS, Sweet BRIERS, HOLLIES in variety,  
 from 1 to 9 feet: splendid stuff, all recently transplanted,  
 IVIES in variety, LAURELS in sorts, 2 to 4 feet; LILACS,  
 3 to 5 feet; RETINOSPORA, in sorts, 1 to 6 feet; English  
 YEWs, 2 to 4 feet, fine stuff; AZALEA PONTICA, 1 to 3  
 feet; RHODODENDRONS, for covert and other planting,  
 from 1 inch to 3 feet; several hundred thousand choice  
 named RHODODENDRONS, in good sized plants; Cunning-  
 ham's White CAUCASICUM PICTUM JACKSONIANA.  
 &c. Double Yellow and White PRIMROSES.

For price and particulars apply to

ISAAC MATTHEWS AND SON, The Nurseries, Milton,

Stoke-on-Trent.

## J. LEWIS AND SON, Newtown Nurseries,

Malvern, offer for Sale three thousand LAURUSTI-  
 NUS, beautifully set with bloom, from 1 to 1½ foot, bushy,  
 suitable for pots. Also a large quantity of Common LAURELS,  
 from 2 to 5 feet. Also several thousands of Dwarf ROSES,  
 including La France, Mlle. Eugène Verdier, Duke of Edin-  
 burgh, Boule de Neige, Gloire de Dijon, A. K. Williams, Mrs.  
 Jowitt, Marie Baumann, &c., in lots to suit purchasers. No  
 reasonable offer will be refused.

## HARRISON AND SONS

Royal Nurseries, Leicester, have to offer:—  
 10,000 Strong GOOSEBERRIES, mostly Warringtons,  
 6,000 IVIES, mostly Irish.  
 7,000 POPLARS, 6 to 12 feet.  
 1,000 Standard Horse CHESTNUTS, fine  
 20,000 Bushy Evergreen PRIVET, 2 to 3 feet.  
 2,000 AMERICAN ARBOR-VITÆ.  
 2,000 Common LAURELS, 3 to 4 feet, extra.  
 1,000 Paul's Crimson THORNS, standards.  
 1,000 Pyramid APPLES, PEARS, and PLUMS.  
 1,000 Standard PEARS.  
 All well grown. Special quotations and samples free.





# B. S. WILLIAMS' TOMATOS.

POST FREE.

## WILLIAMS' RED KING.

The best Exhibition TOMATO.  
The best outdoor TOMATO.  
The best shaped TOMATO.

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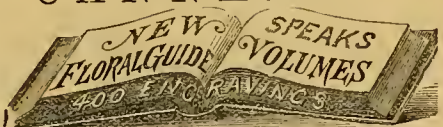
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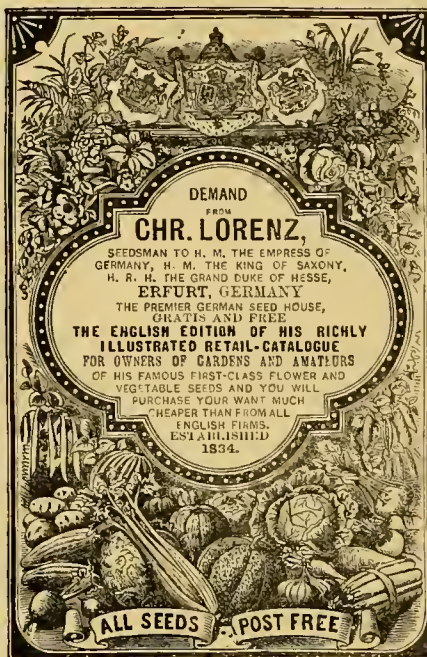
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" Golden Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of beautiful specimens.  
" Perry's Weeping Holly, on straight stems, with beautiful heads, ten to fifteen years' growth, hundreds.  
" new Golden Weeping, a large number of very beautiful plants.  
" BOX, Green and Variegated, 3, 4, 5, 6 to 7 feet, many thousands.  
" YEW, Common, 3, 4, 5, 6 to 10 feet, thousands.  
" Golden, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards, in point of variety and size unequalled.  
" Irish, 5 to 10 feet, hundreds, [thousands].  
" CUPRESSUS ERECTA VIRIDIS, 3, 4, 5, 6 to 8 feet, many thousands.  
" Lawsoniana lutea, 3, 4, and 5 feet, hundreds of beautiful specimens.  
" THUOPSIS DOLABRATA, 3, 4, and 5 feet, hundreds.  
" RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.  
" AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and 5 feet high, thousands.  
" JUNIPERS, Chinese, 7, 8, and 10 feet high.  
" Chinese Golden, 3 to 6 feet.  
" JUNIPERUS VIRGINIANA GLAUCA, 3 to 5 feet.  
" ABIES CANADENSIS, 4 to 7 feet, hundreds.  
" DOUGLASII, 3 to 5 feet, thousands.  
" GLAUCA, 2 to 4 feet, hundreds.  
" ORIENTALIS, 4, 5, 6 to 10 feet, hundreds.  
" HOOKERIANA, 3 to 5 feet.  
" PARRVANA GLAUCA, 1½ to 2 feet, hundreds.  
" PICEA CONCOLOR, 2 to 4 feet, hundreds.  
" GRANDIS, 6 to 7 feet.  
" LASIOCARPA, 3 to 5 feet, hundreds.  
" MAGNIFICA, 2 to 3 feet, hundreds.  
" NOBILIS, 1½ to 3 feet, thousands.  
" NORDMANNIANA, 6, 7, to 10 feet.  
" PINSAPO, 6 to 10 feet, hundreds.  
" PUNGENS, 1½ to 2 feet, thousands.  
" PINUS CEMBR, 6 to 8 feet.  
" CEDRUS DEODARA, 6 to 9 feet, hundreds.  
" LIBANI (Cedar of Lebanon), 3 to 5 feet.  
" THUIA OCCIDENTALIS LUTEA, 3 to 6 feet, hundreds.  
" THUOPSIS BOREALIS, 3 to 5 feet, hundreds.  
" RETINOSPORA OBTUSA AUREA, 3 to 6 feet, hundreds.  
" PISIFERA AUREA (true), 3 to 6 feet.  
" PLUMOSA AUREA, 3 to 5 feet.  
" Knap Hill Nursery, Woking Station, Surrey.



GENUINE

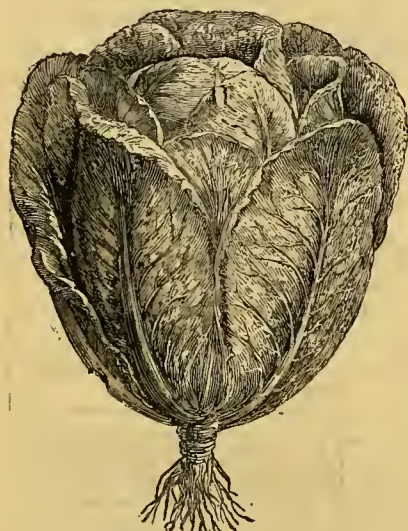


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The largest and best self-folding variety in cultivation, of superior quality, very crisp and fine flavoured.

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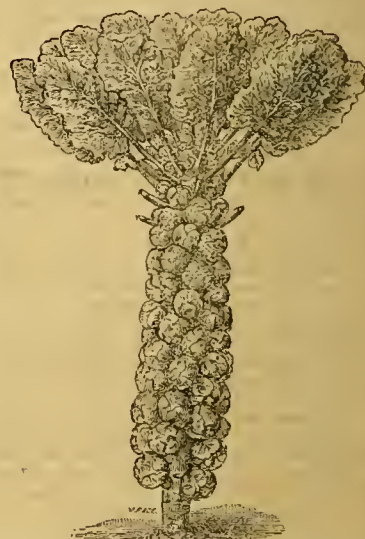
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The earliest spring variety, of dwarf, close, compact habit, forming firm, solid hearts of excellent quality.

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The best main crop variety for general use, pure white heads of fine texture, medium size, and finest quality; perfectly distinct and very desirable.

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A handsome, late white Kidney, very heavy cropper, and a thorough disease-resister; tubers of moderate size, very even and of finest table quality.

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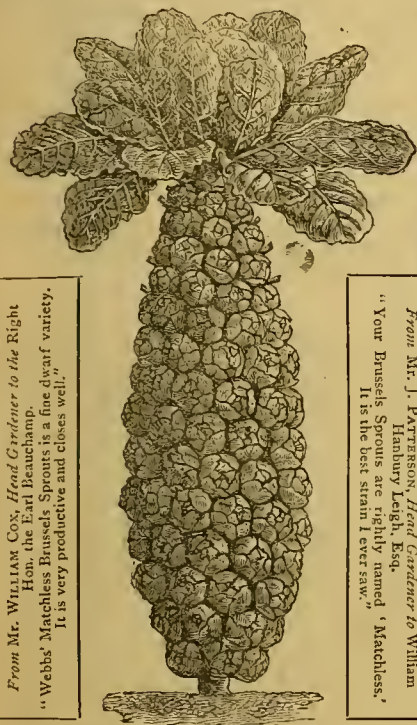
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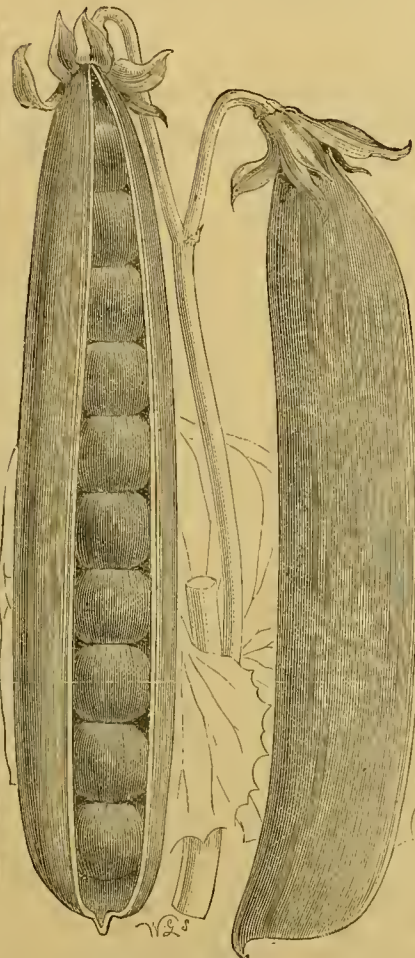
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SPECIAL LIST of NOVELTIES,  
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THE

## Gardeners' Chronicle.

SATURDAY, JANUARY 17, 1885.

CREWE HALL, CHESHIRE.

QUITTING the great junction at the railway town of Crewe, ten minutes' walk brought me to the park and entrance gates of an old and noble family demesne. From the midst of a mushroom town which has been almost as sudden in its growth as some of the cities of the United States, you pass by a curious and immediate transition into a park of old timber where the feudal system still holds sway, however much it may be modernised, and however benignant in its operation.

Crewe is a town of very great interest, not merely on account of the workshops of the London and North-Western Railway Company with their cyclopean smithies and vast mechanical establishments, such as Sir Francis Head described them some years since, but for the admirable institutions established by the company for the instruction and welfare of their workpeople. But I am to notice here, not the town, but the family of Crewe, and the residence of the nobleman who bears the name. The Crewes date as a family of note from the early part of the twelfth century, and on tracing their genealogy we find that the main line failed at the close of the thirteenth century when a female succession took place, the lady marrying and losing her name of Crewe in 1294. It seems at first sight remarkable that the main line failed at the close of the thirteenth century when a female succession took place, the lady marrying and losing her name of Crewe in 1294. It seems at first sight remarkable that the mortality of sons should have exceeded that of daughters when we remember the frequent dangers that assailed the former as knights and soldiers during the Crusades and other wars such as those with France in the days of Agincourt and Cressy, the civil wars in the time of Simon de Montfort, the fatal wars of the Roses, which swept away half the landed proprietors of England, besides frequent family feuds and domestic strifes, in which the sons alone were involved.

In 1578 another misfortune occurred to this estate on the occasion of its sale to Sir Christopher Hatton. Luckily, it again came on the market, and as all men feel a natural affinity for their native earth, a Crewe came forward and purchased it. This new owner was no other than Sir Randal Crewe, Lord Chief Justice of England, and the brightest ornament of his family. Change, however, is the law of life, and very often vicissitude accompanies change. It was thought a great calamity, no doubt, when heirs male again failed in 1684; but the best and only remedy was soon applied, and as tinkers patch the pots that need repair, so great families solder up their ancestral lines. There is hardly a great family that has not been braced in this way—as, for example, when Sir Hugh Smithson married the greatest heiress of her time, and became a Percy by Act of Parliament. All that concerns us in regard to the gentleman who married the heiress of the house of Crewe, 150 years ago, is that he assumed, by authority, the name of his wife. His grandson was created Lord Crewe in 1806. Returning to Randal, the Lord Chief Justice, it was he who built the Hall after a design by Inigo Jones. It was worthy of the architect



being a handsome specimen of a house of the seventeenth century. Most unfortunately Crewe Hall incurred a common fate of houses of its class by the fire of 1866, when the beautiful structure of Inigo Jones was almost entirely destroyed, with the exception of the outer walls and the ornamental stacks of chimneys. A new house soon rose on its site, however, handsomer than the old one, and similar in its general style, being of red brick toned down in colour and relieved by stonework, so that its appearance is already as pleasing as those of any of the old Jacobean mansions, which are so much admired. The body of the building is of brick, but the door-cases, mullions of the windows, coinings, strings and cornices are of stone, and each front is broken by the projection of large bay windows affording relief to its otherwise straight lines, as well as agreeable light and shade. All these excellent effects are increased by the open work of handsome battlements, by stately clustered chimneys, and by the graces of a well-proportioned building. How superior is this architecture to that of our usual public buildings in London and elsewhere. The new house was completed in 1870, and consecrated by the Archbishop of York, the Bishop and Canons of Chester, and the clergy of the diocese.

Mr. Whittaker has charge of the gardens, which are comparatively small but well kept, with the help of five gardeners. The park is somewhat flat, but the house is raised slightly above it, and there are pleasing views of grass and old timber, seen through the intervals of great clumps of Portugal Laurels and Rhododendrons. These are all within the enclosure of a low wall, which fences the park from the house, and is in the same style of red brick, relieved by openings and by solid stone coping and strings. The family lions and griffins guard the gateway.

The north and east side of this handsome quadrangular hall are laid down respectively in lawn and flower garden, and across these and the large piece of ornamental water beyond them there are delightful views, with masses of distant trees which would anywhere be handsome, and by the water-side are still more so. Near the lawn, towards the kitchen garden, and easy of access for any member of the family who loves flowers, there is a large conservatory, well built and well planted and kept. Yew and Holly hedges bespeak the length of time that must have elapsed since the gardens were formed. In the park I noticed a great many old Hornbeams, weeping, as they always do when old, and far more ornamental than younger trees on that account. Part of the park is of heavy soil, and planted with Oak; the house is on dry, hard ground, with many Beeches and Limes upon it. I felt great interest in visiting this place, having heard that Lord Crewe's estate is in perfect order, the houses of his tenantry being in as good repair as his own, and knowing, too, that he is one of several landowners in Cheshire who encourage the farm labourers in cow-keeping, adding thereby to their comfort, and inducing thrift and good conduct, just as good large gardens do in other localities where the dairy is not so well understood. *H. E.*

**BOILERS.**—A trial of heating apparatus was held during the past year, at Paris, under the auspices of the National Horticultural Society. The tests were the rapidity with which a temperature of 85° C. could be obtained, the maintenance thereafter of an equable temperature as tested in all the competing apparatus at the same time every quarter of an hour, the quantity of fuel consumed per hour, and for an even temperature of 85° C. In addition, the facility of cleaning, of effecting repairs, the probable durability, and their practical application to horticultural purposes were tested. The first prize was withheld, but several minor ones were awarded.



## THE LATEST NOVELTIES.

(Concluded from p. 45.)

### GREENHOUSE PLANTS.

THERE is nothing very striking in this group. One of the most interesting is *Canna liliiflora*, originally introduced by Warszewicz some thirty years ago, but almost lost sight of until brought fresh into notice by M. André. It is a fine thing, but wants peculiar treatment, which our summers do not secure to it, and therefore its growth needs carrying forward in a warm greenhouse. It grows from 6 to 10 feet high or more, and is therefore just suited for planting out in a well-ordered intermediate conservatory, after being reared and brought forward in a pot. The stems are short, the leaves large, musæform, the flowers racemose, the individual blossoms 4 to 5 inches in length, tubular, the outer segments reflexed, tinged with green, the inner straight and recurved only at the top, white, with a slight tinge of yellowish-green, and the whole flower exhaling the odour of Honey-suckles. *Bouvardia scabra* is a very pretty and attractive plant, 1 to 1½ foot high, with hairy stems, ovate acuminate leaves, and dense corymbose cymes of bright pink flowers, having the throat of the tube whitish. It is a Mexican plant, and should work in well with those already in cultivation. *Echeveria metallica decora* is a handsomely variegated form, in which the leaves are variously striped with rosy-pink and creamy-white; it will require some attention to keep it from sporting back to the original glaucous green. In *Pentapterygium serpens* we have a very handsome *Vacciniaceae* shrub, of Indian origin and epiphytical habit. It has a remarkable deformed tuberous rootstock, from which grow out the pendulous branches, which are clothed with ovate-lanceolate, or oblong-ovate coriaceous evergreen leaves, and numerous axillary tubular flowers more than an inch long, pentangular, bright red, obscurely cross-barred with darker red. At Kew it is cultivated in a basket, from which its branches hang down, flowering about May.

Under this head, perhaps, but of course requiring something of special treatment for their successful cultivation, may be noted some dozen or so of hybrid *Sarracenias*, which are, even in their juvenile state, not only interesting and distinct, but really beautiful from the coloured venation. They are severally called *S. Atkinsoniana*, *excellens*, *exculpta*, *exornata*, *formosa*, *illustrata*, *Maddisoniana*, *Mitchelliana*, *rubra acuminata*, *Swaniana*, *Tolliana*, and *Wilsoniana*. Two or three of them have perhaps been mentioned previously, but the whole of them will prove attractive to the plant lover, and when they come to develop their flowers may turn out even more worthy of admiration than in the present leafy stage.

### HARDY AND HALF-HARDY PLANTS.

We shall divide these into the Shrubby, the Perennial, the Bulbous, and the Annual groups, and shall have one or two useful plants to mention under each.

One of the finest in the shrubby division is the *Yucca Whipplei violacea*. This handsome novelty was raised in the Jardin d'Acclimation at Hyères. It has the flowers drooping, 2 inches long and 1 inch across, and differs from the type in their being of a greenish-white, with the upper half deep violet-purple, the colours blending in the middle part of the flower, the anthers being also purple. It is a hardy plant, of much beauty. *Viburnum Tinus aureo-variegatum* is a pretty variety of the common *Laurustinus*, in which the leaves are margined with pale yellow. *Ilex Aquifolium*

*laurifolia aurea marginata* is rather a long name for a very handsome Holly. It is a golden-edged form of that variety in which the spines of the leaf-margins are nearly or quite suppressed, and which bears the name of *laurifolia*. *Hedera Helix aurantiaca*, a handsome Ivy, with bright orange-coloured berries, which has attracted some notice in France, and of which a coloured figure was published in the *Revue Horticole*, seems to be, the same as that known in this country as *H. H. himalaica*. *Kalmia latifolia major splendens*, though an old plant, is comparatively scarce, and, when exhibited, was much appreciated; its merits are that its flowers are larger and of a deeper colour than in the ordinary form of the species, the colour, when in the bud state, being of a bright cherry-red.

In *Cupressus Lawsoniana Fleetii* we gain a handsome silvery-leaved or glaucous variety, which has the silvery aspect in a much more marked degree than in other so-called silvery-leaved Conifers, and hence is all the more to be prized. *Acer japonicum aureum* has appeared at some of the shows, and is a very handsome Japanese Maple, differing from those ordinarily met with in the golden hue of the foliage, hence it is rather a desirable addition to the numerous varieties already grown, and the more so if it should prove to be a free grower as an outdoor plant. Finally, *Berberis congestiflora hakeoides*, from Chili, is rather an attractive Berberry, probably evergreen, forming a stout bush 6 or 7 feet high, the terminal branches elongate and decurved, and crowded with leaves and flowers, of which the first are nearly orbicular, with spinulose-dentate margins, and the second are deep orange-yellow, crowded along the branches in the axils of the leaves.

### PERENNIALS.

The perennial division includes *Callirrhoe lineariloba*, a pretty *Malvaceae* plant, with numerous trailing stems radiating from the crown; the leaves pedate-partite, the flowers nearly 2 inches across, blue, with a broad even edge of white on each side each petal; from Texas. *Eremurus Bungei* and *E. robustus* are two ornamental Central Asian *Liliaceae* plants of a genus not yet very familiar in gardens. The first grows 1½ foot high, with a long crowded spike of bright yellow starry flowers, having orange-red anthers. The second grows 4 to 6 feet high, with a spike 2 to 3 feet long, of pinkish-red flowers with a brownish centre rib to each of the six segments. *Campanula turbinata pelvisiformis* is a more modern form of the fine old *turbinata*, in which the pale blue flowers, instead of being cup-shaped, are almost flat or shaped, like a saucer.

*Pentstemon labrosus*, a very fine Californian species, is allied to the well known *P. barbatus*, and grows from 2 to 5 feet high, bearing profusely slender panicles of bright crimson-scarlet flowers, which differ from those of *P. barbatus* in wanting the beard or fringe of hairs at the mouth of the tubular corolla. *Primula dolomitica*, from the Tyrol, is a beautiful dwarf alpine species of the *Auricula* group. It has a tuft of oblong sessile hairy leaves, white, and minutely ciliate at the edge, and an umbel of bright lemon-yellow flowers, having a broadly funnel-shaped limb of obovate emarginate segments. The Indian *P. prolifera*, known also as *P. imperialis*, is another yellow-flowered species, blooming in whorls like *P. japonica*. It has long obovate-oblong leaves, and from two to six superposed whorls of faintly sweet-scented pale golden-yellow flowers, three-fourths of an inch across. It affects high elevations, growing in Sikkim at 12,000—16,000 feet, in Java at 8000—9000 feet, and in the Khasya Mountains at 4000—6000 feet.

### HARDY BULBS.

Of the bulbous group we have records of



*Allium macranthum*, from the Eastern Himalayas, a plant of Leek-like habit, with linear-lanceolate leaves a foot long, and tall scapes bearing a large umbel of dark purple flowers, and well adapted for the hardy flower borders. *Calochortus Benthani* is a little gem in its way, the flowers bright yellow, and produced abundantly. *Fritillaria imperialis inodora purpurea* is a brownish-purple variety of the Crown Imperial collected in Bokhara by Dr. A. Regel, and which, it is stated, has not the disagreeable smell of the garden form, which seems to have been obtained from Afghanistan. In this purple variety the crown or tuft of leaves is shorter, and the flowers at first stand erect.

## ANNUALS.

The annuals form a more limited group. We have to record *Papaver Hookeri*, a showy branching hairy plant, 3 to 4 feet high, with bipinnatifid leaves, and large flowers varying from bright rose to pale crimson with either a white or black spot at the base of the petals. It appears to be larger flowered than *P. Rhœas*, which it much resembles. The *Phacelia campanularia* from California, now for the first time being distributed, fairly comes within our range, and deserves special notice for the brilliancy of its corulean blue flowers. It is a dwarf branching hairy plant, with stalked

## MISS NORTH IN CHILI.

THE following is an extract from a letter written by Miss North to Professor Allman, here published by permission of the writer.

Miss North left this country last autumn with the view of studying the vegetation of the western side of the Andes, especially in the Chilean region, where she is now engaged in painting the characteristic features of that portion of the Andean flora, hoping thereby to fill up almost the only gap still remaining in her marvellous gallery at Kew.

One of Miss North's special objects in visiting that part of the world was to find an opportunity of painting the *Araucaria imbricata* in its native haunts. She had not yet, however, reached the proper region of



FIG. 14.—PLANTATION OF LIMA BEANS.

This scentless form, observes Dr. Regel, at present surpasses all the known forms in beauty, and with these advantages should quickly spread with its varieties through our gardens. Sundry new Tulips have also been introduced by way of St. Petersburg, chiefly from Turkestan. The most showy are *T. Alberti*, with bright red flowers marked at the base of each petal with a bifid obtuse yellow blotch; *T. Kesselringii*, with smallish yellow flowers; *T. Borszczoni*, with undulated foliage, and deep crimson flowers with the perianth segments apiculate, and having an oblong black blotch at the base; and *T. Ostrowskiana*, with bright vermillion flowers marked at the base with six small black angular spots margined with yellow.

roundish-ovate sinuately-toothed leaves, and terminal open cymes of campanulate flowers of the deepest brightest blue, rivalling that of the Gentian. *T. Moore*.

## THE LIMA BEAN.

THIS is a tall runner Bean, not much grown in this country, as it is considered to be too tender, though a correspondent at Abergavenny, to whom we are indebted for the photograph whence this illustration (fig. 14) was taken, is not unnaturally of a different opinion. In cold wet summers it rarely ripens its pods. For our tropical and semi-tropical colonies it is quite a different matter. The plant is a native of Brazil, where also it has been cultivated from time immemorial, seeds having been found in the ancient Peruvian tombs.

the *Araucaria*, which is at a considerable distance from her present quarters, but has made the necessary preparations for the journey, and hopes soon to get studies of this singular and characteristic form of Chilean vegetation.

Though reference to the *Araucaria* is thus necessarily omitted in her letter, Miss North's graphic account of the vegetation amidst which she is living will be read with no little pleasure by every one interested in the geographical distribution and physiognomy of plants, and in their significance as elements in the landscape.

"Apoquindo, Chili, Oct. 28, 1884.

"Dear Dr. Allman,—Again I am going to bestow on you the glories of a vegetable, too magnificent and unique to be appreciated by ordinary mortals. Last spring botanical journals told every one to go and see the Puya in the Cactus-house at Kew, and I made a hurried sketch in the midst of all my 'fixings' and vexations in the gallery. [A figure of *P. corulea* alias *Whytei* was given in our



columns, October 1, 1831.] I did not like to propose that such a precious plant should be taken into my room. Its relations here would not even own it! I have a flower of one leaning against the post of the verandah before me now, which is just as much as I can lift with difficulty. The flower-spike is over a yard long, its stalk 6 feet. It has sixty spikes, arranged screw fashion, round its stalk, each about a foot long, and round these are rosettes of flowers and some score of buds of the tenderest green or lemon colour. The great heads before the flowers come out are wrapped up in covers of white kid, tinted with salmon, getting darker as they fall aside and the lemon buds push themselves out, and the first flowers, which open round the base of the spikes near the stalk, are of the purest turquoise-blue; the new rosette which replaces them is darker, metallic-blue, and then all the others seem to get more and more green and faded the farther they get from the centre stalk, and more separate, with a background of brown bracts or leaves (the original white kid covers). Yesterday I rode and scrambled on foot far into the hills, and saw masses of these huge flowers. On one mass of silvery Pine-like leaves there were twenty-six flower-stalks, most of them brown heads of last year, with the seeds shaken out, and all growing on the steepest slopes, and having as companions giant Cacti, with a *Loranthus* parasite covering their sides, facing east or south; they are now covered with scarlet berries, which grow white when ripe, and are not bad to eat, tasting like Roses; the juice from the stalk of the white trumpet flower of the Cactus is also good. I am black and blue from the falls I have had on those steep banks, with no foothold but sliding stones and prickly bushes for hands to grasp as help, but it is worth some trouble to see such things. Every bush seems prickly or poisonous here, the 'Nettle,' a plant with red and yellow flowers (*Blumenbachia*) raises watery, blister-like burns, which last days on one's hands. When I see you, I shall ask you to tell me how and why it does it. I had a theory that it did not sting till the flowers had opened, but touched the buds once too often, and will not theorise in that way again. The common *Acacia* (much like the *Dornboom* or *Bauhub* of Africa and India) is terribly thorny, yet seems quite a favourite place for birds to build nests in, and one clever weaver makes his home of the very thorns, lining the inside with the soft gold ball flowers. I tried in vain to get the nest to take home—I brought out only bleeding hands, but it is painted; and I hope to get the bird from Dr. Philippi at the Museum. Another bird's nest with two eggs I found in a hollow dead Cactus pillar, made entirely of feathers, and one of the thorny sort wedged between two live Cacti. We went to a grand waterfall yesterday, the young landlord acting as my guide, and close under it I saw Darwin's Berberry. The tree, whose bark is used for soap, was growing in quantities there (*Quillaia*), with *Erecomarcus* hanging from it, and the tiny scarlet *Tropæolum* all over the lower bushes; also a lovely pink flowering creeper, whose name I forget. The other flowers are very tiny; several *Vetches* of different colours, *Oxalis*, *Lilies*, scentless *Heliotropes*, *Verbenas*, yellow *Forget-me-Not*, yellow and lemon *Calceolarias*, hanging from the rocks, and *Maidenhair*, which stands upright, not hanging. *Marianne North*."

## ORCHIDS FOR AMATEURS.

(Continued from p. 26)

**SORTS TO OBTAIN.**—After careful consideration of the class of Orchids which are most suitable for his house the beginner should get a few plants of the commoner kinds. It by no means follows that these are the least beautiful. A *Cattleya* costing 5s. to 10s. may, to the inexperienced eye, appear a far better plant than one which sells at as many guineas. The rich collector is anxious to possess something new; it may differ only in some small character from the commoner kind, yet it will often bring a large sum. There are two reasons for a high price being given for any Orchid. The first is its rarity in collections. A rare variety or a new one is always valuable. The second is the length of time some plants need for cultivation before they come to maturity and produce flowers.

As an example of the first I may mention such plants as the true autumn-flowering *Cattleya labiata*, of which I understand there has been but one small importation. The flower is a fine one. The plants in this country are very few. It grows well and flowers freely, hence its high price. White flowered *Cattleyas* and *Lælias* are also very rare and much coveted. As an example of the second the beautiful hybrid *Cattleya exoniensis*, reared by Messrs. Veitch, may be cited. This is a cross between *Cattleya Mossiæ* and *Lælia purpurata*, and if the labour and patience necessary for its growth be remembered, a plant is well worth the thirty or forty guineas which it brings in the market.

## SEEDLING ORCHIDS.

The rearing of an Orchid from seed is the work of a lifetime. Many years are frequently needed to grow a seedling into a flowering plant. The seeds of the *Cattleya* are as fine dust, they require months of sedulous attention before they begin to germinate, and then the young plants are too small to handle for years. Each succeeding season produces its small bulb. The first bulbs are very minute, those which follow are larger each year, but there is a long series between a bulb half an inch or an inch in length and one measuring a foot. Then there are the great risks the young plants are subjected to and the large number of failures. Let any one try to rear hybrid Orchids from seed and then he will see that such plants must always be very valuable. Again large plants of *Vanda Saccolabium*, and *Aërides*, require years to attain the size of flowering plants and are proportionately expensive.

## INEXPENSIVE VARIETIES.

Fortunately for those who wish to grow Orchids large numbers are fairly inexpensive. As a rule, recently imported plants, if good, bring high prices, as every one is on the look-out for something new. Large numbers are established by growers in the hope of getting a new variety or species. After they have been flowered they are sold, often for less than they cost in the first instance, certainly at a very moderate price, not because they are worthless or without beauty, but simply because they belong to varieties which are well known. Beginners often buy imported plants, which are difficult to establish and which cannot be expected to do any good for two or three years, and if they fail, as they are almost sure to do in inexperienced hands, they give up the attempt. It is better to buy established plants, which may be purchased cheaply enough, and learn to grow them; if they deteriorate, it is the fault of the grower. It stands to reason that if a plant is once established it must improve if properly treated; each succeeding growth should be better than, or at least as good as, that which preceded it. The bulbs grown in this country are usually much smoother than those made in its native place. Compare the new bulbs with the old ones; if each succeeding one is better than the one before, its success is assured. They may not be as good or as large as the imported bulbs, but that is not always to be expected; the great thing is that the plant should not deteriorate from year to year. In order to judge of the vigour and health of a plant, the following points should be observed:—

## RIPENESS OF THE BULBS.

The bulbs must be completely formed before the new growth starts, or at any rate soon after. A bulb scarcely grows after a new bulb begins to form from its base, therefore it must be fully formed in one season. Counting back from the growing point, the second bulb should be as large, or larger than any formed in this country. Many of the bulbs have eyes at the base, but the leading bulb, that next the shoot, in all those species which have perennial bulbs, is the only one which generally grows. If this is damaged or dies another eye will grow, but it is usually several years before the new growth attains sufficient strength to make flowering bulbs.

## KINDS OF ORCHID BULBS.

Some Orchids, as *Pleione*, have annual bulbs; each makes several shoots, and each shoot develops a flowering bulb, and the old bulb shrivels away at the end of the season. Imported plants, in which the leading bud grows during the voyage, seldom form a bud from it. The only chance for such plants is the development of a "back eye," an eye from one of the other bulbs. Such plants are sure to be some years before they flower. The roots of Orchids are produced from the base of the growing shoot, or from old roots; they very seldom grow from back bulbs; so that when they are once destroyed or damaged, one season at least will be lost. They generally grow before the leaves are fully formed, and must be well developed, or the bulb of the new growth will be feeble. The old bulbs supply the young growth with nutriment, and act as leaves, but unless the new growth gets roots of its own, they suffer in the process.

## THE ROOTS.

A plant without healthy roots depends entirely on the old bulbs and leaves for nourishment and moisture. The Rev. G. Henslow showed conclusively, in a

valuable paper read before the Linnean Society, that leaves drink in moisture from their surface, and there are no plants in which this process is more active than in Orchids. I have seen the leaf of a shrivelled plant become quite plump and healthy in two or three days when it has been sponged twice a day with warm water. This treatment will often save a valuable orchid. Dipping the leaves and bulbs, and draining off the water by inverting the plant, is equally efficacious in small specimens. Water must not collect in the cups of the leaves, the scales, or about the necks of the bulbs, or the plant will die.

## POTTING.

If the purchaser of a plant is quite satisfied with its appearance, and can trust the vendor, it need not be disturbed; but it often happens that Orchids are sold which are very badly potted. I generally turn mine out as soon as I get them, and repot them, except when I am satisfied with the potting. A plant is properly potted when its drainage is perfect. To test this immerse the pot in water up to the rim, not cold, but 10° above the average temperature of the house. The water should enter freely, the air should rush out at the top, and when the pot is lifted out the water should run from it in a full stream, drawing air into the compost with a hissing noise. Unless this happens there is something wrong. Most beginners and some nurserymen pot their plants too hard, or in non-porous compost: this is a fatal error.

*Cypripediums* and other semiterrestrial Orchids will bear much harder potting than the epiphyte kinds, but even these appear to me to do much better when planted in perfectly porous material; nothing does an Orchid so much harm as stagnant water, as it takes the oxygen from the roots. Plenty of air near the roots is absolutely necessary, and stagnant water acts as a poison, not only to Orchids, but to the greater number of flowering plants. *B. T. L.*

(To be continued.)

## DRAWING.

I NOTICE in the *Gardeners' Chronicle* for December 20 "A Young Gardener" would like a few directions as to how to set about "plan drawing." Well, although I am conscious that the space at my disposal is limited, and consequently I cannot go into minute details, I will endeavour to give "A Young Gardener" as many directions as I think he will need.

Although I have known a few isolated persons who could draw plans fairly well, and put their ideas on paper to a scale, who had not a knowledge of geometry, I should never counsel any one to attempt plan drawing without first making themselves familiar with at least the principal problems in geometry; and if "A Young Gardener" will procure a shilling book on geometry, a sixpenny plain paper exercise-book, and a box of compasses, and set himself diligently to work out the problems in the book, I promise him that he will find a great deal of pleasure in the knowledge of having worked out a knotty problem successfully, and he will be surprised to find what a variety of uses he can put his knowledge to to facilitate him in his work, &c. I confess to the fact that a glimpse of a work on geometry has rather a tendency to impress one with the idea that it is a lot of dry stuff, still I maintain that, like many other things, "it's not so bad as it looks."

Well, presuming our young friend has "waded" through the geometry, he will need to add to his appliances a drawing-board, T-square, parallel ruler, &c. I should then advise him to procure an old plan, and first of all to make a correct copy; then I should say reduce or enlarge the scale, and draw the plan over again to the new scale; and I feel confident, after going through these preliminaries, any young fellow will be competent to draw a correct plan of the place he is engaged at.

These directions, I am afraid, will induce many to think that it is rather a lengthy process; still I assure them it looks a great deal more formidable than it really is. Of course I do not mean to say that you can acquire either this or any other branch of education in a night or two—nothing can be learnt without patient application—but I always think that one feels quite recompensed by success for all the pains and trouble he has put himself to. If "A Young Gardener" makes a commencement, I trust he will try to do his best, and I heartily wish all who make the attempt a full measure of success. *F.*



## THE CULTURE OF CUCUMBERS.

**THE FITS.**—A good supply of Cucumbers throughout the year, but more especially during the summer and autumn months, is indispensable in most gardening establishments. The most suitable house to grow summer and autumn Cucumbers in is a low span running east and west, having the glass bedded in the best linseed oil putty, and on either side the central pathway a bed about 2 feet deep and the same width, with a flow and return hot-water pipe fixed from 2 to 4 inches above the floor-line in the centre of each for supplying bottom-heat, and these should be provided with gun-metal screw valves for regulating the bottom-heat; the air being admitted through the front sashes (about 21 inches deep and 4 feet wide), and a box 10 inches deep and the same width fixed in the ridge—the lid being raised and lowered by means of a crank and piece of sashline.

### THE BED.

Over the pipes about 3 inches thick of old brick rubble, the finest on the top, should be placed for drainage, to be followed with 18 inches deep of long stable-dung (including the horse-droppings), trodden firmly together, then a surfacing of short dung, after which the mounds of soil, consisting of three parts light loam, and one of short well-rotted dung and leaf-mould, well incorporated, can be made 3 feet apart along the centre of each bed, and about 1 foot deep, covering at the same time the short dung in the intervening and surrounding space with a couple of inches thick of the same compost, so that it may retain the ammonia arising from the fermentation of dung and droppings, and which would otherwise be spent in the atmosphere of the house, and perhaps injuriously affect young plants on shelves near the apex, unless the precaution under the circumstances has been taken of leaving a slight space open to let out the steam.

### THE PLANTS.

Meantime young plants of Rollisson's Telegraph and Tender and True, or any other variety, according to fancy, which may be had true to name—but which is sometimes a matter of difficulty—should be raised by sowing seeds singly in 3-inch pots three parts filled with light soil, consisting of three parts of light loam and one of leaf-mould. Cover the seeds with a little of the same soil, and then plunge the pots to the rim in a box of leaf-soil or sawdust, covering the latter with a square of glass; place over the hot-water pipes, where, after a few days, the little plants, if the seeds were good, will appear. They should then be placed on a shelf near the glass, and after they have made 2 inches of growth be top-dressed with soil, which should have been slightly warmed prior to being used, and so soon as the plants have made a few true leaves, and before the pots become full of roots, they should be turned carefully out—being thoroughly moist at the roots before doing so—and planted on the mounds. The soil should be pressed moderately firm about the roots, and afterwards watered with tepid water to settle it. Then put a stick for support, sufficiently long to allow for the beds subsiding 9 or 10 inches during the three following weeks, and meanwhile tie loosely to the first wire of the trellis, which should not be nearer to the glass than 15 inches, so that the plants and sticks may sink with the soil.

### TREATMENT AFTER PLANTING.

Shade the plants from bright sunshine until the roots have pushed well into the soil, after which it should be discontinued. Syringe the plants overhead morning and afternoon on bright days, to prevent the attacks of red-spider, and ventilate freely during favourable weather to secure a short-jointed sturdy growth in the plants. As the roots push through the sides of the hillocks, add a couple of inches of the same compost as that in which the plants are growing, and continue to make such additions until the intervening space is filled with soil. The base of the plants and the soil within 6 or 8 inches should, however, be left a couple of inches higher than that between the plants, to prevent the stems and the soil immediately surrounding them from becoming too damp by the lodgment of water. If this simple precautionary measure were more generally observed in the planting of Cucumbers and Melons, fewer complaints would be heard of the plants being affected

with canker. But should this preventible disease attack the plants, a mixture of lime and soot rubbed into the diseased portion of the stems will prevent its spreading, but as "prevention is better than cure," a little powdered charcoal should be placed around the collars of the plants, which will prevent a superabundance of moisture from settling in that quarter.

### RAPID FORCING.

If the object be to get Cucumbers as soon as possible from these plants, stop them as soon as they have reached the third wire of the trellis, and the shoots—fruit-bearing shoots—resulting from this stopping should again be pinched at one joint beyond the fruit, and leave only one of the latter to a shoot.

### GATHERING THE FRUITS.

Cucumbers should be cut before they lose that dark green colour and heavy bloom which indicate freshness and crispness, and not be left until a shade of yellow spreading over the fruit pronounce them to be overgrown and consequently unfit for salading purposes. The fruit should be stood on end in a saucer containing half-an-inch of water in a cool room until required for use. Train the young growths regularly and thinly over the trellis until the latter is furnished with fruit-bearing wood.

### SUBSEQUENT TREATMENT.

After the plants have been fruiting a couple of months, cut out some of the old shoots occasionally to make room for young wood, for herein, other cultural points being properly attended to, lies the secret of securing a regular supply of fruit from the same plants throughout the year. When the plants show signs of exhaustion lay on a surface dressing an inch thick of the same compost as that in which they are growing, and to which add a little of Beeson's manure, which is an excellent fertilising agent, at the rate of 3 lb. to a bushel of soil.

### PLANTS IN POTS.

A good supply of Cucumbers may also be obtained from plants grown in 12-inch pots, by keeping the roots well supplied with tepid weak manure-water when the plants are in bearing, and in other respects treating them the same as those growing in borders, which latter, owing to their having more scope for root action, will not require water at the roots so often. But regarding this matter no hard and fast line must be drawn.

### WATERING.

§ The cultivator must be guided in the application of water to the roots and leaves by such circumstances as the condition of the weather, the health of the plants and condition of the soil in which they are growing, together with the drainage and the mode by which bottom-heat is supplied to the roots. When, however, the condition of the soil and plants indicate dryness at the roots, let the supply of water be sufficient to thoroughly moisten the whole mass. Plants growing freely in borders prepared as indicated, and in which their roots have become a network, may have liberal supplies of tepid liquid manure given to the same without any fear of the plants being overwatered. Indeed such waterings are under the circumstances necessary to keep the plants in a healthy fruit-bearing condition. A humid rather than an arid atmosphere will be congenial to the plants in all their stages of growth.

### TEMPERATURE.

A night temperature of from 65° to 70°, according as the weather is cold or mild, should be aimed at, and 70° to 80° during the day with fire, running up 10° higher with sun-heat, and plenty of atmospheric moisture at shutting-up time in the afternoon. In the matter of putting on and taking off air, the cultivator should also be guided by the nature of the weather, and the stages of growth at which the plants may have arrived, but cutting winds must be guarded against, as such would check the growth of the plants.

### DISEASES AND INSECTS.

Should mildew occur as a result of a low temperature, and at the same time over-moist atmosphere, or red-spider, brought about by circumstances the opposite of those just stated, and perhaps dryness at the roots—apply flowers of sulphur through a distributor for the former (when the leaves are damp), and a soft-soapy water sponge to the latter, which will be the means of arresting their mischievous incursions; and should green or black-fly be troublesome, fumigate lightly with

tobacco-paper two evenings in succession, which will be more effective and safer than filling the house too full at one time. Syringe the plants well the succeeding mornings, and ventilate the house somewhat freely (weather permitting) for a couple of days afterwards. *H. W. Ward, Longford Castle.*

## VICTORIA REGIA.

It is a great pleasure to read of the success of this fine Water Lily, for when well grown there is no doubt but what it is one of the greatest attractions to any garden. No matter how extensive the collection of plants may be, visitors will crowd to see it. When reading the success which has been attained at Kew, and also at Mr. Dixon's at Leatherhead, it struck me a few words respecting the one growing here might not be out of place.

The plant in question was planted in April, 1840, and went on well without any check, which I think is the keynote to success, producing both leaves and flowers very fast. The following is the amount of flowers produced:—The first year after planting it produced thirty-two flowers and over forty leaves; the second year after planting it produced sixty-five flowers and about seventy leaves; the third year it produced seventy-six flowers and eighty-five leaves. This year there have been more flowers produced than even last year, but not quite so many leaves, neither have they been quite so large. The largest leaf was produced in August of last year, measuring 6 feet 8 inches across. It will be seen that this Lily has produced more numerous leaves and flowers than any on record.

The tank in which the plant is growing is 30 feet across. Although it may seem ample room for one plant to grow in, it has occasionally pushed some of its leaves over the brickwork, thus rendering amputation necessary. Twelve leaves on the plant at a time are quite sufficient, for if more be allowed to remain they crowd the tank, for if clear water is seen round the leaves it adds to their appearance.

The Victoria regia has been grown here for many years past, and I believe one plant attained the age of two years, but I think no plant has attained the age of four years in England before. When the plant can be kept over the winter there is a great advantage in the appearance of both leaves and flowers much earlier than on young plants raised the same year, thus rendering the season much longer.

We find the Lily-house, as it is called here, a centre of attraction to the many thousands of people who visit these gardens on certain days, hence it is a wonder there are so few Lily-houses in our large gardens. *C. Penford, Leigh Park Gardens, Havant.*

## APPLES AND SOILS.

I CORDIALLY agree with Mr. Ingram in his wish to see an exhaustive report of the soils, climate, &c., on which Apples exhibited are grown, but it is undeniable that to draw up such a report would be no easy task. To begin with, the geological formation on which any given garden may stand, as shown in the maps of the Geological Survey, would probably mislead anybody who attempted to generalise from it, inasmuch as in most cases it is covered with such a thickness of drift deposits (clay, sand, or gravel, as the case may be) that the roots of trees would never approach the actual rock. In this city, for instance, the New Red Sandstone (Bunter) only comes to the surface in a few spots, and the soil there is sandy and warm. But in most places it is covered by a varying thickness of sand or clay, or both, and there are gardens within a few hundred yards of each other standing respectively on a thick bed of drift sand, or still thicker bed of boulder clay, which underlies the former.

As regards climate, which is even more important than soil, both rainfall and temperature—and as regards the latter both the summer maxima and the liability to late frosts—have to be considered.

Further, there is the difficulty of ascertaining the names of the most prolific varieties, and the questions—arise of mode of growth (*i.e.*, whether on *Cross* west-Paradise stocks, whether standards, pyramids, at 7 P.M., or espaliers, aspect of garden, and will be read, the others which will present themselves to the ensuing year will deliver his

Probably the best way would be country into districts, somewhat like rainfall districts, and have separate ext one for early and one for keeping Apri



district. Local committees should be appointed to get up the required information on the points alluded to above. I venture to think that, if properly worked out, the result in increasing the production of this valuable fruit would amply compensate for the trouble. *Alfred O. Walker, Chester, Jan. 4.*

### EPIPHYLLUMS.

FEW, if any, stove or intermediate-house plants are more useful than these, for, besides their gorgeous beauty, they may be grown in a variety of ways, and they come naturally into bloom at a season when flowers are scarce, and last a long time in full beauty. For table decoration during the dead of winter they are quite unrivalled, as they may be grafted on stocks of suitable height and made to form neat symmetrical heads, which, owing to the gracefully pendulous habit of the Epiphyllums, and the brilliant blossoms hanging from the ends of the shoots show off to the greatest advantage.

To prepare them for the purpose referred to, two stocks are suitable, the one *Cactus speciosissimus*, and the other *Pereskia*, the latter being most in favour, as it may be propagated readily, and got to a size large and long enough to work in a year. The operation of grafting is a very simple and easy affair, as all that is necessary is to cut the stock back to any length that may be decided on, and then to make a slit in the end, about an inch down, in which to place the graft. This should be selected from among the ripe shoots of the Epiphyllum, and when taken off the way to trim it is to slice away each side of the end, so as to make it wedge-shaped, when it will be ready for inserting, and after this is done it may be made secure in its position by binding it round with moss and soft matting, the moss being required to keep the air out, and the scion moist and plump, till the stock and graft are united. This is soon effected, especially at this season, which is perhaps the best time for working Epiphyllums, as the scions are less likely to shrivel, and being done thus early they make their growth soon after and flower the following winter.

If pyramids are desired the *Pereskia* must be worked at certain distances all up its stem, varying the sides from top to bottom that the grafts may be opposite all round, and thus form regular plants, clothed from base to summit, which when in bloom will make a magnificent show. The way to insert the scions when grafting for pyramids is to make an incision through the bark just into the wood, extending downwards an inch or so, which will form a tongue-like flap, and when the grafts are prepared in the manner alluded to above, by making the end wedge-shaped, they should be bound in by using moss and matting, in the same way as the standards.

Not only may Epiphyllums be grown as pyramids and standards, but by running the *Pereskia* up under the roof of a house they may be worked on its branches and allowed to droop down, in which way they produce a striking effect, and also when suspended in baskets. For this purpose, and also for forming dense low plants in pots, they are best on their own roots, and to get the cuttings to strike all that is necessary is to take any of the firm shoots off with a heel, or break them off at a joint, and then insert them in sharp sandy soil, and place them on a light shelf up near the glass, where they can have a little heat to give them a start. As soon as rooted they should be potted on, or placed in the baskets, which need not be large, as at no time do Epiphyllums require much soil, but they will live and thrive with their roots in a very limited space, if kept well supplied with water when growing and blooming, a season when liquid manure is a great help. Plants that have become too large, or heavy in the head, will bear pruning or thinning, as all that is requisite to get them into shape, or lighten them, is to shorten them back, or break out shoots where they are too dense, as after this is done they soon start again at the ends. To encourage them to do this they should be stood where they can have a brisk temperature, and syringed occasionally with tepid water; but at the same time they ought only to be kept just moist at the cover, till young growth appears; and to have this hybrid *Cactus*, not it well ripened, the plants should be potted on, and to have this Mossiae and *Laelia* will harden the half-succulent shoots, patience necessary to set plenty of flower-buds. As plant is well worked, have done this they may be kept cool by it brings in the air the ventilator will admit, and a dry cold be pursued at the same time, which

will give them a rest, but when autumn sets in they must again have warmth by placing them in an intermediate-house, or cool stove, where if the atmosphere is not moist they will last a long time in full beauty.

To support standards or pyramids there is nothing equal to an iron rod made with triangular feet, and if wire stays are run from the top to the rims of the pots it will remain perfectly rigid, and appear neat at all times. Wooden stakes are very unsafe, as they rot quickly, and snap from the weight of the plants, several of which I have seen spoiled completely in the moving of them about.

Excepting greenfly when making their growth, or swelling their flower-buds, Epiphyllums are not subject to insects, and therefore are no trouble in keeping clean, as a syringing with tobacco-water, or fumigating, will settle the aphids and set the plants free. *J. S.*

### ASPLENIUM GERMANICUM.

HAVING always entertained a strong doubt of the supposed hybridity of *Asplenium germanicum* I have for many years, during occasional visits to Switzer-



FIG. 15.—ASPLENIUM GERMANICUM.

land, kept a close look-out for any forms which might serve to throw additional light on this debated subject, and, having always observed it associated with *A. septentrionale* and never with *A. rutamuraria*, it seemed to me highly improbable that it could be anything more than a mere variety of the former, an opinion which I am pleased to find is also held by our President, Mr. Boyd, who has kindly informed me of the facts which he recently brought under your notice touching this question. If my memory serves me, however, it was on one or two occasions found in company with both *A. rutamuraria* and *A. septentrionale* by the late Professor Balfour.

In 1877 I found some specimens on the Maloja Pass, above Chiavenna, similar in form to that recently exhibited by Mr. Boyd to the Botanical Society, having distinct fronds of *A. germanicum* growing from the same root with *A. septentrionale*, but there were unfortunately no intermediate forms proving their common origin, and I was unable to bring the roots home in a sufficiently good state to enable me to keep them alive.

In 1882 I was more fortunate in finding, near the same locality, several other specimens bearing on the same root every intermediate form betwixt *A. germanicum* and *A. septentrionale*. A few which are

here figured (fig. 15), will, I venture to think, help to decide the question. The roots which were brought home are still flourishing, and have put up a goodly crop of fronds, which are all typical forms of *A. germanicum*. This fact is especially interesting when viewed side by side with the instance noted by Mr. Boyd, who informs me that his specimen, varying betwixt the two forms, finally developed into *A. septentrionale*.

In the figures which I have given it will be observed that only the intermediate forms are figured, but there were on the same root other fronds, having the distinctive characters of each species. I need scarcely add that extreme care was taken to satisfy myself that there was only a single root, all the fronds being observed to issue from the same point. *John Lowe, M.D., King's Lynn, Botanical Society of Edinburgh.*

### BRANCHING POTATOS.

THE Potato of which we give an illustration (fig. 16) might have formed part of the stock-in-trade of the apothecary whom Romeo sought out on a memorable occasion. A similar one was shown at the Royal Horticultural Society on Tuesday last. The explanation we take is that a Potato, for some reason or other, takes to branching, the branches becoming tuberos, like the main tuber from which they spring. The phenomenon is of a similar character to that which produces fasciation in the Cockscomb, Asparagus, Pine-apple, &c., but the separation of the buds is carried to a greater extent.

### MESSRS. WEBB AND SONS' SEED FARMS.

THE HOME ESTABLISHMENT.—The pages of the *Gardeners' Chronicle* have, on not a few occasions, illustrated the remarkable progress made by several of the leading seed houses, both in London and the provinces during the past twenty years. A spirit of enterprise stimulated by a brisk competition, both at home and abroad, has done wonders in the way of developing business relationships, and the growth of these has made necessary the acquisition of large breadths of land suited for the cultivation of plants bearing seeds, an extensive plant in the way of appliances and machinery, warehouses of large extent, and a staff of foremen and assistants undreamed of by the seed trade half a century ago. Seed houses then, and later, doing a moderate business, and some who have launched their venture since, have steadily grown into enormous concerns, and made world-wide reputations. The efforts put forth to gain business notoriety (and they are some of the leading features of horticultural enterprise during the past quarter of a century) have operated to arouse the interest of thousands in the delightful pleasures experienced in the culture of plants and flowers, and so extended business ramifications. A large business—if properly worked—must in the nature of things grow, and grow rapidly too, and when this stage is reached the very accretion of business is enormous, customers are counted by thousands and tens of thousands, and if some drop away annually others come forward to take their places. The enterprise, forethought, daring, skill, and general business capacity required to work a large concern successfully can perhaps be imagined. It is sometimes said, in disparagement of large concerns [in the seed trade, that, like Aaron's rod, they swallow up many a small venture, but this is probably an exaggeration. It would not be difficult perhaps to prove that they are helpful in not a few ways to small businesses. That they are one of the facts of the age cannot be questioned, and we hope their influence is on the whole decidedly beneficial to the best interests of practical horticulture.

The seed business of Messrs. Edward Webb & Sons is, in so far as the garden and flower seed departments are concerned, one of comparatively modern development. The family have long been established at Wordsley, a busy village or township three miles or so distant from Stourbridge, in the direction of Dudley, Wordsley being the seat of the fine art glass trade. The Webbs have for a long time past been manufacturers of fine art glass, they are Hop and wool factors, they are corn merchants, in the sense that they deal largely in Wheats, Barleys, Oats, &c.; while grasses, Clovers, Turnips, and other agricultural seeds are traded in to a large extent.



That the departments of vegetable and flower seeds should be grafted into such a business will occasion no surprise, and their rapidly increasing business connections testify to the wisdom of this step. In order to accommodate the growing trade, new seed corn warehouses have just been erected at Wordsley, the whole series of business premises forming a block. These new warehouses are 120 feet long by 45 feet wide, they contain five floors, each 13 feet in height, and will be devoted exclusively to the seed corn trade.

#### KINVER FARMS.

Messrs. Webb & Sons being large growers of the

time to time, such as Electric Light, a main crop Marrow Pea, well adapted for exhibition purposes; Triumph, a prolific blue wrinkled variety; Stourbridge Marrow, another good exhibition variety; Kinver Gem, an early round blue type of dwarf growth, and highly productive; Perfection, a white round, of much the same type; Kinver Marrow, a second early variety, that is largely grown in the district; and lastly, one of the best Peas of modern introduction—Wordsley Wonder—the result of a careful cross, and, as we have seen it in gardens in different parts of the country, a valuable main-crop variety. In addition could be seen several seedlings of promise.

Monstrous in Lettuces; and others too numerous to mention. Specialities are now the order of the day: the better in character they are the greater is the sale they command.

#### POTATOS.

The Wordsley firm do an extensive trade in Potatoes. Of these there were some 65 acres at Kinver. Of such sorts as Reliance, a new white round of handsome appearance, and a good cropper; Webb's Early Ashleaf, selected strains of Magnum Bonum, Schoolmaster, &c., together with some seedlings undergoing a rigid test. Large breadths of Cabbage for seed were to be seen, especially Webb's Emperor, Early Drumhead, and other leading varieties, both for garden and farm purposes.

#### FLOWER SEEDS.

Flower seeds are grown in good quantities, and here were to be seen representatives of the most useful hardy annuals, with trials of Stocks, Asters, Balsams, Zinnias, Phlox Drummondii, Petunias, &c. We need scarcely state that the strains of these were all good and satisfactory.

#### SEED CORN.

Of especial interest for the agriculturist were the extensive crops of seed corn and other products for the farm. There were 172 acres of Wheat, including a new white Wheat, known as Webb's Kinver Giant; Webb's Challenge White, winner of the Gold Medal in France in 1882; and other important prizes; Webb's selected Golden Drop, and several others suited to varying soils and purposes. Of Barley there were some 250 acres, including Webb's new Barley Golden Grain, Webb's Kinver Chevalier, Webb's Beardless, &c. Of Oats there were 167 acres, including Webb's New White Tartarian, Webb's Prolific Black Tartarian, Webb's Challenge White Canadian, &c. Harvest operations with

#### ROOTS,

Swede and Turnip seeds, were in full force on the occasion of our visit, while large breadths of Mangel were within a few days of being ready to cut. The bulk of the Swede, Turnip, and Mangel seeds is grown for them in other suitable districts from stock seeds supplied by themselves to those who hold contracts. We saw many acres of Webb's Imperial or Great Swede, of Mangels and common Turnips, and of those growing on the Kinver Farms; they looked exceedingly well. These were being grown to produce roots to be selected and transplanted in 1885 for the purposes of obtaining stock seeds.

#### MISCELLANEOUS.

A good portion of the Kinver grounds is devoted to the growth of Strawberries, of such leading sorts as Eliza, Keeos' Seedling, Black Prince, James Veitch, President, Sir J. Paxton, Sir C. Napier, British Queen, and Dr. Hogg; Rhubarb, Seakale, Asparagus, Artichokes, herbs, &c. Then there were large breadths of Carrots, Parsnips, Kohl Rabi, &c. That a firm so extensively engaged in the agricultural seed trade, and so famous for the displays of roots, seeds, &c., it makes at the annual meeting of the Royal Agricultural Society of England and other important gatherings, should from time to time secure important awards need not be a matter for surprise. These are made directly to themselves or to their customers, and they testify to the value of the stocks of seed supplied by them. The garden and flower seed warehouses at Wordsley, as well as the offices for clerks, &c., are in keeping with so large a business, and the well-being of their employes is not overlooked by Messrs. Webb & Sons. Elaborate catalogues are issued, the compilation of which must necessitate a heavy outlay. At every hand numerous details of an instructive and interesting character arrest the attention of the visitor. We have simply endeavoured to focus some of the leading details; a great deal more can be imagined than can possibly find a place in a necessarily abridged report.

ROYAL METEOROLOGICAL SOCIETY.—The annual general meeting of this Society will be held, by permission of the Council of the Institution of Civil Engineers, at 25, Great George Street, Westminster, on Wednesday, the 21st inst., at 7 P.M., when the report of the Council will be read, the election of officers and Council for the ensuing year will take place, and the President will deliver his address.

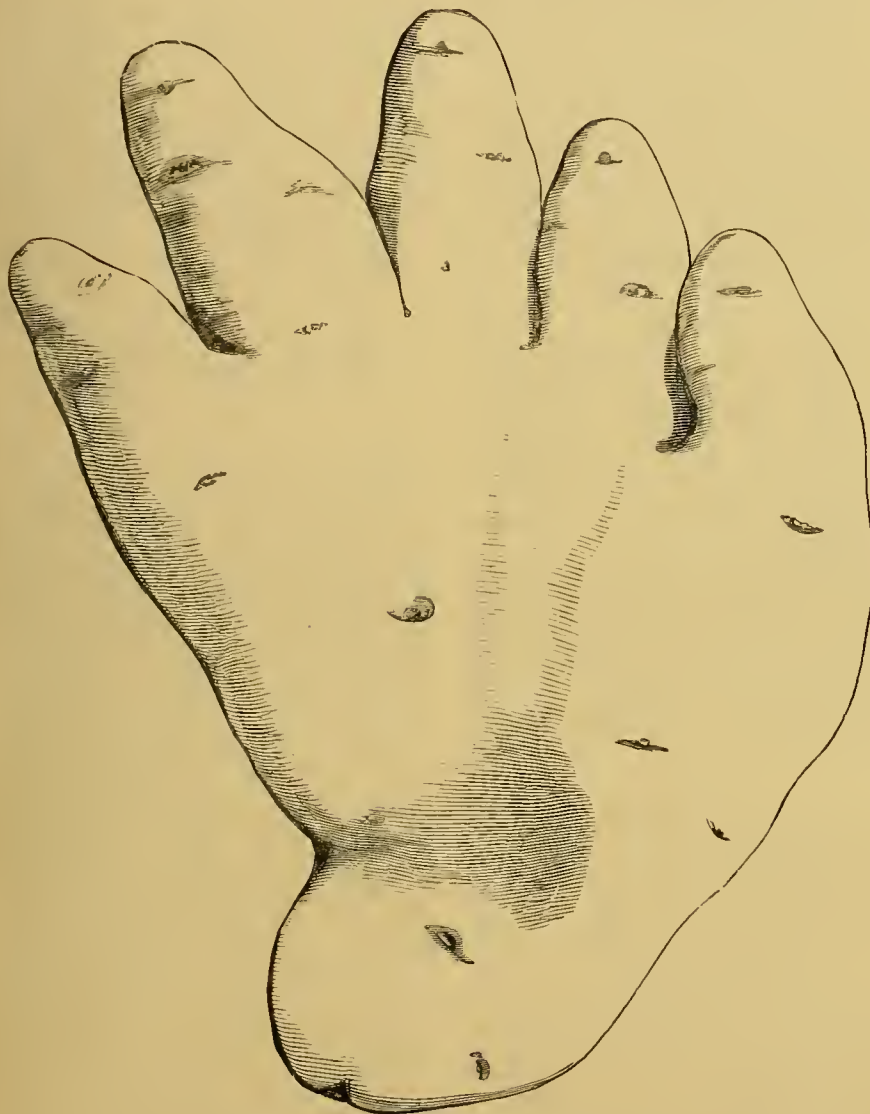


FIG. 16.—A TUBEROUS PALM! (SEE P. 80.)

seeds they sell, have extensive seed farms. The Kinver Seed Farms occupy an elevated position on a fertile ridge some 6 miles or so from Wordsley; they exceed 1600 acres in extent, a great portion of the land being freehold; in addition, large contracts are taken by farmers and others, both here and on the Continent. The soil of the Kinver Seed Farms is particularly suitable for the growth of crops, and one of the principal uses to which they are put is to grow selected stock for seed purposes, all of which are "rogued" with the utmost rigour.

#### NEW PEAS.

The growing crops at Kinver during the past summer included a trial of some 130 reputed sorts of Peas; among them we had opportunity of inspecting some new kinds put into commerce by this firm from

#### SEED TRIALS.

A special feature of interest in a seed farm of this character is the trials of selected stocks. Experience has taught that at times stocks of high character will sometimes deteriorate from causes not always apparent, and thus it is that Messrs. Webb & Sons, in common with other large seed firms, are always on the alert to obtain special selections, in order to maintain their supremacy. Here was Webb's Dark Red Beet, medium size, good in shape, and with bright blood foliage—a model Beet of the Dell's type; a selected Scarlet Runner, the Victoria Dwarf French Bean, the Kinver Mammoth Longpod variety; Webb's Matchless Brussels Sprout; a fine main crop Broccoli, appropriately named Webb's Perfection; their Champion Cabbage, an early handsome type; Webb's new Summerhill Cabbage, and



## The Arboretum.

### PROTECTION TO RECENTLY PLANTED EVERGREENS.

In severe winters the lowest temperatures may usually be looked for during the last week or two of the old year, and the corresponding time at the beginning of the new; yet still there have been and no doubt again will be, exceptions when destructive frosts have come later on, and it is not always the lowest temperatures that do the most injury to recently planted evergreens. The keen cutting winds that sometimes accompany frost of less severity are often the most destructive, and although up to the time of writing we have so far escaped frost of any consequence, still it is well-to be prepared for the biting winds, with or without frost, that are all but certain to come later on. Where the work of planting evergreens has been delayed until near the end of the year, as in many cases this season has been unavoidable, it will be well-spent labour to give such things as usually suffer most a little protection. Hollies, Arbutus, Portugal Laurels, Berberies, and others of like character, with the better kinds of Conifers, generally suffer most through late autumn planting, particularly in exposed situations; but it is often surprising what a little protection it takes to make the difference between injury or death and their coming through the ordeal scatheless. A Spruce branch, a stout piece of Gorse, or in fact anything in the shape of an evergreen stuck firmly into the ground at the windy side of the recently moved plant, will frequently be sufficient to tide it over the trying time. Even in such mild winters as the two last were, when in many parts of the kingdom there was scarcely frost enough to kill bedding Pelargoniums, when the keen easterly winds came later on, such slight protection as afforded by the above simple means had a marked influence in preserving evergreens that were planted too late to make roots before the close of the year. *T.B.*

### CANADIAN FRUIT.

FROM an interview with A. H. Johnson, of Wolfville, Nova Scotia, an active and promiscuous member of the Fruit Growers' Association, we learn that there are some splendid openings for settlers, both in Nova Scotia and New Brunswick, to enter into the cultivation of fruit for local and other markets. There is also a specially fine opening for experienced nurserymen, with a moderate capital, to open nurseries for supplying fruit trees in those provinces, nearly all trees now used requiring to be brought a long distance, and at a considerable expense and risk, by railway from Ontario or the United States nurseries.

The demand for the fruit products of those provinces far exceeds the supply, and is rapidly increasing as its quality becomes known. The climate is exceptionally well adapted for the growth of many varieties of fruit. It is generally admitted that the fruit grown in that locality, especially in the "Annapolis Valley," so called, in Nova Scotia, has a finer flavour than any American Apple. This is to be in some measure accounted for by the dampness of the climate, by the absence of extreme heat, by the position of the lands protecting them from the damaging winds, and especially by the shorter summer season of the northern latitude, ensuring more rapid maturing of the fruit.

The proximity of the fruit-growing portion of those provinces to the seaports of St. John and Halifax, which are open all the year round, in addition to their direct and rapid communication with the largest consuming markets of the United States, as well as with this country, gives them exceptional facilities for this special trade.

#### COST OF PRODUCTION.

Good improved Apple growing lands, well situated, can be purchased for 20 dols. (£4 to £6) per acre, and even less. In some cases, where they are situated off main roads, or where society is not so good, this price would include ordinary buildings. It of course rarely occurs that a whole farm would be adapted for fruit growing, but it is not advisable in that country to depend entirely upon fruit—the most successful mode being mixed farming, having

only moderate sized orchards, where position and soil are best suited.

In preparing for a new orchard, and to do it full justice, it would cost about 12 dols. 50 cents (say, £2 10s.) per acre. If the land, as in most cases it is, were under a proper state of cultivation, the cost would not be nearly so much. The cost of the trees, about fifty per acre, would be about 12 dols. 50 cents (£2 10s.). With the same preparation of the earth it is customary to plant Plum trees between the Apple trees, without in any way interfering with them. These trees will cost 12 dols. 50 cents (£2 10s.) per acre. In the meantime, while waiting for the growth of the Apple and Plum trees to their bearing maturity, it is customary to use the land for what is known as "hoed crops," such as Indian corn (Maize), Potatoes, Peas, Beans, Carrots, Turnips, thus keeping the soil mellow, and the top-dressing used for these crops gives sufficient nourishment for the trees. These crops are generally sufficient to pay for all expenses of cultivation, except probably interest and taxes on the original outlay.

#### PLUMS.

The Plums will begin to bear fruit in about three years, and some in two years. Allowing a fair average product for the third year of, say, 25 bushels per acre, worth, say, 75 dols., these will then increase rapidly in their product, reaching, say, in the sixth or seventh year, about 1½ and even 2 bushels per tree, or about 225 dols. (£45) per acre. If carefully packed, boxed, and properly handled, even 50 per cent. better prices can be obtained.

#### APPLES.

The Apple trees will begin to bear to a considerable extent in from seven to ten years, in seven years many producing a half barrel, and in ten years a barrel per tree, say 50 barrels per acre at 2 dols. (8s.) per barrel (a fair average price on the ground). In about fifteen years their yield will increase to about 2 barrels per tree; at 2 dols. (8s.) this will give 200 dols. (£40). With these, as with the Plums, judicious picking, packing, and selling will materially add to the price.

Windfalls and inferior grades of Apples can be used for evaporating, cider making, &c., and should pay for barrels, expense of gathering, &c. In making calculations it is well to remember that Apple trees produce more abundantly every alternate year, while an occasional loss of Plums by frost will have to be allowed for.

In most cases the Plum trees will last twenty years, being productive without interfering with the Apple trees.

#### SHIPMENT.

As regards the shipment of Apples, particularly for the English market, considerable experience and great judgment are required to do it successfully. At the present time many mistakes are being made, and much valuable fruit lost by shipping at improper seasons, also in sending fruit not suited to the market.

Shipments should be as follows:—First, Gravensteins, commencing from October; they should not be shipped later than November 1. Golden Ball, fall Jennetting, Duchess, Oldenburgh (Russian Apple), Munson Sweets, Snow Apple (Fameuse), as well as the Emperor, may be included in this shipment, but there shipment is not advised unless the crop should be short in England.

No. 2 shipment from November 1 to December 1, should include Ribston Pippins, Blenheim Pippins (Blenheim Oranges), King of Tompkins County (known as Kings), Spitzenburg, Blue Pearmain, Hubbardston's Nonsuch.

It is not wise to ship to London market after December 1 until about January 10, or so as to reach there about January 20, the market always being dull for some time after the Christmas sale.

No. 3 shipments may be made from the middle of January, or say the 20th, to about February 15, and should mainly consist of Baldwins, Rhode Island Greenings, and Golden Russets; Vandeveres, if shipped at all, should be included in this lot, but they are not liked in the London market, and their shipment is not advised. This variety is poor in quality, but splendid keepers, and would do for reshipment, country orders, &c.

No. 4 shipments, from February 20 as late as March, and even April, consist of the Nonpareil (Russet) and Northern Spy. These comprise the main varieties exported. Besides these there are a number which have but limited shipment, such as

the Baltimore Pippins, King of the Pippins, Twenty-ounce Pippins, Calkin's Pippins, Westfield Seek-no-farther, Pomme Grise, Cayuga Redstreak, Pound Sweet, Yellow Bellefleur, Porter, &c.

The markets for Plums are mainly local, but large quantities are shipped to Boston, New York, &c. The leading varieties are the Nectarine, Washington, Imperial Gage, Red Gage, Yellow Gage, and Green Gage, Duane's Purple, Prince of Wales, Bradshaw, Smith's Orleans, Black Damson, Magnum Bonum, several varieties of native Plums, including Blue Plums.

Other kinds of fruits grown include almost all varieties of Cherries—Black Heart, White Heart, common Kentish (red Cherry), Black Eagle, Black Tartarian, Yellow Tartarian, Yellow Spanish, and other varieties. Peaches, Quinces, Apricots, and Grapes, in great variety, grow in the open air, and without protection, as even wall fruit. Crab Apples of all varieties are plentiful. Strawberries, Raspberries, Blackberries, Blueberries, Whortleberries, high and low bush Cranberries, are abundant in both wild and cultivated states. These berries are now becoming a large article of export, both tinned and otherwise preserved, but especially in the shape of syrups. The wild varieties are acknowledged to produce the finest fruit syrups obtainable, and large shipments are now being made to the United States and the Western Provinces, as well as to this market.

A large establishment has also recently been constructed for evaporating these and other fruits, and is meeting with great success. *Canadian Gazette.*

## The Herbaceous Border.

### TREE PÆONIES.

I NOTICED a few weeks since an article on the herbaceous varieties of Pæonies. I am at a loss to understand why it is that so few of these beautiful and truly gorgeous plants are to be found in our gardens. Why are they not more grown? For years I have had about thirty varieties, and when in bloom I deemed them a sight worth seeing, but if so, still more their neighbours in my garden, the grand and, if possible, yet more gorgeous, the Tree Pæonies (Moutan). Look at them how you will, either as to their foliage, its form, or its colour, or the grand flowers, whose size and (if I may use the term) presumptive contour, will take the attention of one passing, by storm as it were. It is this one grandest of flowering shrubs that is such a favourite with both the Chinese and Japanese artists, pictured as it so often is on their pottery and other art productions. For some years I had but two or three varieties, two of which I got from Belgium, when I was so fortunate as to have a note from Dr. Wallace, of the New Plant and Bulb Company, telling me of the number of forms of beauty that the late Robert Fortune had imported. This ended by my getting together about thirty, different in colour both of foliage and flower, and well was I rewarded for my venture. I had some of the most noble, the most gorgeous-looking blooms I ever beheld on any plant: I measured one, a brilliant deep rose colour, and found it to be 1 foot in diameter, or 3 feet in circumference. This was the largest, but there were many others of great pretensions in this direction. Their colours were varied, chaste, and charming. The single sorts had attractions of their own, but I much preferred the double varieties. When out of bloom how elegant is their foliage, so very different from their surroundings, both in form and colour, scarcely any two alike—here a purplish-green, there a red, and now an emerald. On a lawn or a shrubby border, well backed up with evergreens, they are admirable. Care should be taken that they are planted in such a position that they do not get the morning sun, as the young leaves are apt to get scalded, otherwise I have found them perfectly hardy. Unfortunately, I lost most of their names, some being carried off, I think, by magpies or mice, as I found one or two in a wood close by. I remember a fine white as the Bride of Chusan, then there was the Beauty of Nankin, a blush; a very bright deep rose was Robert Fortune, and a reddish-lilac Cordelia, then there was a Mandarin, light purple. But I trust I have said enough to draw attention to a noble family of plants, which, with all their boldness of colour and line, have not yet attracted from the lover



of brilliant colour in the garden that attention which they most justly and decidedly deserve. *Harrison Weir*.

#### PINK TOM THUMB SCARLET.

I remember several years ago being at a show in the Old Deer Park, Richmond, and seeing a splendid basketful of this exhibited by Messrs. Veitch, of Chelsea. The plants were very dwarf and the flowers bright scarlet; in every way, as far as I could judge, a plant likely to become exceedingly popular, but I have never seen a plant in flower since, and I have failed to get it, and understand Messrs. Veitch cannot now supply it. Can any reader of the *Gardeners' Chronicle* supply any information about it? I presume it is but slowly increased. *R.*

## THE PROPAGATOR.

### THE PROPAGATION AND CULTURE OF ANTHURIUM.

SECTION I.—*ANTHURIUM SCHERZERIANUM* AND ITS VARIETIES.—These plants are admirably fitted for the decoration of the stove and conservatory; they are of an evergreen character and flower very freely, each flower, or rather spathe, blooming in perfection for several weeks, and, what adds greatly to their value, they are in flower nearly all the year round. Unlike many other beautiful plants which cannot be used for decorative purposes because of their delicacy, the Anthurium, with its elegant foliage of a leather-like substance and beautiful persistent spathes, will stand a great deal of rough usage in the way of decoration. *A. Scherzerianum* var. *alba* forms an admirable contrast in a group of plants with *A. Scherzerianum*, and a greater beauty will be added to this if it is edged round with *Adiantum* var. *Lycopodium*. Of the other varieties of *A. Scherzerianum*, *A. S. pygmaea*, as its name indicates, is a dwarf variety which is well suited for the front row; *A. S. giganteum* is an exceedingly fine variety, having very large spathes of rich colour; *A. S. Cyphertii* is a truly noble variety, and produces in great profusion immense spathes of fine colour, 6 inches in length by 4 inches in width, borne on flower-spikes from 18 inches to 2 feet in length. *A. S. Wardii* has also a splendid form.

All these varieties will grow well in a temperature from 55° to 65°. They should be placed in a shady part of the house and kept well watered at the roots during the summer months, although in the winter water need not be given them unless they are getting dry. They should also be syringed, but this must be withheld during the flowering time. In fine weather plenty of air should be given them, and the injurious effect of the fierce rays of the sun can be checked by light shading, but as soon as the sun has disappeared the shading should be removed. When the plants are making young growths, and also while they are throwing up flower-spikes, the greenfly often proves very troublesome, and in order to prevent the damage they do it is necessary to smoke the house very moderately for three nights in succession when occasion requires it. Heavy smoking, which often does more damage than people are aware of, should at all times be avoided, and three moderate smokings is far better for the plants than a single night of heavy smoking. The present is the time for potting these varieties, and they will grow in almost any soil, but they will last longer in good health and produce a greater quantity of roots when potted in the following mixture of soil, viz., half good fibrous peat, quarter turfy loam, and quarter river sand, to which should be added a small quantity of finely chopped sphagnum moss, a little charcoal broken into pieces of Walnut size, and finely broken potsherds or ballast, or a little broken sandstone. In potting these plants their crowns should be kept about an inch above the level of the pots rims, and the soil must be very firmly pressed around the plants.

#### FROM SEED.

If large quantities of the plants are required they can only be obtained from seed, but as purchased seed is not always to be depended upon, occasional fertilisation becomes necessary. In doing this a fine brush should be drawn up and down the spadix to ensure a large quantity of seed. As soon as the seed is ripe it should be sown, first, however, separating it from the glutinous substance surrounding it. Well

drained pans filled with the soil above given sifted and rubbed through a  $\frac{1}{4}$ -inch sieve should be prepared for the seed. The soil should be solidified and levelled by a good watering, and should be allowed to stand for an hour before the seed is sown, which should be done lightly and on the surface. The seed-pans must be placed in a cutting case or frame upon a gentle bottom-heat, watering them as soon as dry and shading them from the sun, and for an hour each night and morning air should be given them. As soon as the seeds have germinated, and the seedlings have grown an inch in height, they can be taken from the cutting case and placed upon the open bottom-heat, where they should remain for about eight days to harden them for potting. After potting them separately into small thumb-pots in the soil above-named they must be well watered and placed in a good warm growing house upon a moist shelf on a front platform. The pots should stand on an inch of river-sand or sifted ashes. The plants should be sprinkled night and morning with a fine rose pot, and as soon as they are strong enough they can be potted into small 60's, but whenever they are potted the crown of the plant should be kept about an inch above the top of the pot. The plants in 60's must be kept well watered at the roots, besides being lightly syringed twice daily, and on every fine day a good supply of air should be given them. They should be treated in this way until they are strong, when they should be potted, the strongest in large 48's, and the rest into small 48's. After well watering them replace them upon the platform, and as they grow stronger more air should be given them. They can be potted into larger sizes as occasion demands.

There is another way of increasing Anthuriums—i.e., by cutting a piece about 1½ or 2 inches long out of the top or trunk of the plant; care must, however, be taken to see that each piece so cut out has two or three roots upon it. Pot up the pieces, putting a little sand at the bottom of each piece, which should also be kept in its place by three sticks to which the three strongest leaves should be tied. When they have been well watered place them upon a gentle bottom-heat in a close warm house, but as soon as they have well rooted they should be removed to a cooler house. With regard to the old plants that were cut down, a little dry sand should be placed on the new cut for three or four successive days, in order to prevent the sap from exuding, and then put a stick to the middle of each plant, looping up to it three of the principal leaves. These also form good stock plants, for they are continually throwing up young growths from the base, which can be taken off and potted in the usual way. *T. O.*

(To be continued.)

## Orchid Notes and Cleanings.

### ORCHIDS AT LYTHE HILL.

ON visiting Mr. Evans the other day at Lythe Hill, the beautiful seat of J. Stewart Hodgson, Esq., I saw some fine Orchids in bloom of the following species:—*Vanda insignis*, *V. tricolor*, *V. suavis*, Veitch's variety, the latter splendidly furnished down to the pot, having twenty-five pairs of leaves upon it in good condition, the leaves being beautifully green; *Phalenopsis violacea*, *P. Schilleriana*; *Cypripedium Harrisianum*, several flowering double; *C. barbatum*, *C. barbatum nigrum*, and a very handsome plant of *C. Sedeni*, measuring over 3½ feet through, it having sixteen beautiful branched spikes of flowers on it; *C. Spicerianum*, in the same house, was doing well. Of *Calanthes*, which are grown very extensively, being much employed for dinner-table decoration, there really was a grand display—upwards of 250 spikes of flowers; some of *C. Veitchii*, measuring 4 feet long; among them were some grand dark varieties. They were tastefully arranged with foliage plants, which gave them a very pretty effect. *C. vestita lutea oculata* and *C. Turneri* were just showing flower. *Pilumnus fragrans*, *Maxillaria maculata*, *Lycaste Skinneri*, *Odontoglossum grande*, *O. Roezlii*, *O. Rossi majus*, *O. Alexandræ* were finely in bloom. Some fine types of these with large flowers and broad lip much barred and fringed were seen, one having a spike of fourteen fully expanded flowers. I noticed also a variety with a narrow lip nearly white, part of an importa-

tion by Messrs. Veitch some fifteen years ago. *Masdevallia bella*, *M. tovarensis*, *M. amabilis* were growing in a cool house with the *Odontoglossums* and doing well: they will shortly make a good show. Some fine pans of *Coelogyne cristata* will be open soon, *C. ocellata* and *C. intermedia* just showing. There were some good plants of *Sophranites grandiflora* also in bloom. The whole were in good health, and doing Mr. Evans great credit as an Orchid cultivator. *W. L.*

#### CATTLEYA DOLOSA.

I see that Mr. O'Brien says that *Cattleya dolosa* has yet to be introduced; that all that have hitherto been sold have been varieties of *C. Walkeriana*. This is true, I think, of those lately imported; but the plant sold some years ago as *Cattleya* sp. from Minas (and which until lately was labelled at Kew *Lælia minus*) is, I believe, *Cattleya dolosa*. It has long upright bulbs, and flowers from the full-grown bulbs, and not, like *C. Walkeriana*, from small flowering bulbs. The *Cattleya* from Minas grows freely with me, but has only once flowered. I sent the flower to Prof. Reichenbach, and he named it for me *Cattleya dolosa*; and the plant at Kew is the same as mine, but I do not know that it has ever flowered. *C. W. Strickland*.

#### BARKERIA ELEGANS.

Mr. Bateman, in his magnificent work on the *Orchidaceæ of Mexico and Guatemala*, refers to this, the rarest of all the *Barkerias* as "among the most refractory of the tribe. To maintain it alive is all that the utmost skill of the cultivator is usually able to accomplish." (See note under *Barkeria Lindleyana*, plate 28.) A plant of the true *B. elegans* is now in flower with Mr. Phillbrick, Oldfield, Bickley [and shown at the Royal Horticultural Society on Tuesday last], where it has been grown the last year or two with others of the genus, and treated in the manner described in the *Orchid Album* for 1884 (type 148) under *Barkeria cyclotella*, figured from the same collection. In the *Gardeners' Chronicle* for July 12 (vol. xxii., n.s., p. 44), we gave an extract from some notes on *Barkeria* cultivation supplied by Mr. Phillbrick. The plant that has in recent years been frequently taken for *B. elegans* among cultivators is really *B. Skinneri*, a very different and far smaller flower, by no means so striking in appearance, and not uncommon in collections. Once seen the true *B. elegans* can never be mistaken: it thoroughly justifies its appellation as the most elegant and chaste of the genus. It is extremely rare in its native habitat, Guatemala, where it is found growing with *B. cyclotella* and *B. Skinneri*. The slender pseudobulbs are from 9 to 12 inches in length, and the leaves narrower than in the two last named species; their colour is pale green, and the growth and habit generally less robust. The flowers are formed in a spike at the end of the new growth, and are fewer in number than in other *Barkerias*. The individual flower when expanded measures about 2½ inches across, the sepals and petals are light, suffused with a tinge of pink. The labellum is of the purest white, with a large central spot of the richest crimson. The upper surface of the column is densely spotted with small crimson spots, and its anterior part touched with yellow. The colouring is puce and beautifully distinct, rendering it one of the most attractive of this charming family. In Williams' *Orchid Growers' Manual* two varieties, "one not so good as the other," are mentioned, but the description of the sepals and petals as "dark rose, lip edged with a lighter colour," hardly corresponds with the specimen now in flower with Mr. Phillbrick, but there can be no question Mr. Williams rightly says this is "the finest of the genus, and very rare." It must be matter of regret to Orchid growers that this plant is so rare, and still more that it should prove so intractable under cultivation. Mr. Heims, the head gardener at Oldfield, may well be congratulated on his success with *Barkerias* generally, and especially with this lovely variety.

#### LÆLIA AUTUMNALIS.

At the present time there is a very fine specimen of this beautiful Orchid flowering in the Victoria Nurseries of Mr. B. S. Williams. It has 450 pseudobulbs and twenty-four flower-spikes.

#### ODONTOGLOSSUM VENILLARIUM SUPERBUM.

A splendid variety, flowered in Sir Trevor Lawrence's collection, and figured in the *Orchid Album*, t. 171. The flowers are deep in colour, especially the lip, which is deep rose with a basal blotch of a lozenge shape, and deep magenta-purple.



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Jan. 19	National Chrysanthemums Society's Annual General Meeting, "Four Swans" Hotel, Bishopsgate Street.
		Sale of 5000 <i>Lilium auratum</i> and other Bulbs, at Stevens' Rooms.
WEDNESDAY,	Jan. 21	Sale of Lilies, Roses, and Irises, at Protheroe & Morris' Rooms.
		Sale of Roses, Fruit Trees, and Hardy Plants and Bulbs, at Stevens' Rooms.
THURSDAY,	Jan. 22	Sale of Imported Flowering Orchids, at Stevens' Rooms.
		Sale of Imported Orchids, at Protheroe & Morris' Rooms.
FRIDAY,	Jan. 23	Sale of Natural History Specimens, at Stevens' Rooms.
		General Meeting of the Royal Botanic Society of London, at 3.45 P.M.
SATURDAY,	Jan. 24	Sale of Hardy Plants, at Stevens' Rooms.

THE annual meeting of the GARDENERS' ROYAL BENEVOLENT INSTITUTION was held on Wednesday last at the Bedford Hotel, Covent Garden, EDWARD TIDSWELL, Esq., Treasurer, in the chair. Strictly formal in its character the report of the committee and the satisfactory balance-sheets were read and adopted with unanimity. The election of the Duke of WESTMINSTER, K.G., as President, in place of the late Duke of BUCCLEUCH; of GEORGE LAMBERT, Esq., as Vice-President; of Mr. TIDSWELL as Treasurer; of Messrs. LEE, WILLARD, and MESTON as Auditors; of Messrs. JOHN LEE, B. S. WILLIAMS, CHARLES PILCHER, THOMAS MOORE, ALEX. T. DICKSON, and WILLIAM RICHARDS, new members of the Committee of Management; and of Mr. CUTLER as Secretary for the forty-fourth consecutive year, was voted with like unanimity. Three claimants, having fulfilled all the requisite conditions, were made pensioners by right, under Rule No. 6; and eight others, standing highest on the list, were also admitted to supply vacancies created by the decease of former pensioners, by a plurality of votes. It is a fact worth mentioning, that several voting papers were rejected, and properly so, because they were not signed, or for some other informality easily avoided by a little care.

The report touched on the principal events of the year, the success of the annual dinner, the efforts made to secure a reserve fund sufficient to secure the increase of the pensions, and a sub-committee was appointed to make such revisions of the rules as were necessitated by the successful result of the efforts made to increase the income of the Society. Bald as this statement is, it must be considered eminently satisfactory. The principal points on which the Institution may fairly be congratulated are the munificent donation of £500 by a gentleman who desires to preserve his *incognito*, and the success of the efforts to increase the pension fund. It is specially satisfactory to know that the munificence of the anonymous donor has been productive of good that cannot be measured by the amount of his donation, large though it be. He has been the means of stimulating the gardeners themselves to renewed efforts, and has done much to remove the stigma that the gardeners themselves, as a class, were apathetic in supporting an institution from which they alone derive benefit. Having watched the way in which the business is conducted, the manner in which the books are kept, conversant with the untiring energy of the Secretary, the whole-hearted way in which the Committee does its duty, and the absolute impartiality with which the claims of the applicants are dealt with, we are in a position to commend the Institution to the continued support of the gardeners. Its power of continuing its good work and specially its ability to afford its benefits to a larger number of applicants, depends essentially on the increase of its regular subscribers. Spasmodic efforts are very valuable for specific purposes, but for steady growth and power to meet the constantly increasing demands made upon it, steady persistent support is needed, and this we earnestly hope will be forthcoming. Any gardener may need its help, whether he get it or not depends almost entirely on his own exertions and forethought.

Subscribers who are gardeners have the satisfaction of knowing that on fulfilment of certain conditions they have a right to demand the help the Society can give. Those who do not, and possibly never will, require its assistance have the unspeakable comfort of knowing that they have done their best to help their less fortunate brethren.

— THE OXFORD BOTANIC GARDEN.—This old garden has charms which attract all visitors; its beauty, its history and associations, all combine to give it a unique position among similar establishments. On another occasion we purpose to give a fuller account of this memorable garden. For the moment we content ourselves with giving an illustration of the Water-Lily house (fig. 17), a light structure of iron, with ridge-and-furrow roof, which was erected during the professorship of the late Professor DAUBENY. Here Mr. BAXTER has for many years past succeeded in maintaining an almost complete collection of Nymphæas, Nelumbiums, and other stove aquatics which yield to no rivals in beauty and interest. All the Nymphæas are beautiful, and many of them so easily cultivated that it is surprising we do not find them more generally cultivated. On these and other matters we defer further comment.

— WHAT IS AN AMATEUR?—This question received a fresh answer at the hands of the committee of the National Auricula and Carnation Society the other day. According to their ruling an amateur is one who does not in any way advertise his plants for sale, nor, indeed, sell them at all—with the exception of seedlings raised by himself. In the abstract we should exclude any one who sold his produce, but in practice this strict definition, it is said, would work injuriously. But inasmuch as a recognised dealer sells seedlings raised by himself we fail to see wherein a so-called amateur who does likewise can lay claim to the privileges he demands as an amateur.

— A CONSERVATORY FOR HAARLEM.—Our horticultural friends, the Dutch, with that deep appreciation of the useful and the cheap, sometimes find it of advantage to come to this country for garden structures, especially if these be of iron. We are reminded of this by Mr. A. GRAY, of Danvers Street, Chelsea—the successor and son of JAMES GRAY, whose decease was noticed in our columns a little over a year ago—sending us a section of two fine domes which the firm is erecting for a gentleman at Overveo, Haarlem; these are intended to form the ends of a rectangular orangery and plant-stove of 200 feet in length and 35 feet in height. The construction is exceedingly light-looking and elegant in appearance, which is still further enhanced by doors having an outside porch; the latter is a feature worthy of copying even here; the outer one being shut on entering prevents the injurious admission of cold air into the house on opening the inner door. The ribs are of rolled iron, inserted into a cast-iron wall-plate, the wide spaces between the ribs being filled with straight sheets of glass. From this it will be seen that although the general form of the ribs is that of the segment of a circle, such is not really the fact, as each is bent obtusely at long intervals to accommodate the straight glass. The means of ventilation are both ample and ingenious.

— ROYAL HORTICULTURAL SOCIETY: *The Certificates*.—It seems desirable that the nature of the certificates awarded should be more strictly defined. At present a First-class Certificate may mean a number of things: it is given to a promising novelty, it is given to a meritorious old acquaintance, it is given to a Pelargonium, possibly a little better than hundreds of others of similar character; it is given, or perhaps not given, to a plant whose merits are of a totally different character. It would seem preferable to give a Botanical Certificate to new introductions, a First-class Certificate to praiseworthy varieties of old plants, "Cultural Commendation" to old or new when called for, Votes of Thanks to meritorious exhibits of whatever character, and simple acknowledgments to exhibitors who take the trouble to send exhibits of a character that will not entitle them to higher awards. At present a Botanical Certificate is looked on as inferior in repute to a First-class Certificate. This is not right.

If anything a new plant of merit should rank higher than a good variety of an older plant. The certificates are adjudged too much from the point of view of commerce and fashion. So far as possible they should be awarded to abstract merit apart from commercial or fashionable considerations, or, if this is asking too much of human nature, at least the Botanical Certificate of first or second class should take equal rank with ordinary first or second class certificates. New plants of whatever character should be adjudicated upon by a special sub-committee after careful examination. This sub-committee they be told off to do its work and to report to the general body, who should confirm the verdict of the special sub-committee or otherwise as seems best. Much, very much, depends on the action of the managers of the shows, and specially of the chairman of the day. A miscarriage on the part of the committee is as often as not due to the omissions or inadvertence of the chairman.

*The Committees*.—While attention is being attracted to the composition of these bodies it is only right to remember the difficulties that lie in the way of selection of fit persons. The Society is in no position to be able to pay its committeemen, and consequently those who serve have to sacrifice a half, or, it may be, a whole day, and to bear their own expenses. It follows from this that many most competent and desirable members, who live at a distance, are precluded from attending, and thus the choice of members is seriously limited.

*Names of Plants*.—Much greater stringency should be exercised by the committee in the matter of names. In the case of Botanical Certificates no award should be given till the Scientific Committee, or a sub-committee specially appointed for the purpose, has verified or ascertained the correct name, or, where that cannot be done, has agreed to some suitable provisional name. In the case of First-class Certificates the Society should exercise the right it has of rejecting unsuitable or inappropriate names, and of conferring amended names, under which latter alone the plant should be certificated. If the owner choose to retain the name of his own adoption there is nothing to restrain him, but the Society should be responsible only for names approved by itself. A sub-committee to consider the question of nomenclature, and to draw up general rules, should be appointed.

— THE COMMITTEES OF THE ROYAL HORTICULTURAL SOCIETY.—The first meeting of the present year was held in the conservatory at South Kensington on Tuesday. The members of the old committees mustered in force, the new committees not having yet been appointed. Section A, and Section B, of the Floral Committee were amalgamated, under the Chairmanship of Mr. WILSON, so that the dual control is a thing of the past. An announcement was made that the Council had acceded to the request of the committees and conceded the very important matter that the committees themselves should suggest certain names each year to fill up vacancies, instead of the selection being left wholly to the Council.

— THE NATIONAL CHRYSANTHEMUM SOCIETY.—A general meeting of this Society will be held on the 19th inst. at the "Old Four Swans," Bishopsgate Street Within, City, E.C., when E. SANDERSON, Esq., will take the chair at 7 o'clock. The above Society is making an opportune endeavour to get country and local Chrysanthemum Societies to become affiliated branches of this the first in rank of the metropolitan societies, and in furtherance of this object circulars have been issued, which contain the proposed general conditions of such affiliation. One of these is, that such societies will have three different classes of medals—Gold, Silver, and Bronze—placed in the desired numbers in their hands to be disposed of for Chrysanthemums, cut blooms, and specimen plants only; another condition being the payment of an annual affiliation fee of half-a-guinea.

— A NEW RAFFLESIA.—A flower of a newly discovered *Rafflesia*, from Mindanao, one of the Philippines, is figured in the *Gartenflora*, t. 1177, now edited by Garten-Inspector STEIN and Professor ENGLER. The species was named by the late Professor GOEPFERT, in honour of its discoverer, Dr. SCHADENBERG. The flowers are parasitical on the roots of *Cissus*, each nearly a yard across with a somewhat five-sided, fleshy, short tube, from the sides of which emerge five oblong obtuse, strongly reflected segments of a purplish-brown colour, thickly warted



with fleshy prominences. In these days of rapid transit we may fairly hope to see these vegetable monsters occasionally in our stoves. A figure of one was given in our columns, p. 91, vol. xxi., 1874. Though one of the wonders of the vegetable world we doubt if the Floral Committee would grant it a First-class Certificate.

— *ALOCASIA GUTTATA* VAR. *IMPERIALIS*.—Some years ago Mr. BURBIDGE introduced for Messrs. VEITCH the type of the species. Latterly a very handsome variety has been introduced by the Compagnie Continentale of Ghent, in which the leafstalks are of a deeper green, the limb of the leaf is rather more obtuse, blackish-green above with a

root as they extend over the damp surface. A loamy soil, with a good admixture of sand and leaf-mould, will grow it to perfection. Pans might be filled in spring with rooted cuttings, and kept in the shadiest part of a cold frame, and covered with a hand-light or bell-glass to preserve a moist atmosphere. It might be removed to a cool-house in winter together with the hand-light. So treated at Kew it lasts for months in perfect condition, and may be seen in the Heath-house. Without this protection the clear white variegated margins of the leaves soon get discoloured and lose their attractive appearance.

— *ASTRÆA WALLICHII*.—The huge heart-shaped leaves of this plant being evergreen are always

an interesting report from the Conservator of Forests in South Australia has been laid before Parliament on the question of the cultivation of Olives, Dates, and white Mulberries for sericulture. The different kinds of Olives flourish in almost every part of the colony, and are very profitable. The Date Palm, *Phoenix dactylifera*, also grows well; a hundred trees are also growing well in Adelaide, and though fruits have formed, it is stated that they have not ripened. The reporter considers, however, that this will probably be obviated further north, where the climate is hotter, and suggests that the *employés* on the Overland Telegraph line should make experiments in planting the Date Palm. The white Mulberry grows splendidly in many places. The extensive planting



FIG. 17.—THE WATER-LILY HOUSE IN THE OXFORD BOTANIC GARDEN. (SEE P. 84.)

large pale green triangular spot between some of the lateral nerves (not shown in the coloured plate in the *Illustration Horticole*, tab. 541). The lower surface is uniformly purple. The plant was exhibited at the recent International Horticultural Exhibition at St. Petersburg, where the Emperor was so struck with its magnificent appearance that he requested that the plant might be dedicated to him. The coloured figure hardly done justice to the description.

— *SIETHORPIA EUROPÆA* VARIEGATA.—When the conditions are favourable, this charming variety of a native weed cannot fail to give a great amount of satisfaction with a minimum of trouble. In a wild state the type is scattered about in a few localities in the southern part of the country, as well as South Europe and the Azores. It loves a moist, shady place, where its slender trailing stems may

conspicuous amongst a mixed collection of stove plants. Although by no means a tall plant nor a rapidly growing one, it is best suited for a large house on account of the bulky nature of its foliage. Being a native of Madagascar it enjoys a warm atmosphere, and flowers annually in the Palm-house at Kew, in association with Cycads, the various species of *Clavija*, and its near allies the *Sterculias*, one of which, *S. mexicana*, has been flowering for weeks. The rosy flowers of the *Astræa* are collected in involucre heads which are pendulous at the end of slender axillary peduncles. According to the *Genera Plantarum*, it is a species of *Dombeya*, and associates easily with that genus. It is figured in the *Botanical Magazine*, t. 2503.

— NEW CULTURES IN SOUTH AUSTRALIA.—A recent number of the *Colonies and India* states that

of all these plants is recommended as a means of transforming some of the arid places in the north into oases, thereby increasing the production of the colony generally.

— CLOVER AND GRASS SEEDS.—The annual circular issued by Messrs. HURST & SON, of Houndsditch, shows that in nearly all the producing districts large breadths of English red Clover and Cow-grass have been saved, and judging by what has already been marketed the yield per acre is perhaps above the average. The seed generally is well ripened, showing good colour, but is, probably owing to the drought, small in grain. Fine bold samples of unmistakable English seed are decidedly scarce. Large crops of foreign red Clover have been matured in France and Germany, but, like the English, it is small in grain, and very full of weed also especially the supplies



from France. The American crop is reported large, but any superior samples have not, as yet, come to hand. The Canadian crop is small; and it is doubtful whether, after supplying their own requirements, the growers will be able to export any to this country. Taking into account the large yield of English grown seed, foreign seed will not be needed to the extent usually required, and prices all round should rule moderate. The crop of English white Clover is a fair one, but not so large as last year, in quality it is exceptionally fine and bright; on the other hand the German crop is reported as above the average, and prices are opening moderate in tone. Some very clean stocks have come to hand. There is a good crop of English Alsike, but it is of medium quality only; and large Continental harvests will keep prices within a moderate range, but the quality is much finer than for some years past. Of Trefoil the English crop is not large, but good in quality. The foreign samples are characterised by very fine quality, and are opening at extremely low prices. Of Lucerne but a short crop is forthcoming from Provence, but it is good in the more northern French districts. Prices will be about the same as last year. Sainfoin is represented by a moderate crop of good quality from France, and a larger of Giant in England, but that of common Sainfoin is reported as a short one. The French crop of Italian Rye-grass is barely an average one in yield, and generally of inferior quality; superior upland grown samples are scarce, and command advancing prices; the English crop shows about an average of heavy seed; the produce from Ireland is represented by a large crop of good weight per bushel. There is an abundant crop of perennial Rye-grass in every district. It is doubtful if these grasses have before been so low in price. The heavier weights, being so much to be preferred because so much cleaner, are really proportionately cheaper in price, and should cause a great demand to be made for them, so that before the end of the season it is pretty certain their value will be increased. On the other hand, in the matter of natural grasses many varieties are as scarce and dear as they have been for several years past, so much land having been seeded down during the past few seasons that the supply of some of the finer grasses is barely equal to the demand. As large a demand is anticipated this season as last, and there are good samples of the true *Alopecurus pratensis*, *Anthoxanthum odoratum*, *Avena flavescens*, *Cynosurus cristatus*, *Dactylis glomerata*, *Festuca pratensis*, *Poa pratensis*, *P. nemoralis*, and *P. trivialis*. Of white Mustard there is an average crop of good quality, but of Rape a very small crop: fine samples of genuine English growth will be both scarce and dear.

— **LILIUM MARTAGON.**—The *Gartenflora* notes that a plant of this Lily at Eisenach, last year, produced forty-eight flower stems, each with fourteen to eighteen flowers, so that the total number may be estimated at 720.

— **EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY.**—This society celebrates its majority during the present year, having held its first exhibition in 1864. A specially extensive and attractive exhibition will be held during the second week in July, and by the kind permission of Sir NATHANIEL DE ROTHSCHILD, Bart., M.P., and his brothers, it will take place in the beautiful grounds of Gunnersbury Park. This is the first time these famed grounds have been used for such a purpose, and a very large attendance may be anticipated.

— **WILL OF THE LATE GEORGE BENTHAM.**—According to the *Illustrated London News*, the will (dated August 17, 1883), of Mr. GEORGE BENTHAM, late of 25, Wilton Place, Knightsbridge, who died on September 10 last, was proved on the 11th ult. by Sir JOSEPH DALTON HOOKER and the Right, Hon. Sir NATHANIEL LINDLEY, the executors, the value of the personal estate amounting to over £23,000. The testator bequeaths £8000 to Madame WALLON, the granddaughter of his late sister; £2000 to Sir H. J. J. BRYDGES, Bart., the brother of his late wife; £1000 each to the Linnean Society of London and the Royal Society Scientific Relief Fund; and legacies to his executors, trustees, servants, and others. The residue of his real and personal estate is to be held upon trust to apply the same in preparing and publishing botanical works, or in the purchase of books or specimens for the botanical establishment at Kew, or in such other manner as his trustees

may consider best for the promotion of botanical science.

— **PRINCE ALBERT VICTOR'S MAJORITY.**—We hear that Messrs. WILLS & SEGAR, of South Kensington, had the honour of presenting to Prince ALBERT VICTOR, by permission of H.R.H. the Prince of WALES, a lovely bouquet, composed of Lily of the Valley, Parma and Russian Violets, Gardenias, and arching spikes of *Odontoglossum Alexandræ*.

— **GARDENERS' ROYAL BENEVOLENT INSTITUTION.**—The following are the names of the successful candidates who were put on the list of recipients of pensions from the above Institution on the 13th inst.:—W. BURKETT, R. HAWKINS, MARTHA SWANBOROUGH, G. URQUIHART, ANNA M. ALLAN, ELIZABETH FOULIS, ELIZABETH PARR, MARY RABBITT.

— **NATIONAL AURICULA AND CARNATION AND PICOTEE SOCIETIES (SOUTHERN SECTIONS).**—A meeting of the committees of these Societies was held at South Kensington on Tuesday last, SHIRLEY HIBBERD, Esq., in the chair. There were present: Dr. Masters, Dr. Hogg, Messrs. Veitch, Laing, Turner, B. S. Williams, James E. Hill, Cannell, Mr. Douglas, Secretary, and Mr. Rolt, Treasurer. The exhibition schedules of both Societies for 1885 were prepared and adopted, and judges appointed. The following regulations for the exhibitions were also adopted:—

1. An exhibitor can win one prize only in one class, except in the classes for seedlings, in which there is no limit; and in single specimens he may not exhibit more than two in each class, but may win two prizes with both exhibits.
2. At the time when the judges commence their work all persons present save the officers and their assistants shall retire from the exhibition. The decision of the judges shall be final.
3. All plants and flowers shown in the schedule classes must have been the *bona fide* property of the exhibitor, or his employer, at least two months previous to the date of the exhibition.
4. Plants and flowers submitted for certificates must be staged separately from collections, in a place allotted by the committee, and shall be adjudicated upon by the judges only, save that the judges may, at their discretion obtain the assistance of other persons in making their decisions.
5. No person shall be allowed to compete as an amateur who publishes a list of plants for sale, or who advertises them in any form whatever, with the exception of seedlings of his own raising.

The Treasurer was instructed to apply to Mr. E. S. DOBWEILL for a statement of the accounts of the two societies, and for a remittance of the balance of cash in his hands belonging to the respective societies.

— **STAMP DUTY.**—The attention of house agents, builders, and the public generally is called by the authorities to the law regulating the stamp duty on agreements for letting lands and unfurnished houses. Such agreements are chargeable, not, as is often supposed, with the uniform duty of 6*d.*, applicable to ordinary agreements under hand, but with the same rates of duty as if they were actual leases for the term and consideration mentioned, according to the following scale:—

		If the term is definite, and does not exceed 35 years, or is indefinite.	
		£	s. d.
Not exceeding £5 per annum .. ..		0	0 6
Exceeding—			
£5 and not exceeding £10 .. ..		0	1 0
£10 .. ..	£5 ..	0	1 6
£5 .. ..	£20 ..	0	2 0
£10 .. ..	£25 ..	0	2 6
£15 .. ..	£50 ..	0	5 0
£20 .. ..	£75 ..	0	7 6
£25 .. ..	£100 ..	0	10 0
£100 .. ..			
For every full sum of £50, and also for any fractional part of £50 thereof ..		0	5 0

Such agreements, if not drawn upon stamped paper, must be presented for stamping within two months after the date of the first execution thereof. After that time a penalty of £10 may be imposed. An unstamped or insufficiently stamped agreement cannot

be enforced in any court of justice, or before any arbitrator or other competent authority. A lease made subsequently to, and in conformity with, an agreement duly stamped is chargeable with the duty of 6*d.* only. Postage stamps cannot be used for stamping agreements for letting lands and unfurnished houses (other than dwelling houses, or any part thereof, for any definite term less than a year, where the rent does not exceed £10), but such agreements must either be brought to the Stamp Office to be stamped with the proper impressed stamp, or be left for that purpose at the office of a distributor, or sub-distributor of stamps, or of a postmaster.

— **LILY OF THE VALLEY.**—It is not generally known, even by gardeners, that the young plants of Lily of the Valley do not bloom until they are fully three years old, and even then the size and beauty of the blooms will depend on their having been well grown in the interval. They will not do much good if they be not separated from the mother plant and planted in well manured (cow manure) light soil in a warm sheltered place, and be kept watered during dry weather. That is one reason why crowns produce better blooms and foliage than clumps, and also why old Lily beds become productive of small blooms, and a great mass of crowded ill-developed young plants. Lily of the Valley that have once bloomed do not die, nor do the plants flower again for two years, hence the waste of time in forcing pots or clumps of Lilies the first and second years after blooming.

— **GARDENING APPOINTMENTS.**—Mr. JOHN STOCK, late of Cavendish Gardens, as Gardener to — MCKINNEL, Esq., Elm House, Clapham Common, Surrey.—Mr. J. DOWNER, late Fruit Foreman at Possingworth Gardens, Hawkhurst, succeeds Mr. DENCH as Gardener to Sir GEORGE R. PRESCOTT, Bart., Isenhurst Park, Cross-in-Hand, Sussex.

## GAS-LIME FOR WEEDS.

THAT the earth is mother of the weeds, but only stepmother to many of the plants cultivated on it, is a not inapt way of accounting for the healthy and abundant crops of weeds. The weeds are always with us, and only by watchfulness and much labour can they be kept under. It may be safely said that there is no work in which there is worse economy than in letting weeding run unattended to, want of the proverbial stitch in time causing need for nine is much more than realised in the matter of weeds if unchecked. Of the many plants that come under the category of weeds, when growing where they are not wanted, grass on walks, pebble pavement, and little used roads, such as many carriage drives through parks or other grounds, when the traffic, as it often happens, is not sufficient to keep the surface clean, becomes the most troublesome of weeds, for on roads of this kind, even where diligently weeded before the seeds have time to fall, there is an inexhaustible supply always coming from the land adjoining that makes it an endless task, only varied by the different means in different cases resorted to to destroy them. Those who have had anything to do with such work need not be told that hand-weeding of this kind is slow work; the use of hoe and rake is objectionable; salting, either with the dry article, or in the shape of scalding brine, is costly in labour and material; whilst the use of diluted arsenic or vitriol, in addition to the expense in material and labour, is objectionable in different ways. Where gas-lime can be had there is nothing that will be found more effectual, and, in most cases, economical, scattered on the surface in the way that salt is applied, and allowed to remain for about three weeks. It will not only destroy all the grass and weeds, but will also kill any seeds that may be present but not yet vegetated, in addition to which it will prevent any growing for a couple of years. After being allowed to remain long enough to kill the weeds the material may be swept up and used in the way of manure. It is scarcely necessary to say that the lime is more powerful in its effect for the purpose under notice when fresh than if it has lain for some time after it comes from the gas-maker. There may be some objection to the use of gas-lime in the manner described on account of its powerful smell, but even in the vicinity of a dwelling there are often times when it can be applied without giving annoyance through this cause, *T. B.*



# The Flower Garden.

## PREPARATORY WORK.

JANUARY is a month of preparation, and very much can be done to forward work throughout the year by careful attention to all that is requisite at this period. There is now much work that can be done if the weather keeps open, such as improvement in the grounds and all kinds of alterations, making new flower-beds and borders, and planting trees and shrubs, cutting out all dead wood and dying branches from similar subjects. Gravel walks can be turned, turf relaid and made good where required, new labels affixed to plants needing them. Attention to all these matters will save much valuable time in the busy season coming on.

## WINTER BEDDING.

Where the winter and spring bedding is not finished it should be completed as early as possible. I sub-join a list of plants used here, which have been much approved of. Evergreen shrubs have a very pleasing effect if planted in the centre of the beds; if trained into spiral forms, others as low bushes, they make a variation from that flatness which is often seen in flower gardens. The tallest and conical shaped shrubs should be planted in the centre of each bed, such as *Thuja aurea pygmaea*, *T. lutea*, *Cupressus erecta viridis*, *C. variegata*, and many other varieties. *Thuopsis dolabrata* and *T. borealis*, *Retinospora plumosa*, *R. nana aurea*, *R. ericoides*, *Aucuba variegata*, and many of its fine varieties, are most useful. *Berberis Hookeri*, *B. stenophylla*, *B. aquifolium*, the small-leaved Box, and the variegated kinds are very pretty and easily managed. Golden and Silver Yews, *Eunymus aurea variegatus*, *E. alba variegatus*, *E. radicans variegata*, and hardy Heaths, such as *Erica carnea* and herbacea. I then plant the following herbaceous plants, which keep the gardens gay till May—till the beds are wanted for summer bedding out:—*Helleborus niger giganteum*, *Myosotis dissitiflora* and *alba*, *Heptatica*, red, white and blue; *Iberis canadensis*, *I. semperflorens*; *Anemones* of sorts, and *Schizostylis coccinea*; Pansies, yellow, blue, and mixed; Violets, *Marie Louise*, *Victoria regina*, *Czar*; *Primulas*, double white, red and purple; *Ajuga reptans purpurea*, *Arabis albida*, *Aubrietia purpurea variegata*, *alpine Auriculas*. For edging the beds *Thymus aureus* and its varieties, *Sedums*, *Sempervivums*, *Saxifrages*, *Daisies*, red and white; *Pyrethrum aureum*. By edging all the beds with the small growing kinds a nice finish is ensured. The dark-leaved Beets, such as *Dell's dwarf*, mixed in the flower-beds, look very pretty amongst the other foliage plants. I save and use all the small ones from the kitchen garden.

## PROPAGATION.

Propagating pits should at this time receive every attention, so as to get a full stock of plants by the time they are required for summer bedding out. Such plants as *Heliotropes*, *Iresines*, *Lobelias*, *Coleus*, *Fuchsias*, *Petunias*, *Ageratums*, *Alternantheras*, *Pelargoniums* of all kinds required, may now be placed in warmed pits or houses, or any convenient heated place. *W. Smythe, Basing Park, Alton.*

## The Orangery.

### ORANGE TREES IN POTS.

I WOULD advise the culture of the Tangerine Orange trees in pots, even for those who have no other accommodation for them than that of a vinery and Cucumber-house. It is now quite time to start the trees in an early vinery, and no better place is available than this, especially if a bed of leaves and manure has been placed inside the house to afford a bottom-heat. The manure should not be used fresh out of the stables, but ought to be heated outside first to throw off the injurious fumes; over this the trees should be placed. They start into vigorous healthy growth, and soon come into bloom. By the time the Vines overhead shade them too much they ought to be removed into a house with a temperature of 65°. The earliest fruit will be ripe in September, and a succession will be obtained from the later kinds. Orange trees, if they once become infested with insects,

are not easily kept clean. It is much better to get them made thoroughly clean, and see that any further attempts of parasites to gain a footing on the leaves is frustrated in their first attempt. *J. Douglas.*



## Plants and their Culture.

### GENERAL REMARKS.

STOVE PLANTS.—Unless it be in cases of urgency, it will not be advisable to increase either the day or night temperatures beyond that recommended in one of our later Calendars (p. 782, vol. xxii.). Should the weather appear to be favourable for making a start in the way of repotting and other work preparatory to inducing the plants to commence a fresh growth, one should not be led away by these signs too soon in the New Year. We may yet have to experience some severe and trying weather, that will tend to check a healthy development of growth. This will be very prejudicial to most plants that have been recently potted, particularly those which have had their roots pruned and partially shaken out of their surrounding soil. It will pay in the long run to wait a while longer yet, as in a few more weeks the sun's rays will have greater warmth and will therefore be more conducive to a healthy growth that will far outstrip any temporary gain that has been obtained at a great cost in firing alone.

### GARDENIAS, EUPHARIS, STEPHANOTIS.

In urgent cases—such, for instance, as an early batch of *Gardenias*, *Stephanotis*, *Eupharis*, or the like—it will be far more expedient and economical to bring them forward in a forcing-pit by themselves, where a few extra degrees in the temperature can be maintained without much extra firing. In such a place the plants can be specially treated as regards atmospheric moisture and bottom-heat if needs be. If leaves and stable litter are used for a plunging material, clear tepid water would be all that is necessary for producing the necessary moist condition of the atmosphere; if tan or cocoa fibre are employed, then we would advise the use of manure-water for damping down with during the latter part of the afternoon, when no personal inconvenience would be experienced thereby. In these forcing-pits the maximum amount of light should be secured by keeping the glass in as clean a condition as is possible; in the most favoured spots this advice needs be followed out.

### COVERING MATERIAL FOR THE EXTERIOR OF HOUSES AND PITS.

Should cold searching winds or sharp frosts prevail, then by all means employ some covering material to regulate the temperature with greater accuracy, and to prevent the escape of moisture to a great extent. Mats are frequently employed for this purpose, and I have used such for many years; unless sown together, however, they are apt to be troublesome during stormy weather. Again, when several are joined, then there is the difficulty of drying them after having become wet. I am now giving trial to a far lighter covering, made of canvas of the required size; after ordering this it occurred to me that it would be far more durable if tanned before being brought into use; this I have had done, and so far I am very well pleased with this novel material, in place of the somewhat heavy and cumbrous mats. It is taken off and put on the range of pits with the greatest ease by employing a small wooden roller to wind it on. It absorbs but little moisture, and, lying close also to the glass, it is not nearly so liable to be penetrated by a keen cutting easterly wind to which we are much exposed. Its neatness, and the little room that it occupies when not in use, are of themselves sufficient to recommend its use for all forcing-pits and low houses with accessible roofs. There is also another point in its favour, viz., by inserting brass eyelets at intervals of 3 or 4 feet it can be secured by strings to the sides of the pit instead of lying on strips of wood, which, if not very carefully done,

break much glass, when such damage is most undesirable. It is not always advisable during mild weather to use this covering when darkness first sets in; but if at banking-up time there are any symptoms of a frost coming on before the break of day, it can be applied in a few minutes, and will thus guard against any rapid fall in the temperature of the structure. In covering up all warm pits into which there are no means of access without sliding down the top-lights to inspect the thermometer, some considerable care need be exercised not to allow the temperature to run up beyond its normal standpoint for the night. This will often occur if the heat in the pipes is not somewhat checked, resulting perhaps in a higher degree of heat during the night than is obtained by day; this we need hardly say should not by any means be allowed to occur. *J. Hudson, Gunnersbury House, Acton.*

## FRUITS UNDER GLASS.

### STRAWBERRIES.

A VERY suitable place to start Strawberry plants into growth at this season is a lean-to pit having a hot-water pipe or two running along the front of it, and in which there is room enough to put a sufficient quantity of fermenting materials to generate a little warmth. This bed should be made up so that when the plants are stood upon its surface they will be up near the glass. Under such conditions, with very careful attention to watering and airing, so as to let the plants start slowly, they will flower vigorously.

At this period it will be advisable to remove them to a place where more air and a rather drier atmosphere exists, in order to get them to set freely, after which the fruit should be thinned out to about eight on each plant, and be accelerated with more heat, if necessary, to get them ripe at the earliest period. For very early work I prefer *Vicomtesse d'Éléricat de Thury*, as being the best if quality is considered. Advanced plants which are placed on shelves in forcing-houses will need daily attention in the way of watering, syringing, &c.; the latter operation is most essential in dry places to keep the foliage clean and as far as possible to check the depredations of the red-spider. The general stock of plants will need to be looked over occasionally and watered.

### COLD FRAMES

unquestionably afford the best winter quarters for these plants, provided they are freely ventilated whenever favourable weather prevails, and the lights put on when heavy rain, snow or frost abounds. When a good set of fruit on the plants is secured, the fruit will advance and finish off in any place with a reasonable amount of heat; at the same time, for the sake of quality, they should be more or less ventilated every day. Successional plants in pots should have a low night temperature of about 45°, or 50°, with a slight rise by day, with air admitted at the same time.

### MELONS.

To have these ripe in May the seeds should be sown at once in a place where the temperature will range from 70° to 80° constantly. They can be sown either singly in small pots, or together in large ones; in this case the plants must be potted off when they are fit for the purpose. At this season Melon plants are excessively tender, and require careful treatment to secure sturdy plants. After the seeds are sown they may be induced to vegetate and make growth more speedily by being plunged in a fermenting bed; but unless this can be arranged to be pretty near the glass they had better be raised altogether on a shelf in a clean, moist pit close up to the glass, as the additional time required this way will be more than compensated for in the character of the plants. It is very important—in order to avoid disappointment—to have seed true to name, especially in regard to the early batch of Melons; as time is of consequence seeds should therefore be taken from true stock. As a rule the old green-fleshed strains are infinitely superior in quality to the scarlet ones; this should be a consideration in making choice of kinds, as a bad-flavoured Melon is not equal to a good Turnip to eat. For early work *Victory of Bath* and *Eastnor Castle* cannot well be surpassed for sowing now, when all points in connection with them are considered collectively. *Hero of Lockinge*, a white-



fleshed kind, is also to be recommended. Scarlet varieties at this time I discard altogether. Moderately stiff yellow loam is most suitable for Melon culture; if this was properly stacked up last autumn it will now be fit for use, and can be taken from the heap to where it is wanted. For early plants an addition of sharp sand and horse manure from a spent Mushroom-bed to the extent of a third will be beneficial. *G. T. Miles, Wycombe Abbey Gardens.*

## The Hardy Fruit Garden.

PRUNING, nailing, staking, and planting are the operations mostly requiring to be pushed on in this department. Where orchard trees are to be planted no time should be lost in getting the ground prepared, so as to be able to take advantage of the first favourable opportunity for planting. I prefer using a rod 21 feet long for measuring the distance between the trees on grass land. This distance allows ample space on such land, as it is most important not to have the trees crowded. Good stakes should be placed to newly planted trees: Larch stakes are to be preferred for this purpose, as these will last for a number of years.

### BUSH FRUIT.

Gooseberry bushes may now be pruned, always bearing in mind that the largest berries are produced from young shoots. I am well aware that good crops can be produced by cutting these hard back to one or two eyes. I have even seen the young shoots clipped over with the hedge shears and heavy crops produced. To those who are much troubled with small birds I would recommend this plan to be tried.

There are many plans adopted for keeping sparrows, &c., off bush fruit trees, where they do much damage at this season of the year. One of the simplest plans I know of is to have a good supply of fresh lime and soot, well mixed up together, ready to be applied the first dull, damp morning. My plan is to throw it all over the bushes when they are damp. This not only keeps the birds away, but is a good manure for the bushes. Apples, Pears, and Plums are often dressed in the same manner. Black Currants should only have any badly placed shoots cut away, no shortening of the young wood being necessary. Red Currants are all the better for having some young wood left at pruning. Where large fruit of Raspberries are desired but few bearing shoots should be left to each root, say from two to three; these may be cut to 4 feet high. There are various ways of training these; some prefer stakes, others tie them to rails, &c. I have not used either for years, merely thinning out the shoots and cutting those left back to about 4 feet high; by this means good crops are always secured.

Vines on walls should now be pruned, for if left too late they are apt to bleed, which should be avoided if possible. Filberts should have all suckers cut clean away, or, better still, pulled off; and when they have become crowded thinned out. *J. Smith, Mentmore, Bucks.*

## The Orchard House.

### GENERAL CONDITIONS.

I HAVE made no allusion to this matter since November 1 (p. 559 of vol. xxii.), nor has it been necessary to do so, as the trees have mostly been out-of-doors, with the pots plunged to the rim in cocoa-nut fibre refuse. We have now arrived at the period when active operations must be commenced, especially if one of the houses has to be forced. In November instructions were given to have every part of the house clean. The pots and trees should also be thoroughly cleansed.

### STARTING THE TREES.

It is now quite time to start the trees with a little heat. It will not do to start them too rapidly at first, 40° to 45° will be quite enough, with from 5° to 10° more by day. If the trees were also forced last year, the buds will swell rapidly, and the trees will be in full blossom by the middle of February. At this season of the year the blossoms will not set well, unless care is taken to keep up a dry atmosphere with the air cir-

culating through the house freely by day, and the ventilators open a little all night. Unless the frost should be intense, a little air on at night will not be injurious even if the temperature falls 10° below the freezing point. Of course the temperature can be kept up by artificial heat.

### FERTILISING THE BLOOM.

Now is the time to warn those in charge of Orchard or Peach-houses of the necessity of fertilising the blossoms, crossing the flowers of a shy setting kind, such as the golden variety, Exquisite, with the pollen of such as Royal George, Bellegarde, &c. Walburton Admirable and Barrington are both shy setters during unfavourable weather. In *The Orchard House*, by Mr. Rivers, the author says, "give the trees a rap with a stout stick." This certainly disperses the pollen, but unless care is taken the bark is bruised and gum exudes, to the serious injury of the trees. It is easy to shake the trees by tapping the main branches with the fingers. A very slight shake distributes the pollen.

### WATERING.

It is also necessary to allude to watering the roots of the trees, especially those that were top-dressed. The rich surface compost is easily wetted, and it does not dry very rapidly; there are but few roots in it, while the old compost underneath is as hard as a cricket-ball and a mass of fibrous roots. The cultivator must make sure that his roots underneath are sufficiently moist. Trees that were repotted in the autumn will not suffer from careless watering because it is easier to see when they are dry. I advise that houses be well fumigated with tobacco smoke before the blossoms open. *J. Douglas.*



## The Kitchen Garden.

### FORCING DEPARTMENT.

As the management of forcing frames, heated by hot-water pipes, requires in many respects different treatment from those heated by fermenting materials I will describe clearly the cultural methods to be followed in each case. It is advisable (at any rate for a time) to treat them under two distinct headings. There are a few places where frames heated by hot water have been erected specially for the culture of early vegetables, and they are quite necessary if high-class vegetables are required by the earliest date possible. After the first outlay the annual cost is not much. Considerable labour must be employed to get early produce in frames by the aid of stable litter, such as making up linings and placing abundance of night protection on the glass before the gardener can feel assured his early Potatoes and French Beans are safe.

### HEATED FRAMES.

The occupants of these will be mainly Beans, Peas, Potatoes, and Asparagus. French Beans in bearing should receive occasionally a soaking of tepid liquid manure; airing must be done carefully during the morning; syrioging with chilled water, and closing with sun-heat, and guard against dry places beneath the pipes, which will quickly develop red-spider. Beans will bear freely at a temperature of 60° to 65° during the day and 55° to 60° at night, or even warmer if Beans are wanted quickly.

### PEAS

will not stand high temperature. They must be forced very steadily, maintaining a circulation of air day and night and the lights drawn clean off on favourable days.

### FRAMES WITHOUT HOT WATER: CARROTS.

A hot-bed should now be prepared for these, and after the rank heat has passed off place 1 foot of nice light soil on the bed, and when this becomes warm sow the seed broadcast and fairly thick; it is better to spend a few hours thinning than to be disappointed with a miserable half crop. Sandy soil is best for Carrots. Make the bed firm before sowing, and after the latter is done and the seed covered pat the soil over with the back of a shovel.

### RADISHES

commencing to show the rough leaf should be thinned.

### POTATOS.

Water must be given carefully until the young tubers commence forming, they should then receive a good watering, but only sufficient should be given to just penetrate the soil, so that the bed beneath does not become saturated and cold. Water should be given at a temperature of 65°. Earth-up when 6 inches high. A second or third frame should now be got in readiness for planting. Arrange to have the sets placed in boxes in a warm structure, so that they are grown out about an inch by the time the soil on the hot is in readiness to receive them. Our first frame Potatoes without hot water are just passing through. Keep them sturdy by giving plenty of air on all favourable opportunities, and place 6 or 8 inches of light covering material over the glass on cold frosty nights. Great care will be required to preserve this lot from frost.

### RHUBARB.

One more lot may be lifted to force indoors. The pots should now be placed over some outdoors to follow on.

### SEAKALE.

Put into the Mushroom-house seven or eight dozen of roots every ten days. If the Mushroom-house has not hot-water pipes, force in one of the houses. *G. H. Richards, Somerley Gardens, Ringwood.*

## NEW HORIZONTAL TUBULAR BOILER.

OUR illustration (fig. 18) shows an entirely new adaptation of the tubular boiler, the principal boiler-makers constructing these usually on the perpendicular plan. The water passes through the return pipe into the box A, thence through pipes B, B, B, B, B, B, B, to box C; thence through pipes D, D, to box E; thence through pipes F, F, F, F, F, F, F, to boxes H, H; thence through pipes I, I, I, I, to boxes K, K; and thence into box L. The idea should be considered a good one, as the tubes intersect the upward and natural direction of the flames and heated air in the fire-box, and take the direction of the latter when they cease to rise, but travel horizontally to the flues and smoke-shaft. Messrs. Foster & Pearson, of Beeston, Nottinghamshire, have informed us that a boiler 6 feet long will heat 2000 feet of 4-inch pipe, one of 9 feet 2600 feet, a 12-foot long heating 3400 feet, and the largest size, 18 feet, being capable of heating 4800 feet of the same dimensions of pipe. Like all tubular boilers it is easy to get up heat when it is required at short notice, as when frosts and cold winds occur with suddenness, in that way alone making tubular boilers of great utility to horticulturists, and to those who have charge of public assembly-rooms, churches, &c.

## HOME CORRESPONDENCE.

**Primula floribunda.**—This beautiful and interesting species is almost always in flower. Quite tiny seedling plants raised from seed sown last summer, plants barely 2 inches in diameter, are carrying small bright yellow flowers. Like *P. obconica*, it is an evergreen species, and the two are the most persistent bloomers among the whole series of hardy Primulas. Though in a cold house, and in spite of heavy, dull, foggy days, and sharp frost, more than half a dozen plants of *P. floribunda* are in bloom, and it has been noted that almost before the flowers have faded on one corymb another is put forth, and this is continued; the stronger the plants the greater number of corymbs are put forth. *P. obconica* is equally free and persistent. Both of them possess a delicate beauty of their own, and while they lack the majestic proportions of *P. japonica* or *P. Sieboldi*, the propensity to continuous blooming makes up for lack of a more striking character. *P. obconica* is especially a charming plant in a greenhouse during summer and autumn. *D.*

"Sclerotoids" of the Potato.—About a year ago Mr. A. S. Wilson very kindly sent me some preparations of these. Wishing to follow out the expe-



riments of Messrs. Murray, Flight, Smith, and others, I carefully isolated some of the bodies, and applied strong nitric acid, which rapidly dissolved the coloured material, but, just as Mr. Wilson found, there was left a mass of protoplasm which remained many hours undissolved. The interior granular portion seemed, after a while, to differentiate itself from the outer, giving somewhat the appearance of a cell wall. A second dose of acid did not dissipate the mass, which is now distinctly visible—seven hours since the application of the solvent. This is, I think, directly corroborative of Mr. Wilson's observations. I have repeated the experiments three times, and each time with exactly similar results; once there was no solution at all, the body being doubtless not a sclerotoid. *Greenwood Pim, M.A., F.L.S., Jan. 13.*

**Cauliflower, Veitch's Early Forcing.**—The present time is opportune for calling the attention of those who are unacquainted with this Cauliflower to its merits, and this I can do with every confidence, having grown it annually since its introduction with

at a given temperature. Asphaltin is simply obtained from a solid bituminous or resinous substance found on the shores of the Dead Sea, in Trinidad, and other places. It is, doubtless, of vegetable origin, and is probably produced by the putrefaction of vegetable matter at ordinary temperatures, very similar to that process of decay which under ordinary circumstances converts woody fibre into peat, ligoite, and coal. Some chemists, however, believe it to be a product of the destructive distillation of coal occasioned by the exposure of coal-bearing strata to volcanic heat. When Brunswick Black is made from this substance, I believe it may be applied to hot-water pipes without the least fear of injury to the tenderest plant, but when mixed, as it undoubtedly sometimes is, to a large extent, with artificially distilled coal tar, it is, when heated sufficiently to throw off vapour, most destructive to vegetable life. It was from the use of the latter mixture by a painter that I once suffered, and it is from a similar one, I fear, Mr. Bishop is now suffering, and I sincerely sympathise with him, and would again say to him, Burn it off. *T. S. C.*

**Premature Growths.**—*Apropos* to "R. D.'s" remarks in the last issue of the *Gardeners' Chronicle* (p. 59), I may mention a large batch of *Narcissus biflorus* in Messrs. James Dickson & Son's nurseries at Chester, the leaves of which are now 6 inches or more high. I watched this batch all through last summer. The foliage never wholly died down, neither were the bulbs ever without active roots; in the autumn, after some rainy weather, they were stimu-

over which it has full control, I think that its practical refusal to affiliate societies holding two or more days' exhibitions, is of questionable expediency. Some of the revised regulations for exhibitions just promulgated by the society are to be binding on all affiliated societies, and No. 2 of these states "No exhibition of Roses held by this society, or by any society affiliated with it, shall extend over more than one day." This appears to me to be very hard on affiliated societies, as well as on those not so connected with the National Rose Society. For instance, here at Ealing we have for years past offered handsome special prizes for cut Roses, open to all comers, and we get competing contributions of Roses from Messrs. Turner, Paul & Son, Prince, Keynes & Co., Rumsey, Piper, and others. Hitherto we have held but one-day exhibitions, but this year we shall celebrate our twenty-first anniversary, and hope to hold our annual exhibition in the grounds of Gunnersbury Park, for the first time. It is proposed to make a special effort to secure a show worthy of the occasion, and in order to give the thickly populated districts which lie all round us, and especially on the east and south sides, full opportunity to see these beautiful grounds, it is suggested that a two days' show shall be held. Our society is not only prevented from affiliating itself as last year, with the National Rose Society, but the Rose growers I have named, being all members of the National Rose Society, would be bound in honour to conform to its rules, and would, I imagine, refuse to bring their Roses as heretofore. The rule of the National Rose Society can then be held *in ter-*

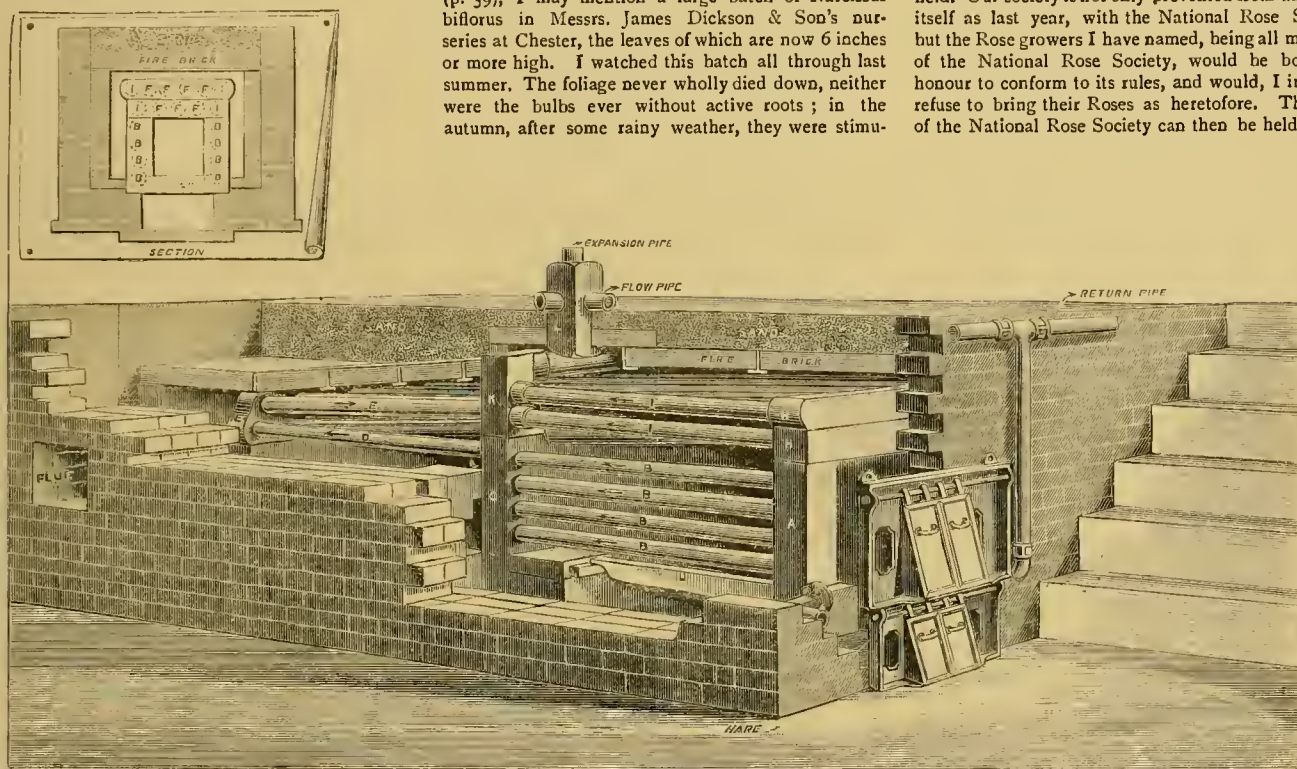


FIG. 18.—THE CHILWELL BOILER. (SEE P. 88.)

increasing appreciation of its sterling worth. From the first year of its being put into commerce I have entirely abandoned autumn sowing for an early supply, and have come to look upon the practice as entirely unnecessary—at least in the South of England. Seed sown now in heat, and pricked out into boxes when in the rough leaf, and in due course hardened off and planted out on a south border 12 to 15 inches apart, will come into use towards the latter part of May, and before the last batch of Broccoli are cut. *J. Horsefield, Heytesbury.*

**Tarred Hot-water Pipes.**—Mr. Bishop (p. 790, vol. xxii.) says, "Again referring to 'T. S. C.'s' remarks, in which he says if my pipes are painted with Brunswick Black I need have no fear; but one of those who communicated with me stated that tar is the foundation of all varnishes recommended for iron." This assertion I believe to be correct to some extent, but what I now wish to explain is the great difference between the component parts of genuine Brunswick Black and those inferior compounds which too often are substituted for it. The genuine or "best Brunswick Black," is, I believe, composed of American spirits of turpentine and asphaltin dissolved

lated into fresh growth, and they have been furnished with green foliage ever since. *R.*

**Bramley's Seedling Apple.**—It would be useful to some here in the South if Mr. Merryweather would state in your pages the names of the places to which he has sent Bramley's Seedling Apple trees and given the highest satisfaction. We could then judge whether our soil and situation would be likely to suit this variety of Apple. *Enquirer.*

**Gas-lime for Gardens.**—Practical gardeners will know how to act on the advice given by "T. B." on p. 58, but many amateurs and others read the *Gardeners' Chronicle* as well, and possibly practise what they read, so that it is not well to let the above remark pass without mentioning that gas-lime, if applied to that extent, will prove a remedy far worse than the disease. I quite agree that it would banish the slugs, &c.; they would not appear again for some time either, where there was nothing for them to eat. *W. H. Divers, Ketton Hall.*

**The National Rose Society and Affiliated Societies.**—While the National Rose Society should be at perfect liberty to make rules for exhibitions

over the heads of provincial societies that do not care a rap for the National Society. I regard this as an infringement of the liberty of the subject, and especially so of horticultural societies, many of whom find it to their advantage, and greatly please their supporters by holding two-days shows. I should think the rosarians who framed this arbitrary regulation altogether failed to see to what inordinate lengths it could be applied. I have endeavoured to set forth one of these in the foregoing remarks. *Richard Dean, Hon. Sec. Earling, Acton, and Hamwell Horticultural Society.*

**African Narcissi.**—The note of "H. C." about these on p. 24, of which the only fault is its brevity, is instructive to collectors of Narcissi, though it may excite their envy. No doubt it will have been generally read, but I call attention to it because about this time last year we were advised by more than one expert to bake our bulbs (without disturbing the soil in which they were) of African Narcissi all through summer on a south shelf in a greenhouse. I have little experience in their cultivation except in failure; but the sun-drying system, which I have adopted in the past season, so favourable for it, has made such bulbs as



*N. triandrus*, *N. juncifolius*, and *N. bulbocodium*, start with unusual vigour. Indeed I have tried the same plan of baking under a south wall, but out of the ground, for such things as *Daffodils* and *Anemone fulgens* and they rushed up in such a way directly they were replanted that I thought I had discovered a plan worth patenting. Still I quite believe in the treatment adopted by "H. C.," whose advice is commended by the results he mentions. It is the first instance I have heard of the successful cultivation of *N. canariensis*. About ten years ago I joined the late Mr. Harpur Crewe in importing some bulbs of this *Narcissus*, of which I distributed several to clever gardeners—but neither he nor I could ever hear that any of these bulbs reached flowering. *W. D.*

**Lime and Potash to Remove Tar from Hot-water Pipes.**—In returning thanks to your several correspondents for the information given to me through the medium of the *Gardeners' Chronicle* respecting the tar varnish on my hot-water pipes, I will state the means which have been adopted to clean them, and which, so far as I can at present ascertain, is quite a success. In the first place I was recommended to apply new lime fresh from the kiln, to about half a peck of which I added 7 lb. of washing soda dissolved in boiling water, and made the whole into a paste about the thickness of treacle. This, while hot, was applied to the pipes, and I let it remain on for about three hours, when it was washed off with a scrubbing-brush and soft water. I was very pleased to see this brought a considerable portion of the tar off, but I had to apply two more dressings before I could satisfy myself that it had effectually done its work. I need scarcely say this was only applied to a small portion of the pipes for trial. I was then recommended to use potash in place of the soda, and this proved to be much stronger than the former, as it brought nearly every portion of the tar off with one dressing. After we had completed this operation I received a letter from a gentleman who recommended sal-ammoniac. I, therefore, had all the pipes washed over with it, and where there seemed to be a particle of tar left the sal-ammoniac removed it. I have now had the pipes painted over with the composition as recommended by me in my first letter on this subject. *Alfred Bishop.*

**Carter's Ashtop Fluke Potato.**—At p. 815, vol. xxii., Mr. Murphy speaks of this Potato as being one of the earliest varieties, and suitable for forcing purposes. May I ask if there are two under this name?—if not Mr. Murphy must have another kind, probably Carter's First Crop Ashleaf. I have grown the Ashtop Fluke since first sent out, and want nothing better; but it is certainly a second early kind, and has always been classed as such in the catalogues. It is one of the best keepers I am acquainted with. I have kept it over the year till the second season, when it dressed excellently. Mr. M.'s statement is misleading to those not acquainted with this variety, and which deserves to be more extensively cultivated as a main crop. *W. Divers, Wierton, Jan. 5.*

**Eucharis amazonica.**—I see that your correspondent, "W. B.," seems to think that there is a disease among the above at present in different parts of the country. I cannot say that I have seen anything yet in your columns to justify this assumption; on the contrary, I am satisfied that the so-called disease on foliage is nothing but the result of mismanagement and starvation. A dry, hot atmosphere is most injurious to them, and will cause leaves to flag and show red spots. They are great absorbents of moisture, and whether at rest in a temperature of 55° to 60°, or forcing from 65° to 75°, should never be allowed to get too dry either in the pots or in the atmosphere of the house where they are. Should your correspondent pot them in such materials as "Young Gardener" (p. 24) has done his, and give them plenty of moisture, there will be no red spots, but they will flourish luxuriantly, and will soon bloom plentifully. The greatest pest they are subject to that I am aware of is mealy-bug; it gets underneath the leaves, and can only be dislodged by sponging. *A. Macdonald, Cheadle.* [Our correspondent has overlooked the fact that in one of the worst cases noticed in our paper the plants were plunged in a very moist bed of decayed cocoa-nut fibre, which had the effect of keeping the soil unhealthily wet; and another had stood his plants under roof creepers that were heavily

syringed, when consequently the *Eucharis* had again too much water for their good. *ED.*]

—I am glad this subject has cropped up once more, and I hope it will be properly threshed out, for as a stove flowering plant it stands in the front rank when properly grown. For several years they grew with me like weeds, and flowered profusely. I have had as many as fifty-seven spikes on a plant in an 18-inch pot, averaging from five to seven flowers on a spike—a sight worth seeing. This was when I flowered them once a year; but after I was led to flower them twice and three times a year the plants that once were from 3 to 4 feet across are now in a yellow sickly condition, and much reduced in size, the bulbs in many cases gone off altogether. This has doubtless been brought about by hard flowering—at least, such is my thorough belief. *C. Lucas, Belmont, Taunton.*

**The Report of the Apple Congress.**—This seems well received by the public, and, doubtless, deservedly so, the name of A. F. Barron as Editor is a sufficient guarantee for the usefulness of the book; but I have no wish to discuss the usefulness of the book. I am surprised to hear many of the exhibitors have not yet seen a copy. If the Royal Horticultural Society really wish to advance the cause of horticulture, possibly they may yet be able to present a copy to each exhibitor of fruit at the Congress. I was not one myself, and it matters but little to me. However, I had the pleasure of assisting largely in getting up one of the finest private collections, and I know that many of the exhibitors must have been upwards of £2 out of pocket. It seems rather too bad, after a man has spent as much as he could well afford in making the exhibition what it was, to expect him to pay a further sum in order to obtain a share of the information to which he contributed all he was able to do, and which was the sole object of the exhibition. *W. H. Divers, Ketton Hall.* [Fellows of the Royal Horticultural Society can obtain the report gratis for the asking for it, and we believe that any one having shown fruit at the Congress would receive equal consideration on applying to Mr. Barron. *ED.*]

**Amateur Growers for Market.**—Can you wonder that I am about to call my creditors together? Competition in the flower market is bad enough, but it is cut-throat work when head gardeners help to cut the ground from under genuine tradesmen's feet. Peruse the enclosed cutting from the *Exchange and Mart*. Now this man can have no anxieties or expenses to meet, as a struggling tradesman has, and I, for one, do not consider it fair for a gentleman to allow his gardener to become a regular advertising tradesman. *6d. in the £, Dunning Nursery.* [As a proof of what our informant alleges, we print a few paragraphs at the head of the advertisement in question, which in its entirety amounts to four fifths of a column of the paper. *ED.*]

No. 4, new list (commencing Jan. 7).—Lovely pot plants for greenhouse, conservatory, window or table decorations, all strong and good, at the nominal charge for bedding plants, three for 1s. 3d., six for 2s. 3d., twelve for 4s., free—worth three or four times the amount; correctly named, securely packed in wet moss, and waterproof boxes, by parcels post to all parts of Great Britain (arriving as fresh as when despatched). Consisting of magnificent tree or perpetual flowering Picotees, in twenty varieties of the finest foreign and English kinds grown, not an ordinary one in the collection, having cost from 1s. 6d. to 2s. 6d.; the colours are yellow, scarlet flaked, and striped, white, edged purple, mauve, crimson, slate, lilac, cerise, &c.: a fine opportunity for collectors and admirers of this beautiful genus of plants. Cultural directions sent. The other various plants are: *Epiphyllum crenatum roseum* (fine), *Alternanthera amena* (lovely bright magenta-crimson), *Alternanthera latifolia major* (dark crimson-maroon), *Alternanthera rosea superba* (new, splendid rose-orange and green), *Eupatorium fragrantissima*, *Eupatorium riparium* (both white winter bloomers)—should be in every greenhouse; five foreign *Lantanas* (pink, lilac, white, yellow, crimson), worth 1s. 6d. each; *Aralia Sieboldii*, handsome table plants, cheap at 1s. 6d., worth 3s. 6d. by summer; *Coronilla glauca* (yellow flowers), *Dactylis glomerata aurea elegantissima* (rare, golden foliage), *Erinus alpinus* (purple flowers), *Libonia floribunda*, *Libonia Panchosiana* (fine plants, both constant winter bloomers), double Tree Violets, *Sunray Fuchsias*, worth 1s. 6d.; *Hydrangea speciosa elegantissima*, worth 2s. 6d.; silver and gold foliage *Euonymus* (very ornamental), Maidenhair Ferns (nicesize, true), double bicolor *Aquilegia*, *Solanum variegatum* (rare), *Solanum atropurpureum*, *Solanum hybridum*

*Princess of Wales*, *Selaginella Kraussiana aurea* (golden, very handsome), *Selaginella denticulata* (lovely green)."

**The Hymenocallis.**—All that your correspondent W. Garnett says in praise of *Pancratium caribæum* (more correctly *Hymenocallis caribæa*) is very true, but there are several other species of the genus as beautiful as *H. caribæa*, or more so. *H. rotata*, *H. macrostephana*, *H. fragrans*, *H. tenuiflora*, and one sold some years ago by Mr. Bull under the name of *H. elegans*, are all beautiful and very fragrant, and have the merit of being easy to grow. Of these the two finest certainly are *H. macrostephana* and *H. fragrans*. This last I think the finest of the genus, as it is also the commonest. It is sold also under the names of *H. speciosa* and *H. ovata*. It is distinguished by broadly lanceolate leaves, which spring up four or five at once, instead of in succession, as in most of the other species, and the six to ten flowers which it bears all open together. They open two at a time, in pairs, at opposite sides of the head of flowers; but the last pair are fully open several days before the first pair begin to wither, and nothing can be more beautiful than a fine spike of this with all the flowers open. *C. W. Strickland.*

## Reports of Societies.

### ROYAL HORTICULTURAL: Jan. 13.

THIS, the first meeting of the year, was held in the conservatory at the Royal Horticultural Society's Gardens, and owing, probably, to the inclement character of the weather, there were but few things to tax the energies of the amalgamated Floral Committees, nor those of the Fruit Committee.

#### Scientific Committee.

Sir J. D. Hooker, K.C.S.I., in the chair. Present: Messrs. Smee, MacLachlan, Pascoe, Wilson, Grote, Murray, Ridley, Boulger, Loder, Drs. Lowe, Foster, and Masters.

#### THE SCLEROTIIDS OF THE POTATO DISEASE.

The most important communications were those of Mr. A. S. Wilson, Professor Trail, of Aberdeen; and Mr. W. G. Smith, the two latter of whom independently confirmed Mr. Wilson's statement that the bodies discovered by Mr. Wilson are really masses of protoplasm, encrusted with oxalate of lime. After removal of the lime by acids the protoplasm was made manifest by appropriate staining reagents. In another column it will be seen that similar results have been obtained by Mr. Greenwood Pim. It was arranged that a conference to make further experiments should be held between Mr. Worthington Smith and Mr. George Murray.

The following is Professor Trail's communication:—

"A few days ago Mr. A. Stephen Wilson expressed a wish that I should, in his company, examine the bodies in Potato plants attacked by disease, to which he has given the name of 'sclerotiids,' and in regard to the nature of which a controversy has been carried on for some time. His chief desire was to obtain an unbiased verdict as to the effect on these bodies of treating them with nitric acid, as he felt convinced that the acid did not wholly dissolve these bodies, while Mr. Murray and Dr. Flight have asserted that in their experiments there was no residue left by the acid.

"Mr. Wilson brought a plentiful store of sclerotioids in pieces of leaves in spirits of wine. Of these specimens some were from the Potato crop of 1881, others from the crop of 1884. With some of this material we together experimented on January 5, 1885; and I have repeated and extended the experiments several times since.

"The conclusions to which I have been led in respect to the nature of these bodies are as follows:—The bodies, probably well known so far as concerns their appearance to all interested in their nature, are small ovals, though considerably larger than the cells among which they lie embedded. They are usually numerous in the tissues in which they are found, and when these tissues are examined by transmitted light they are very evident as dark opaque bodies. When examined by reflected light they are seen to be snow-white in colour, and their surface is slightly rough.

"On teasing a portion of tissue that contains them it is not at all difficult to detach them more or less completely from the tissue so as to isolate them for more accurate observation; and this is absolutely necessary in the application of tests to these bodies.

"Such reagents as glycerine, spirits of wine, and acetic acid produced no appreciable effect on them.

"Strong sulphuric acid acts on them but slowly and imperfectly. It renders them more easily broken up, though that is not difficult to do by pressure, or with the needles, under any circumstances. In the specimens crushed after being subjected to sulphuric acid there was the appearance of the mass being surrounded



with a multitude of very minute needle-shaped crystals of raphides distinct from the central substance which they surrounded.

"Nitric acid laid on a piece of tissue still enclosing the sclerotoids quickly caused their disappearance, so that one might readily have supposed that they had been totally dissolved. But on isolating one of them, and watching the process carefully from its commencement till its close, which I have done several times, I found in all cases that the body became more or less rapidly nearly transparent as the mineral deposit was dissolved, but that there remained a finely granular mass with all the aspect of protoplasm. This mass was nearly transparent, being faintly yellowish, but retained nearly the size and form of the sclerotoid. On removing the excess of acid and applying magenta to some preparations, and ossein to others, I found that the residual mass took up the dye and became coloured. I have no doubt that the sclerotoids are masses of protoplasm coated with calcium oxalate, probably in the form of minute raphides. *James W. H. Trail.*"

#### SEEDS GERMINATING IN THE FRUIT.

Mr. Boulger mentioned the occurrence of this in three Lemons observed by him.

#### GARDEN FLOWERS.

Dr. Masters exhibited, on the part of Mr. J. Mullins, a series of twelve quarto engravings coloured by hand, and published in 1730. They were issued by "Robert Furber, gardiner at Kensington," on the site now occupied by the Royal Horticultural Society's garden, and consist of twelve coloured engravings by H. Fletcher after drawings by Peter Castells, one for each month of the year. The flowers are well drawn and artistically arranged in vases. They are of considerable artistic merit and of much interest, as showing the flowers then in vogue. The selection is limited indeed in comparison with what we now have, and from this point of view, offers little or no advance upon what was known to Parkinson and Gerard a century previous. There are no New Holland plants, Rhododendrons, no Fuchsias, few Pelargoniums, no Dahlias, no Orchids. The plates show how vastly our gardens have been indebted, since those times, to such men as Douglas, Fortune, Lobbs, Cunningham, Hartweg. From another point of view it is curious to see the advance made in florists' flowers; the Polyanthus, Auriculas, Roses, Pinks, as such as would not pass muster now-a-days, and certainly need not make us regret the good old times.

#### GROWTH OF BRITISH ORCHIDS.

Dr. Masters read a communication from Mr. A. D. Webster, the substance of which appears in another column.

#### THE GHOST MOTH.

Mr. MacLachlan alluded to the caterpillars of this moth, *Helipalus humuli*, as feeding on the roots of Peonies.

#### THE DAFFODIL QUESTION.

Professor Foster moved the reappointment of a committee to examine the question as to the alleged conversion of the wild single Daffodil into the double form under cultivation.

#### CROCUS SPECIOSUS.

Dr. Lowe called attention to the extremely rapid growth of this plant. During the course of one night he had observed the flower-stalks of this plant to attain a height of 4-6 inches, the flowers thrusting themselves aboveground, and even through clumps of *Dianthus glacialis* to this height.

#### RED-SPOTTED POTATOS.

The Secretary read a communication from Mr. Hawkes, of Bournemouth, mentioning the presence of these spots in tubers grown on light sandy soil, as noticed by other observers.

#### DISEASED DEODAR.

The Secretary showed, from Mr. Sydney Ford, gr. to W. E. Hubbard, Esq., diseased stems of Deodar. The disease was considered to be due to the presence of the spawn of a fungus, possibly *Polyporus destructor*.

#### RENANTHERA LOWII.

A fine spike of this Orchid was shown, with its curious flowers of two colours, the two or three at the base being of a yellow colour, and much less spotted than those higher up. It appears, however, that the variation is in colour only, and not, as in some other cases, in sexual function also.

#### PRESENTATION TO THE LINDLEY LIBRARY.

Mr. Burbidge sent copies of his work on the *Chrysanthemum* and on cultivated plants. The Apple Congress Committee presented a copy of *British Apples*.

#### Floral Committee.

Present: G. F. Wilson, Esq., in the chair; and Messrs. Henslow, Masters, Bennett, Bealby, Herbst, Woodbridge, Douglas, Child, George, Killock, Hib-

berd, Ballantyne, Dominy, Hudson, Duffield, Williams, and Hill.

Mr. James, of the Castle Nursery, Lower Norwood, contributed *Cattleya chocoensis* amoena, a pale form with white sepals and petals, a lemon-coloured throat, with a small fan-shaped purple blotch on the labellum. A fine well-formed flower of *Sophronitis grandiflora* major, of the normal brilliant hue, but larger in size, came from the same nursery, as did *Odontoglossum aureo maculatum*, a variety with an upright, branching flower-spike, their deviation from the usual manner of carrying itself being now observed for the second season. The blooms open of a yellow colour, but become much paler afterwards. For these plants Mr. James was awarded a vote of thanks. He also exhibited *Odontoglossum Alexandrie Trianae*, a good white form of great substance, with faint blotches of brown on the sepals and lip; *O. Dormaniannum*, a very slenderly formed stalk and flower, of a bright yellow, spotted with chocolate colour. W. Vanner, Esq., Camden Wood, Chislehurst, contributed a new *Madevalla* in Armini, a curious example in purple and lilac, and bearing longish tails. Mr. Charles Noble, The Nurseries, Bagshot, also received a Vote of Thanks for a bunch of Rose Queen of Bedders, a quantity of unopened buds, and healthy leaves, gathered in the open air, speaking much for the mildness of the season in Surrey. R. H. Measures, Esq., The Woodlands, Streatham, showed a stately-looking *Odontoglossum Alexandrie*, hybrid var. Josephine.—the distinct dark chestnut spottings on the ivory petals and sepals and its bright canary coloured crest, making a handsome and desirable variety. The exhibitor was awarded a Vote of Thanks. From Sir Trevor Lawrence's garden came a large panful of a hybrid *Cypripedium*, between *punctatissimum* and *Spicerianum*; a *C. insignis* with the dorsal sepal of *C. Spicerianum*, pretty and distinct, and met with recognition in a Vote of Thanks. From the same garden came a densely spotted *Odontoglossum Schröderianum*. F. A. Phillbrick, Esq., Oldfield, Bickley, gr. Mr. H. Heims, showed the difficult and rarely seen *Barkeria elegans*, carrying a few of its beautiful blooms, with sepals and petals dark rose, crimson lip having spots of a lighter colour. From the Holloway nurseries of Mr. B. S. Williams came a strong plant of *Amaryllis Comte de Germiny*, with four of its cheerful rosy-pink flowers just going past their best. This is one of the race of perennial bloomers, the same bulb having borne flowers about nine months ago, and this, together with the ease with which it establishes itself after division and repotting, will make these plants of general request. There were some pretty *Cyclamens* of the grandiflorum type from Messrs. Page & Sons, Twickenham, one of the best being *Acme*, a smooth good form without coarseness—the colour purplish-rose; *C. alba plena* is almost a retrogression, there being evidences of doubling in the flowers, which can scarcely be looked on as "improvements" in such a flower as a *Cyclamen*; *C. Excelsior* was a large rough flower, but of a pure white. Mr. Child, gr., Garbrand Hall, Ewell, showed a white-flowered *Anemone Chrysanthemum* conspicuous for its pure colour and entire absence of an eye. From the Swanley gardens Mr. Cannell brought *Centropogon Lucyanus*, very well bloomed plants in 32's, and some plants of the originals of our present race of *Cinerarias*—*C. cruenta*—in several shades of colour. Messrs. Hooper & Co., Covent Garden, sent a small lot of tree *Caraagons*, amongst which we noticed Boisy, a good primrose-coloured bloom of fair form, and a decided acquisition as regards colour; and Melle Carle, a fine pure white, of good form. The following are the awards:—

#### FIRST-CLASS CERTIFICATES.

To Mr. Clark, Twickenham, for *Cyclamen Albert Victor*.

To Mr. B. S. Williams, Holloway, for *Amaryllis Comte de Germiny*.

To F. A. Phillbrick, Esq., Oldfield, Bickley, for *Barkeria elegans*.

To Messrs. Cannell & Sons, Swanley, for *Centropogon* To Sir Trevor Lawrence, Burford Lodge, Dorking, for *Odontoglossum Schröderianum*.

#### Fruit Committee.

Present: J. Lee, in the chair; and Messrs. Goldsmith, Lyon, Ross, Willard Blackmore, Roberts, Mudell, Burnett, Ellam, Denning, Bunyard, Stevens, and H. J. Veitch.

There was the minimum of work in this section, for with the exception of a few seedling Apples and some specimens of Ellam's early spring Cabbage, and a collection of thirty-five dishes of Apples from Mr. Ingram, gr. at Belvoir Castle, Grantham, there was nothing on the tables. The Belvoir fruit was sent to illustrate the orchard produce of Leicestershire and the capabilities of its heavy soil. It was interesting, if only to note how well some well known kinds keep after the thorough ripening they had—Cox's Orange Pippin, Ribston, Margil, and Golden Russet, being excellent in appearance, as were Bleheim Orange, Bramley's Seedling, Warner's King, Prince Albert, Peasegood's Nonsuch, Mère de Ménage, among the culinary kinds.

PETER LAWSON & SON (LIMITED).—A company has been formed under this title to acquire and carry on the seed department of the Lawson Seed & Nursery Company (Limited). The manager is Mr. David Syme.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON.  
FOR THE WEEK ENDING WEDNESDAY, JANUARY 14, 1885.

MONTH AND DAY.	BAROMETER		TEMPERATURE OF THE AIR.					Hygrometrical Deductions from Glascher's Tables 6th Edition		WIND.	RAINFALL.		
	Mean Reading Reduced to 34° Fahr.	Departure from Average of 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 18 years.	Dew Point.	Degree of Humidity. Sat. = 100.				
Jan 8	29.71	-0.03	41.5	33.0	8.5	37.0	4	12	35	3	94	S.	0.00
9	29.59	-0.14	39.5	27.0	12.5	34.3	1	19	32.0	93	W.	0.00	
10	29.03	-0.69	50.0	36.0	14.0	43.6	4	7.3	41.6	93	S.W.	0.45	
11	28.91	-0.82	44.0	37.1	6.9	40.1	4	3.8	33.0	75	S.W.	0.01	
12	29.44	-0.28	38.0	30.5	7.5	33.1	1	3.3	27.2	78	N.	0.00	
13	29.51	-0.21	35.0	29.5	5.5	32.0	1	4.4	11.0	95	N.	0.02	
14	29.61	-0.16	36.0	30.5	5.5	33.2	1	3.3	11.5	91	E. N. E.	0.16	
Mean	29.40	-0.32	36.6	31.9	8.6	36.2	4	0.1	33.1	89	Variable	0.54	

Jan. 8.—Fine cold day and night.

9.—Dease fog from early morning till noon. Fine night.

10.—Heavy rain from early morning till 3 P.M. Fine clear night; windy.

11.—Fine mostly, slight rain during afternoon. Fine clear night.

12.—Dull day and night; cold wind.

13.—Snow falling nearly all day and night.

14.—Snow on ground all day; gleams of sun-hine in afternoon; rain began to fall at 9.30 P.M.

LONDON: *Atmospheric Pressure.*—During the week ending January 10, the reading of the barometer at the level of the sea increased from 30.09 inches at the beginning of the week to 30.15 inches by 9 A.M. on the 4th, decreased to 30.05 inches by 9 A.M. on the 5th, increased to 30.24 inches by 9 A.M. on the 6th, and decreased to 30.22 inches by 3 P.M. on the same day, increased to 30.43 inches by 9 A.M. on the 7th, and was 30.06 inches by the end of the week.

The mean reading of the barometer for the week was 29.96 inches, being 0.12 inch lower than last week, and 0.05 inch above the average of the week.

*Temperature.*—The highest temperature in the shade in the week was 50°, on the 10th. The highest on the 4th was 39°. The mean of the seven high day temperatures was 42° 5.

The lowest temperature was 27°, on the 9th; on the 5th and 10th the lowest temperature was 36°. The mean of the seven low night temperatures was 31° 7.

The greatest range of temperature in one day was 14°, on the 10th; the smallest was 7°, on the 4th. The mean of the seven daily ranges was 10° 8.

The mean temperatures were—on the 4th, 36°; on the 5th, 42° 2; on the 6th, 34° 8; on the 7th, 34° 8; on the 8th, 37°; on the 9th, 34° 3; on the 10th, 43° 6; of these the 5th, 8th, and 10th were above their averages by 5° 7, 1° 2, and 7° 3 respectively. The rest were below their averages by 0° 6, 1° 6, 1° 5, and 1° 9 respectively.

The mean temperature of the week was 37° 5, being 3° 7 higher than last week, and 1° 2 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 68°, on the 8th. The mean of the seven readings was 55° 5.

The lowest reading of a minimum thermometer with its bulb placed on grass was 16°, on the 9th. The mean of the seven readings was 21° 9.

*Rain.*—Rain fell on two days in the week, to the amount of 0.36 inch.

ENGLAND: *Temperature.*—During the week ending January 10 the highest temperatures were 52°, at Truro, 51° at Plymouth and Bristol. The highest at Preston was 46°, at Wolverhampton 46° 9, at Brighton, Hull, and Sunderland 47°. The general mean was 48° 6.

The lowest temperatures were 24° 6 at Wolverhampton, at Truro 25°, at Bolton 25° 9; the lowest



at Leeds and Preston was 32°, at Liverpool 31°.6. The general mean was 28°.7.

The greatest ranges were 27° at Truro, 23°.8 at Bristol, 23° at Blackheath; the smallest ranges were 14° at Preston, 15°.8 at Bradford, 16°.5 at Brighton. The general mean was 19°.9.

The mean of the seven high day temperatures was highest at Truro, 50°.7, at Plymouth 47°.6, at Bristol and Liverpool 46°.7; and was lowest at Hull, 40°.4, at Wolverhampton 41°.3, at Preston 42°.1. The general mean was 44°.1.

The mean of the seven low night temperatures was highest at Liverpool, 35°.4, at Truro 34°.1, at Bradford 34°; and was lowest at Wolverhampton, 28°.1, at Bolton 29°.3, at Plymouth 29°.6. The general mean was 32°.1.

The mean daily range was greatest at Plymouth, 18°, at Truro 16°.6, at Bristol 16°; and was least at Preston, 8°.4, at Brighton 8°.7, at Bradford 9°.2. The general mean was 12°.

The mean temperature was highest at Truro, 42°.3, at Liverpool 41°, at Sheffield 38°.9; and was least at Wolverhampton, 34°.6; at Hull 35°.5, at Bolton 35°.9. The general mean was 38°.1.

**Rain.**—The largest falls were 1.76 inch at Bolton, 1.25 inch at Truro, 1.14 inch at Sheffield; the smallest falls were 0.07 inch at Leeds, 0.15 inch at Bradford, 0.18 inch at Sunderland. The general mean fall was 0.64 inch. Rain fell on every day in the week at Plymouth.

**SCOTLAND: Temperature.**—During the week ending January 10, the highest temperature was 51°, at Glasgow; at Perth the highest was 44°. The general mean was 48°.4.

The lowest temperature in the week at Dundee was 28°.5; at Paisley the lowest temperature was 32°.2. The general mean was 30°.5.

The mean temperature was highest at Paisley, 40°; and lowest at Dundee, 36°.3. The general mean was 38°.4.

**Rain.**—The largest fall was 3.11 inches, at Greenock, and the smallest fall was 0°.30 inch at Edinburgh. The general mean fall was 0.94 inch.

JAMES GLAISHER, F.R.S.

## Enquiries.

"He that questioneth much shall learn much."—BACON.

**CRINUM SANDESIANUM, &c.**—C. W. S. would be glad to know where bulbs of *Crinum Sandersonianum* and *Hymenocallis eucharidifolia* can be obtained.

**GENTIANA VERA ALBA.**—Is this plant still existing in any collection of alpine in this country? It is figured in *Maund's Botanic Garden*, No. 712, and in the text accompanying the excellent little figure the author says:—"We are indebted for it to the Messrs. Pope, of Handsworth, who never neglect to secure similar rarities." I should be greatly pleased to hear some one has it still, but dare not anticipate so much. R.

**ORCHID SEEDS.**—*Antares* writes:—"I have succeeded in ripening a pod of *Odontoglossum crispum*, *Alexandria*, which has just burst. The flower was fertilised from another plant of the same kind in February, 1884. The pod contains a quantity of exceedingly fine yellow seed, which appears to be the actual seed, and its aspect under the microscope is elongated, but plump. Should the seed be kept after sowing in the dark, or in the light, and in what temperature?" (To this question Mr. Seden, whose experience is probably greater than that of any other grower, kindly replies as follows:—"All Orchid seed should be sown as soon as ripe—that is, as soon as the seed-pods burst. Sow them on pots or pans, with good drainage, in a mixture of equal parts of peat and good sphagnum, with a few lumps of charcoal. After the seed is sown give as much light as possible without exposure to full sun. Keep the pots or pans where the seed is sown moist, not too wet, or the mixture will become sour, and the seed rot. If *Odontoglossum*, sow in *Odontoglossum*-house. The temperature required by the parent plants is required also by the seedlings.")

**VINES.**—Can any of your readers say from experience if Foster's Seedling is a reliable stock for a second variety to grow upon? H.

**WEIGHT OF GROS COLMAR GRAPE.**—Can any of our correspondents inform E. & Sons of the greatest weight on record of a bunch of Gros Colmar Grapes?

## Answers to Correspondents.

**BOOK ON EVERGREENS, &c.**: H. Smith. *Handy Book of Ornamental Conifers and Other Evergreen Plants*, by Hugh Fraser; published by W. Blackwood & Sons, Edinburgh.

**BROWN ORCHID LEAF: Alpha.** It looks like having been discoloured by the steam from the hot-water pipes. But how can we tell from a scrap an inch long, unaccompanied by any particulars?

**CHRYSANTHEMUM PROPAGATION:** F. G. These can be grown in a cold frame, under a hand-glass, in a half-shady spot, or in heat, and may be taken off at any time between January 1 and the end of March. Your method will answer if your leaf-bed does not give off too much steam. Ventilate carefully if it does.

**CLOVER MAGGOT:** *James Palmer.* You should, if it be possible, send the maggot, so that it may be determined.

**COLOUR OF PHALÆNOPSIS SANDERIANA:** M. A. This ranges from very faint pink to deep pink.

**DISEASED SPRUCE FIR:** H. James. This malady, which affects Conifers, and manifests itself by gouty swellings on the young shoots, is described in our pages (vol. xviii, p. 109), where also a branch showing the appearances common to the disease is figured. Fir-tree oil is the remedy.

**EUPHARIS AMAZONICA:** D. Bird. If you had perused our pages for the last three months you would have ascertained as much from them as we could now tell you of the reasons for their ill-health.

**GRASS:** J. R. Pearson & Sons. The bulbous variety of *Avena elatior*.

**INSECT ON VINES:** E. W. A weevil: very destructive. Trap them at night with pieces of Potato or Carrot hollowed on the under-side, and destroy them.

**LICHEN:** W. Polson. The word is derived from the Greek, and is pronounced as if spelt leiken.

**MR. GRANT ALLEN:** W. R. We do not know. Apply to Messrs. Macmillan & Co., Bedford Street, Covent Garden.

**NAMES OF PLANTS:** W. P. H. *Cattleya Loddigesii*.—*Rex*. *Laelia anceps*.—W. W. We think it is *Lycopodium amplum*. Please send a better specimen, and describe the plant.—F. P. 1, *Retinispora plumosa aurea*; 2, *R. squarrosa*, Siebold's variety.

**PEAR BUDS:** W. L. We presume there is something amiss at the roots, but there is no evidence to found an opinion upon.

**PRIMULA SINENSIS:** G. W. K. It is rather unusual for dark-leaved plants to produce white flowers. The flowers were very pure in colour, but we are unable to give the reason for these freaks of Nature.

**ROYAL APPOINTMENT:** C. C. You could apply in writing to the Comptroller of the Royal Household.

**SAXIFRAGE AND LONICERA:** H. Rowland. No to each question.

## CATALOGUES RECEIVED.

JAMES DICKSON & SON, Eastgate, Chester—Vegetable and Flower Seeds.

HENDERSON & SONS, Brechin—Garden and Flower Seeds, &c.

COLLINS BROTHERS & GABRIEL, 39, Waterloo Road, London—Seeds, Bulbous Plants, &c.

J. & R. THYNE, 83, Vincent Street, Glasgow—Garden Seeds, Implements, Requisites.

HOWDEN & CO., Muirtown, Inverness—Vegetable and Flower Seeds.

W. FELL & CO., Hexham—Trade Seed Guide.

W. TAIT & CO., Dublin—Select Annual of Garden Flower Seeds, Seed Potatoes, Plants, &c.

**COMMUNICATIONS RECEIVED:**—C. Mudd, New Zealand.—J. Anderson.—J. McIndoe, New Zealand.—C. Warden.—E. Y. Michie.—A. D.—W. C. L.—C. A. D. Webster.—J. R. J.—W. N. Wydale.—Warwickshire (not received).—G. J. A.—A Constant Reader.—D.

**BIRTH.**—On the 10th inst., at The Camp, Sunningdale, the wife of Sir J. D. HOOKER, F.R.S., of a son.

## Markets.

COVENT GARDEN, January 15.

No alteration this week. Business remains the same. Grapes firmer. *James Webber, Wholesale Apple Market.*

### FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 6-4 0	Lemons, per case	12 0-18 0
— Nova Scotia ad		Pine-apples, Eng., lb.	1 0-2 0
— Canadian, barrel	10 0-18 0	— St. Michael, each	5 0-10 0
Cobs, per 100 lb.	6 0-0 0	Pears, French, doz.	3 0-9 0
Grapes, per lb.	1 6-4 0		

### VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Lettuces, Cab., doz.	1 6-0 0
per doz.	4 0-6 0	— French Cos, each	6 0-0 0
Asparagus, English,		Mint, green, bunch.	1 6-0 0
per bundle	12 0-0 0	Mushrooms, p. basket.	1 0-2 0
— French, bundle	15 0-20 0	Onions, per bushel.	4 0-0 0
Beans, French, lb.	1 6-0 0	— Spring, per bun.	0 6-0 0
Beet, per doz.	1 0-0 0	Parsley, per bunch.	0 4-0 0
Cabbages, per doz.	1 6-2 0	Peas, per lb.	1 0-0 0
Carrots, per bun.	0 6-0 0	Potatoes, new, per lb.	0 6-0 0
Cauliflowers, Eng.		Radishes, per doz.	1 0-0 0
ish, dozen	2 0-4 0	Rhubarb, bundle	0 6-0 0
Celeriac, per root	0 4-0 0	Salsify, per bun.	1 0-0 0
Celery, per bundle	1 6-2 0	Seakale, per punnet	2 0-2 6
Cucumbers, each	1 0-2 6	Small saladings, per	
Endive, Eng., dozen	1 0-0 0	punnet	0 4-0 0
Garlic, per lb.	0 6-0 0	Spinach, per bushel	3 0-0 0
Herbs, per bunch	0 2-0 4	Tomatoes, per lb.	1 0-1 6
Horse Radish, bun.	3 0-4 0	Turnips, bun.	0 5-0 0

**POTATOES.**—Magnum Bonums, 40s. to 70s.; Regents, 70s. to 90s.; Champions, 45s. to 60s. per ton. Markets have a downward tendency.

### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0-4 0	Marguerites, 12 bun.	6 0-9 0
Arum Lilies, 12 blms.	6 0-9 0	Mignonette, 12 buo.	6 0-9 0
Azalea, 12 sprays	1 0-1 6	Narcissus, Paper-	
Bouvardias, per bun.	1 0-1 6	white, 12 sprays	2 6-3 0
Camellias, per doz.	3 0-8 0	— French, 12 bun.	6 0-12 0
Caratians, 12 blms.	1 0-3 0	Pelargoniums, per 12	
Chrysanth., 12 bun.	12 0-24 0	sprays	1 0-2 0
— large, 12 blooms	2 0-4 0	— scarlet, 12 sprays	0 1-0 0
Cinerarias, per bun.	1 0-1 6	Poinsettia, 12 blooms	3 0-9 0
Cyclamen, 12 blooms	3 0-6 0	Primula, double, bun.	1 0-1 6
Epiphyllum, 12 blms.	0 4-0 6	— sineasis, 12 bun.	4 0-6 0
Eucharis, per doz.	6 0-9 0	Roses (indoor), doz.	2 0-6 0
Euphorbia jacquini-		— French, per doz.	1 0-3 0
flora, 12 sprays	3 0-6 0	Stokesia, 12 blooms	1 0-0 0
Gardenias, 12 blms.	18 0-30 0	Tropeolum, 12 bun.	2 0-4 0
Heliotropes, 12 sp.	0 6-1 0	Tuberose, per doz.	2 0-4 0
Hyacinths, Roman,		Tulips, 12 blooms	1 0-1 6
12 sprays	1 0-1 6	Violets, 12 bun.	1 0-1 6
Lapageria, white, 12		— French, bunch.	2 6-3 0
blooms	2 0-3 0	— Parme, Fiacchi,	
— red, 12		per bunch	7 0-8 6
blooms	1 0-2 0	Wallflower, 12 bun.	4 0-6 0
Lily-of-Val, 12 sprays	1 0-2 0	White Jasmine, bun.	0 6-1 0

### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-24 0	Ferns, in variety, per	
Arbor-vitæ (golden),		dozen	4 0-18 0
per dozen	6 0-18 0	Ficus elastica, each	1 6-7 0
— (common), dozen	6 0-12 0	Foliage Plants, vari-	
Arum Lilies, dozen	9 0-15 0	ous, each	2 0-10 0
Azaleas, per dozen	18 0-42 0	Hyacinths, per doz.	8 0-10 0
Begonias, per doz.	6 0-12 0	— Roman, per pot	1 0-1 3
Bouvardia, dozen	9 0-18 0	Marguerite Daisy,	
Cinerarias, per doz.	9 0-12 0	per dozen	8 0-15 0
Cyclamenes, per doz.	9 0-24 0	Myrtles, per doz.	6 0-12 0
Cyperus, per dozen	4 0-12 0	Palms, in variety,	
Dracaena terminalis,		each	2 6-21 0
per dozen	30 0-60 0	Pelargoniums, scar-	
— viridis, per doz.	12 0-24 0	let, per dozen	4 0-6 0
Epiphyllum, doz.	18 0-24 0	Poinsettia, per doz.	9 0-15 0
Erica, various, doz.	9 0-18 0	Primula sineasis, per	
Euonymus, various,		dozen	4 0-6 0
per dozen	6 0-18 0	Solaums, dozen	9 0-12 0
Evergreens, in var.,		Tulips, dozen pots	8 0-10 0
per dozen	6 0-24 0		

## SEEDS.

LONDON: January 14.—A somewhat improved tone is now noticeable in the trade for farm seeds. More inquiries are coming to hand from the country; there is generally more disposition to purchase. Clover seeds, meanwhile values all round remain without quotable variation. For Haricot Beans and blue boiling Peas there is a better demand, owing to the colder weather, Spring Tares meet with greater favour. Canary and Hemp seed sell on last week's terms. More money is wanted for feeding Linseed. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

## CORN.

At Mark Lane on Monday the trade was somewhat disappointing as regards Wheat. At the opening factors asked further advanced rates, but buyers held off, and eventually a moderate business was concluded at about the prices of the previous Monday. Flour also showed no quotable change on the week. Malting Barley ruled 1s. above the quotations of this day se'nnight, and grinding sold well, 3d. to 4d. dearer. Oats were in fair demand, and 6d. to 7d. higher on the week. Canadian Peas were 1s. dearer, and Maize very scarce and fully as dear. On Wednesday both Wheat and flour were dull of sale, though no appreciable change was made in quotations. Barley was firm; Maize was firm on the spot, from scarcity; Oats were steady; and Beans and Peas without quotable alteration.—Average prices of corn for the week ending Jan. 10.—Wheat, 32s. 7d.; Barley, 31s. 7d.; Oats, 19s. 11d. For the corresponding period last year:—Wheat, 38s. 9d.; Barley, 32s. 1d.; Oats, 19s. 4d.

## HAY.

Tuesday's Whitechapel Market report states that the supplies of straw and hay were short, and the Clover trade dull. Quotations:—Clover, prime, 90s. to 107s.; inferior, 46s. to 73s.; prime second cut, 90s. to 105s.; hay, prime, 80s. to 95s.; inferior, 30s. to 63s.; and straw, 22s. to 36s. per load.—On Thursday there was a short supply and quiet trade.—The Cumberland Market report states that there was a fair supply, with better demand, and trade greatly influenced by the weather. Quotations:—Clover, best, 95s. to 105s.; inferior, 50s. to 80s.; meadow hay, best, 80s. to 90s.; inferior, 50s. to 70s.; and straw, 26s. to 35s. per load.

## POTATOS.

The following are about the average prices for the week:—York and Lincoln Magnums, 50s. to 65s. per ton; ditto Regents, 55s. to 70s.; ditto Victorias, 55s. to 60s.; ditto Champions, 40s. to 50s.; Kent and Surrey Regents, 55s. to 75s.; ditto Magnum Bonums, 50s. to 70s.; ditto Champions, 45s. to 55s.; Cambridgehire Regents, 55s. to 65s.; ditto Magnum Bonums, 45s. to 60s.; ditto Champions, 40s. to 45s.—The imports into London last week consisted of 1411 bags 4 sacks from Hamburg, and 21 boxes from Lyttelton.

## COALS.

The following are the quotations current at market during the week:—East Wylam, 15s. 6d.; Broomhill West Hartley, 14s. 6d.; Walls End—Tync (unscreened), 11s. 3d.; Hetton, 18s. 6d.; Hetton Lyons, 16s. 6d.; Lambton, 18s.; Wear, 16s. 6d.; Hartlepool, 17s. 6d.; Hulam, 16s. 9d.; East Hartlepool, 17s. 9d.; Tees, 18s. 9d.



# RICHARD SMITH & CO., WORCESTER.

(ESTABLISHED 1804.)

**BULBS** Lovely Flowers in Winter and Spring for a trifle.  
Ready in Autumn.

**ROSES (20 acres)** BUSHES, 8s. per dozen,  
60s. per 100;  
STANDARDS, 15s. per dozen, 105s. per 100.  
Packing and Carriage Free for Cash with Order.

**FRUITS (74 acres)** Best varieties of every form  
and kind of tree at low prices.

**SHRUBS, &c. (91 acres)** CONIFERS,  
TREES, FLOWERING PLANTS (8s. per dozen, 50s.  
per 100), FOREST TREES.

Three Acres of Glass for Stove and Greenhouse Plants.

FAMOUS PLANTING AND FORCING ASPARAGUS AND SEAKALE.

**VEGETABLE, FLOWER, and FARM SEEDS.**

DESCRIPTIVE LISTS, containing an immense amount of useful  
information, free on application.

## GARDEN AND FLOWER SEEDS.



### THOMAS METHVEN & SONS

(By Special Appointment Nurserymen and Seedsmen to the Queen)

BEG TO INTIMATE THAT THEIR DESCRIPTIVE PRICED

## CATALOGUE OF GARDEN AND FLOWER SEEDS,

IMPLEMENTS, FRENCH HYBRID GLADIOLI, &c., FOR 1885,

Is now ready, and may be had Free on application.

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

**NEW CRIMSON WALL-LEAVED EAST LOTHIAN INTERMEDIATE STOCK.**—In  
Packets, 2s. 6d. and 5s. each.

SEED WAREHOUSES:—

15, PRINCES STREET, and NURSERY GATE, LEITH WALK, EDINBURGH.

## SEEDS OF SUPERIOR QUALITY.

### MESSRS. DICKSON & ROBINSON

Have the pleasure to announce that their

## ILLUSTRATED CATALOGUE OF VEGETABLE and FLOWER SEEDS, &c.,

Is now ready, and can be had, post-free, on application.

THE OLD ESTABLISHED SEED WAREHOUSE,  
12, OLD MILLGATE, MANCHESTER.

## SELECT GARDEN SEEDS

### IRELAND & THOMSON

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## CATALOGUE OF VEGETABLE AND FLOWER SEEDS,

FRENCH HYBRID GLADIOLI,

Garden Implements, Insecticides, &c.,

Has now been Posted to all their Customers; any one not having received it  
another Copy will be sent Post-free on application.

SEED WAREHOUSE, 20, WATERLOO PLACE,  
EDINBURGH.

**SEAKALE.**—Fine Forcing and Planting  
ASPARAGUS, very fine, 3 years.  
THE ROYAL NORFOLK NURSERIES COMPANY  
(late EWINGS), Eaton, Norwich.

**SEED POTATOS.**—For Sale, a few Tons of  
Veitch's Improved Early Ashleaf, and Beauty of Hebron.  
For particulars apply,  
H. PLUMB, Holly Mount, Gleaston, Ross, Herefordshire.

**TO FLORISTS—TO FLORISTS.**—  
LILACS (Syringa) CHARLES X., ALBA VIRGIN-  
ALIS, SANGAENA, cultivated in pots for forcing, £5, £10,  
and £12 per 100.

PRUNUS SINENSIS FLORE PLENO, nice plants, culti-  
vated in pots, fit and ready for forcing, from £5 per 100.

DEUTZIA GRACILIS, SPIRÆA JAPONICA, in open  
grounds, nice plants, fit for forcing, from £3, £10, £12 per 1000.  
ROSE SOUVENIR MALMAISON, LA FRANÇOISE, and  
others, best sort, Hybrid Perpetual and Tea, fit for p.t. culture,  
for sale by 10,000 at low prices.

CATALOGUES, printed in English, will be sent on applica-  
tion to

L. PAILLET, Nurseryman, Chatenay (Seine) near Paris,  
France. Established 1827.

**CHRYSANTHEMUMS.**—Speciality.—420  
varieties, guaranteed true to name. One of the largest  
and cheapest Collections in the Trade. Plants, purchaser's  
selection, 2s. 6d. per dozen, 16s. per 100; cuttings, 1s. 6d.  
per dozen, 10s. per 100; W. E.'s selection, cheaper. For the new  
English and Continental varieties see CATALOGUE, with  
Essay on Cultivation, one stamp. Inspection invited.  
W. ETHERINGTON, The Manor House, Swancombe,  
Kent.

**W. F. PIPER**, begs to offer the Shrubs  
named:—CEANOTHUS, in pots, 2 to 3 feet;  
PINUS INSIGNIS, 2 to 4 feet; CUPRESSUS MACRO-  
CARPA, 3 to 6 feet; ESCALLONIA MACRANTHA, very  
good; LAURUSTINUS, 1 to 2 feet; 2-year LAURELS, 1½  
to 2 feet; Double GORSE, 1-year; HAZEL, 3 to 5 feet, good.  
All transplanted in fall of 1884; good balls.

Parkstone Nurseries, Dorset.—January 13, 1885.

**HEATHS a SPECIALITY.**—The finest  
Collection of HEATHS, AZALEAS, and HARD-  
WOODED STOVE and GREENHOUSE PLANTS gener-  
ally in the country. An inspection solicited.  
T. JACKSON AND SON, Nurseries, Kingston-on-Thames.

**PALMS**, strong, healthy, splendidly foliaged.

—Latania borbonica and Seaforthia elegans, 20 inches  
high, 12s. per dozen; sample plant, 1s. 3d.; Latania borbonica  
and Seaforthia elegans, 12 inches high, 25s. per 100; 5 simple  
dozen, 4s.; Maidenhair FERNS, Adiantum cuneatum, 20s.  
per 100; sample dozen, 3s. Packages and parcels post-free.

Postal Orders to the GARDENER, Holly Lodge, Stamford  
Hill, London, N.

**BRUSSELS SPROUTS, MAY'S  
NORTHAW PRIZE**, the variety that has been success-  
fully exhibited by him and admired. Seed direct from the  
grower, 1s. 6d. per packet. Cheaper to the Trade.  
J. MAY, The Gardens, Northaw, Barnet, Herts.

**ROSES.—ROSES.—ROSES.**

An immense quantity of Standards, Half-standards,  
low budded on Manetti and on Brier roots. Best Trading  
sorts are disposable as well, 300,000 Own Roots of every kind—  
Perpetuals, Noisette, Tea, Moss. The whole at an exceptionally  
low price.

**ROSE STOCK.**  
150,000 MANETTI, 15s. to 20s. per 1000.  
28,000 LA GRIFFERAYE, 3s. per 10,000.

1,000,000 BRIER SEEDLINGS, 1-yr. and 2-yr. transplan-  
ted, all fine stocks, for sale at very low prices, from £4 to £6 and  
£8 per £10,000; transplanted 2 years, £10 per 1000.

CATALOGUE, published in English, will be sent on  
application to

L. PAILLET, Nurseryman, Chatenay (Seine), near Paris,  
France. Established 1827.

**ASPARAGUS**, grand Roots for Forcing, 2s.  
per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d.  
per 100. **SEAKALE**, forcing, 2s. 6d. per dozen, 16s. per 100;  
planting, 2s. per dozen, 12s. 6d. per 100.

RICHARD SMITH AND CO., Nurserymen and Seed  
Merchants, Worcester.

**ABIES DOUGLASII**, 1½ to 2 feet, 25s. per  
100; 2 to 2½ feet, 35s. per 100; 3 to 4 feet, 60s. per  
100; by the thousand, finely finished and rooted. **ARAU-  
CARIA IMBRICATA**, 18 to 20 inches, 24s. per dozen; 2 to 2½  
feet, 42s. per dozen; 3 feet, extra, 6s. 1 per dozen; each size by the  
thousand. **CEDRUS DEODARA**, 1 to 5 feet, 30s. per dozen.  
**CRYPTOMERIA ELEGANS**, 2 to 2½ feet, 60s. per 100.  
**CUPRESSUS LAWSONII**, 2½ to 3 feet, 60s. per 100; C.  
GRACILIS, distinct, 1½ foot, 12s. per dozen; C. STRICTA,  
2 to 2½ feet, the finest upright, 12s. per dozen; C. FUNE-  
BRIS, scarce, 1½ foot, 15s. per dozen. **PICEA NOBILIS**,  
3 to 4 feet, 60s. per dozen; P. NORDMANNIANA, 1 foot, fine,  
55s. per 100; 1½ to 2 feet, 15s. per dozen; 6 feet, extra, 84s.  
per dozen. **PINUS EXCELSA**, 2 feet, 8s. per dozen; P.  
INSIGNIS, 1 foot, 30s. per 100; 6 to 8 inches, 16s. per 100.  
**THUJA LOBBII**, 10 to 15 inches: special by the 1000, the  
best substitute for Larch. **KHOODOENDRON PONTICUM**,  
1 to 4 feet, each size in thousands.

GARLIES MICHELL, Nurseryman, Stranraer, N.B.

**THE NEW YELLOW ROSE,  
HYBRID PERPETUAL.**

**GLOIRE LYONAISE.**—This extraordinary variety is the  
finest Rose ever sent out in the Trade. It has been obtained by  
artificial hybridisation of the Rose Mme. Falcot with Baronne de  
Rothschild. This variety will be a fine one for Market purposes.  
The Rose Gloire Lyonnaise will be sold by subscription at, per  
1 Plant, 15s.; 6 Plants, £4; 1 dozen Plants, £7.

2000 Plants are for disposal, but as already many orders are  
subscribed, I beg to inform persons who intend to send orders to  
do so immediately, for the quantity disposable will be soon run  
out. Direct orders to

L. PAILLET, Horticulturist and Nurseryman,  
Chatenay, Seine, France.—Established 1827.

M. L. PAILLET takes the opportunity of this Advertisement to  
offer, at a very low price, more than 70,000 ROSES of every  
description—Standards, Half-standards, low budded on Manetti  
and Brier roots. Fine splendid lot of ROSES on own roots,  
1-yr. and 2-yr. transplanted. More than 20,000 MALMAISON  
and other good leading sorts are for sale. Also an immense lot of  
MANETTI STOCKS, LA GRIFFERAYE, and BRIERS,  
1-yr. and 2-yr. transplanted, are offered for sale. Price will be  
sent on application.

CATALOGUE, printed in English, also sent on application



**POTATOS—SUTTON'S READING**  
HERO, several tons to dispose of; excellent sample, specially grown for Seed.

**IRELAND AND THOMSON**, 20, Waterloo Place, Edinburgh.

**FOR SALE**, Two fine Specimen **DENDROBIUM NOBILE**, in good health, nearly 3 feet in diameter and as much through: about 100 blooming bulbs on; in tubs. Price £5 5s. each. And two smaller, about sixty bulbs, £3 10s. each; or a reasonable offer for the lot would be taken, for Cash.

**E. BARRANCE**, Trent Valley Nursery, Lichfield.

#### Wholesale List of Vegetable Seeds.

**H. AND F. SHARPE** will be pleased to forward their **WHOLESALE LIST** of Home Grown **VEGETABLE SEEDS** to those who have not yet received it. It comprises all the best varieties in cultivation, and the quality of the seeds is exceptionally good.

Seed Growing Establishment, Wisbech.

**NEW CHRYSANTHEMUMS.**—I offer 25 varieties, selected in China and Japan, which for size of flower, freedom of growth, and distinct colours, surpass the older varieties. Four Certificates of Merit in New York, Dec. 2.

Price 50s. the set. Usual terms to the Trade.

LIST on application to

**H. WATERER**, Importer of Plants and Bulbs, 3809, Pewlton Avenue, Philadelphia, U.S.A.

**ASPARAGUS.**—Extra strong three and four years stuff. Samples and prices on application to **THOMAS S. WARE**, Hale Farm Nurseries, Tottenham, London.

**RIEMSCHEIDER**, Brandenburg-on-Havel, Germany, begs to offer the following Flower Seeds in very best quality:—

#### ASTERS.

**HOLTZER**, Dwarf, bouquet mixed, per lb., 40s.; per ounce, 4s. 10s.; Separate colours, per ounce, 5s.

6 distinct colours, each 100 seeds, 6d.

**CHRYSANTHEMUM**, Dwarf, mixed, per lb., 58s.; per oz., 4s.

Separate colours, per ounce, 5s.

12 distinct colours, each 100 seeds, 1s.

**IMBRIQUE POMPON**, mixed, per lb., 38s.; per ounce, 3s.

Separate colours, per ounce, 4s.

12 distinct colours, each 100 seeds, 10d.

**PEONY PYRAMIDE**, mixed, per lb., 60s.; per ounce, 4s. 6d.

Separate colours, per ounce, 5s.

12 distinct colours, per ounce, 1s. 6d.

**VICTORIA**, extra fine, mixed, per lb., 60s.; per ounce, 4s. 6d.

Separate colours, per ounce, 5s.

12 distinct colours, each 100 seeds, 4s. 6d.

#### BALSAMS.

**CAMELLIA-FLOWERED**, double, extra fine, mixed, per lb. 35s.; per ounce 3s.; separate colours, per ounce 4s.; eight distinct colours, 100 seeds, 1s.

**ROSE-FLOWERED**, extra, mixed, per lb. 35s.; per ounce 3s.; separate colours, per ounce 4s.; eight distinct colours, each 100 seeds 1s.

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**GERMAN TEN-WRECK**, large flowered, extra, mixed, per lb. 80s.; per ounce 6s.; separate colours, per ounce 7s.; twenty distinct colours, each 100 seeds, 3s.

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The seed of Stocks offered here is harvested from plants cultivated in pots. Seed harvested from the grounds, likewise very good, is about 20 per cent. lower in price.

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**DWARF**, single, mixed, 4s. per lb., 6d. per ounce.

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All my Seeds have been selected with the utmost care and attention, and I have great pleasure in recommending them to your notice.

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**BLACK FIBROUS PEAT**, 5s. per sack; 5 sacks 22s.; sacks, 4d. each.

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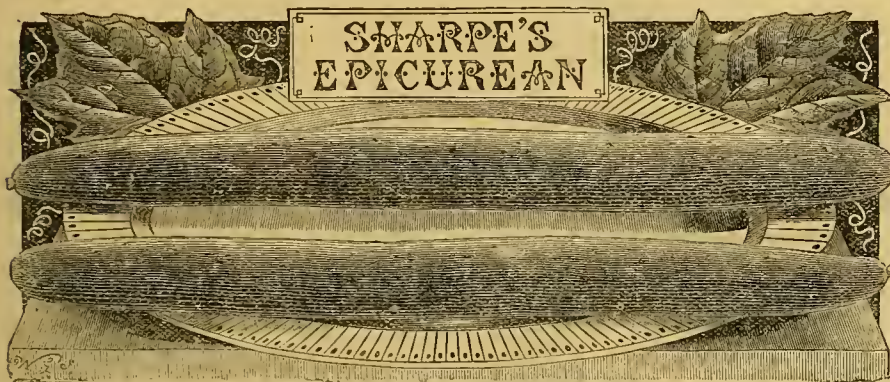
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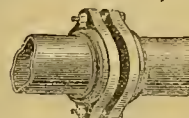
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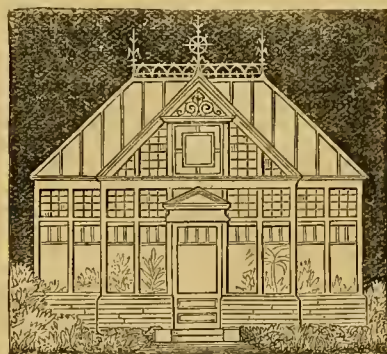
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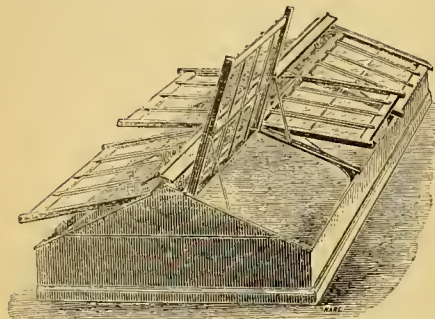
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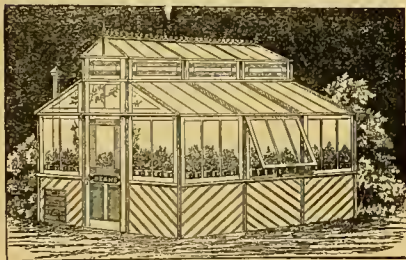
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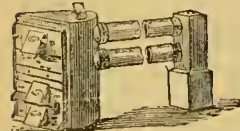
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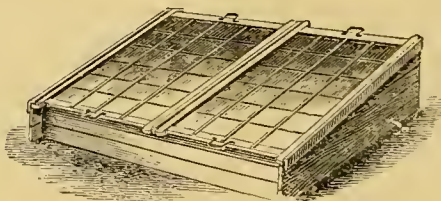


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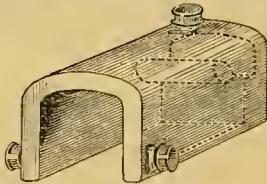
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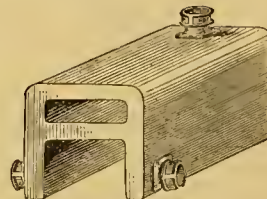
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KEPT IN  
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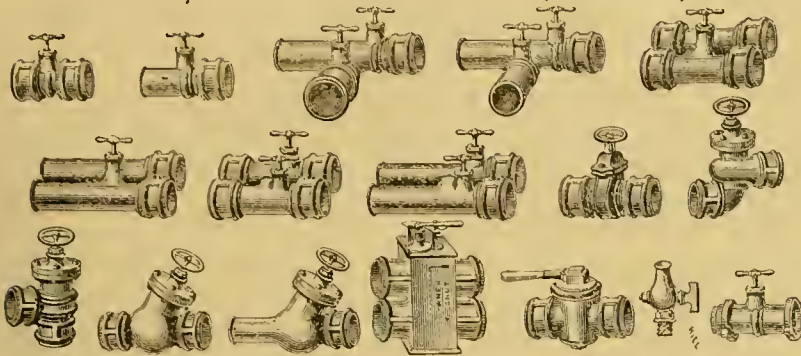
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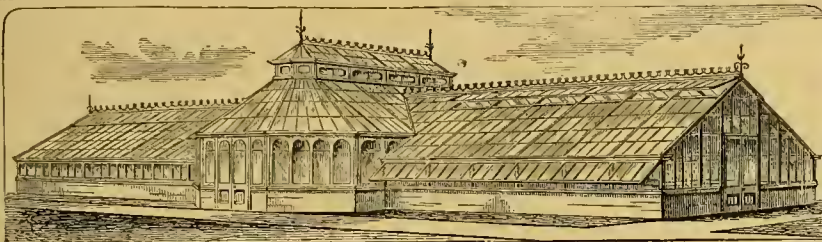
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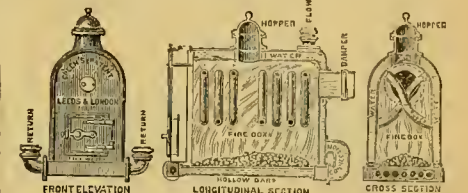
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Post-office Orders to be made payable at DRURY LANE, W.C., to W. RICHARDS.

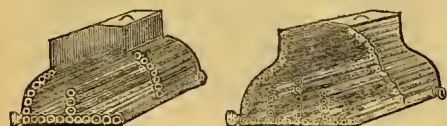
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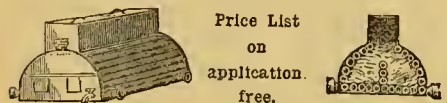
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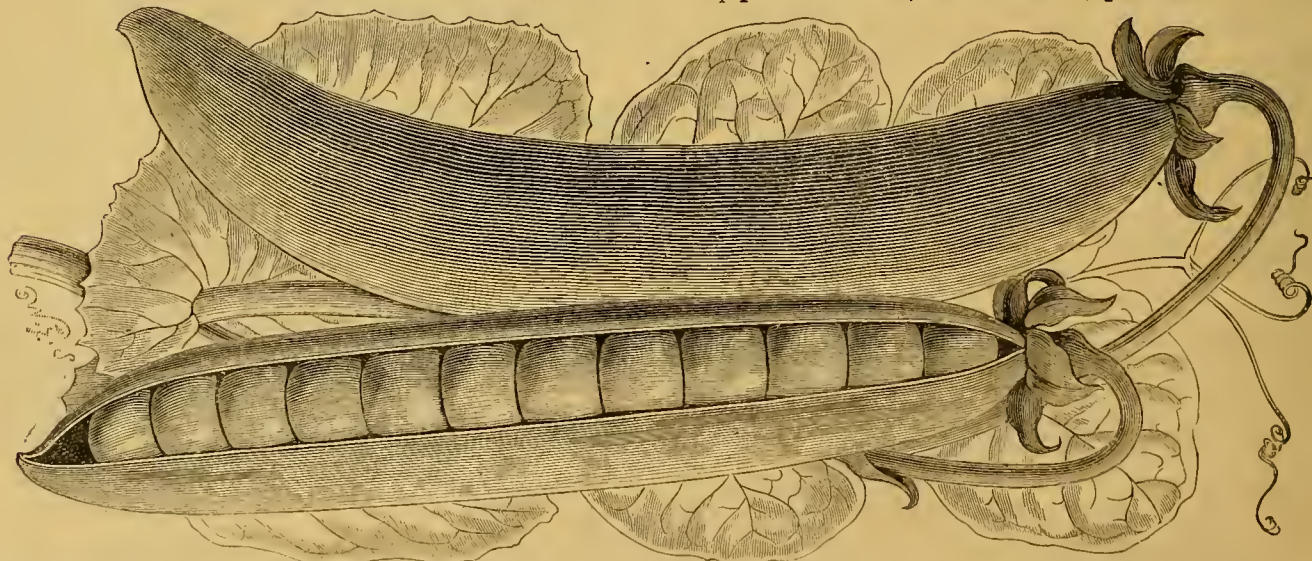
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# THE GARDENERS' CHRONICLE.

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**THE GARDENERS' CHRONICLE,**  
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## ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.  
The ANNUAL GENERAL MEETING of the Royal Horticultural Society, will be held in the Conservatory, at South Kensington, on TUESDAY, February 10, to receive the Report of the Council and of the Auditors, and for the Election of Members of Council, Officers, and Auditors, and for the Removal from the Society of certain Fellows, under the provisions of Bye-law 22. Chair to be taken at 3 o'clock, P.M.  
N.B.—At this Meeting Candidates for Fellowship will be Elected.

## GARDENERS' ROYAL BENEVOLENT INSTITUTION.

RICHARD HAWKINS, who was last week elected a Pensioner of the G.R.B.I., returns his sincere thanks to all who Voted in his behalf, and thus helped to secure his election.  
Malvern, January 20, 1885

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## ERRATUM.—In W. TAYLER'S

Advertisement in last Saturday's *Gardeners' Chronicle* (see page 70), for APPLES, Dwarf Maidens, 7s. per dozen, read 6s. per dozen

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## STOLEN.—A number of ADDRESSED

COPIES of CARTERS' CATALOGUE of GARDEN SEEDS for 1885 having been STOLEN from their Warehouse, Messrs. Carter & Co. respectfully ask those Customers who have not received the book to communicate to them, in order that a fresh copy may be posted.

JAMES CARTER and CO., Seedsmen, by Royal Warrant, to H.R.H. the Prince of Wales, 237 and 238, High Holborn, London, W.C.

## Manetti Stocks.—Manetti Stocks.

TEN THOUSAND MANETTI STOCKS, strong and well-rooted stuff, 18s. per 1000. C. ALLEN, Stone Hill Nursery, Heigham, Norwich.

STRONG MANETTI STOCKS, fit for immediate working, at unusually low prices; &c. A. M. C. JONGKINDT CONINCK, Dedemsvaart, by Zwolle, Holland.

LARCH.—LARCH.—LARCH.—Special cheap offer, to clear ground. From 3 feet upwards at very low prices; also other FOREST TREES.

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HERBACEOUS and ALPINE PLANTS.—Now is the season to plant and insure success. Write for R. H. VERTEGANS' Pocket CATALOGUE, and make your choice from his unrivalled Collection.

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HARDY GROWN FOREST TREES from the North of Scotland. A large stock of seedling and transplanted Forest Trees, &c., cheap. Write for quotations and samples.

W. P. LAIRD and SINCLAIR, Nurserymen, Dundee, N.B.

## Tea Roses.

THE LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, have this season a grand stock of TEA ROSES in pots. Their plants have been carefully ripened, and are ready to start immediately into growth.

CATALOGUES free. The Trade supplied.

GLADIOLI.—Twenty Acres. The largest collection in Europe. CATALOGUES free, with Cultural Directions.

KELWAY and SON, Langport, Somerset.

NOVELTIES and SPECIALTIES for 1885, in Flower and Vegetable Seeds. See BARR and SON'S Descriptive Spring CATALOGUE, just published. Free on application.

BARR and SON, 12 and 13, King Street, Covent Garden, W.C.

GENUINE SEEDS.—General CATALOGUE of Kitchen Garden, Flower, and Agricultural Seeds, Plants, Roses, Vines, &c., Implements, Garden Requisites, &c., is now ready. Free to Customers.

LAING and CO., Stanstead Park, Forest Hill, S.E.

GRAPE VINES, strong Fruiting and Planting Canes; also STRAWBERRIES in pots. LIST on application.

FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey.

SAGE PLANTS, 1s. 6d. per dozen. Order of R. BATH, Crayford, Kent.

Johnston's St. Martin's Rhubarb.

EARLIEST and BEST in CULTIVATION. Strong Roots, 1s. each, 9s. per dozen. Trade price on application.

W. P. LAIRD and SINCLAIR, Nurserymen, Dundee, N.B.

LOVEL'S STRAWBERRY PLANTS.—GREENHOUSE, 5s. per 100, 40s. per 1000.

GARDEN, 2s. 6d. per 100, 20s. per 1000. Sample and Pamphlet, post-free, 4d.

W. LOVEL and SON, Strawberry Growers, Driffield.

SEAKALE and ASPARAGUS. Crowns for Forcing. Apply to WILLIAM BAGLEY, Mill-hat Farm, Fulham, S.W.

CAULIFLOWER PLANTS, Autumn-Sown, strong, 2s. 6d. 120. 18s. 1200. CABBAGE PLANTS, HERBS, LETTUCE, &c., PLANTS, cheap, carriage paid. LIST free of

EDWARD LEIGH, Ivy House, Cranleigh, Surrey.

Special Trade Offer!!

SEED POTATOS.—For disposal, a few Tons of the following varieties, all true selected stocks, and hand-picked samples:—Fidler's Improved Ashleaf, at 46s; White Elephant, at 45s. 6d.; Beauty of Hebrides, at 46s; Reading Russet, at 44s. 6d.; Myatt's Ashleaf, at 45s. 6d. per ton, free on rails. In quantities of not less than one ton. Full particulars from C. FIDLER, Potato Grower, &c., Reading.

To the Trade SEED POTATOS.

H. and F. SHARPE'S Wholesale Priced LIST of SEED POTATOS is now ready, and can be had on application. It comprises the best kinds in cultivation, and the prices are very reasonable.

Seed Growing Establishment, Wisbech.



## SALES BY AUCTION.

Monday Next.—(Sale No. 6827.)

5000 LILIAM AURATUM from Japan, in fine condition; 5000 Berlin LILY of the VALLEY crowns, 1000 MILLA BIFLORA, 1000 first-class LILIES, 5000 TUBEROSES from Genoa and South Africa, 2000 TIGRIDIAS, and several thousand miscellaneous BULBS and ROOTS.

MR. J. C. STEVENS will sell the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C. on MONDAY NEXT, January 26, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6829.)

HARDY PLANTS and BULBS in variety. MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C. on WEDNESDAY NEXT, January 28, at half-past 12 o'clock precisely, first-class Standard and Dwarf ROSES, FRUIT TREES in quantity, SHRUBS and CLIMBERS, BORDER PLANTS, LILIES, GLADIOLI, and a variety of other HARDY BULBS and ROOTS.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6830.)

IMPORTED ORCHIDS, and 5000 PEARL TUBEROSES. MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C. by order of Mr. F. Sander, on THURSDAY NEXT, January 29, at half-past 12 o'clock precisely, grand importations of ONCIDIUM MACRANTHUM and ODONTOGLOSSUM HALLI, a very superb new ODONTOGLOSSUM in the way of POLYXANTHUM, and many fine ORCHIDS just to hand in splendid condition; also a consignment of 5000 PEARL TUBEROSES from America.

On view morning of Sale, and Catalogues had.

Tuesday Next.—Orchids in Flower.

MESSRS. PROTHOROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, January 27, at half-past 12 o'clock precisely, ORCHIDS IN FLOWER, from various well known Collections, including several very fine forms of Odontoglossum Rossi majus and Lælia anceps, Cattleya Warscewiczii delicata (true), Angreum sesquipedale, grand specimen, Odontoglossum Alexandrie, many beautiful varieties, Dendrobium Ainsworthii, Odontoglossum Halli, grand white lip variety; Cypripedium calophyllum, new hybrid; hybrid Odontoglossum, and others.

On view morning of Sale, and Catalogues had.

Tuesday Next.—Wood Green, N.

UNRESERVED CLEARANCE SALE.

MESSRS. PROTHOROE AND MORRIS will sell by AUCTION, on the Premises, The Vineries, Nightingale Road, Wood Green, N., on TUESDAY NEXT, January 27, at 12 o'clock precisely, by order of the Proprietor, who is retiring from the business, the whole of the well-grown stock of STEVE and GREENHOUSE PLANTS, including 10,000 Adiantum cuneatum, in various sized pots; 1000 Chrysanthemums of sorts, Lomarias, Gardenias, Eucharis, 10 large Stephanotis, &c.; 1000 BOXES, covered spring Market VAN, and other effects.

May be viewed. Catalogues had on the Premises, or of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C. N.B.—The valuable FREEHOLD NURSERY FOR SALE. Comprises an Acre of Land, Five GREENHOUSES, all Heated, SHEDS and DWELLING-HOUSE. Price and particulars of the Auctioneers.

Wednesday Next.

LILIAM AURATUM, ROSES, and BULBS.

MESSRS. PROTHOROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, January 28, at half-past 12 o'clock precisely, 10,000 unusually fine bulbs of LILIAM AURATUM (including 2000 gigantic bulbs, measuring 10 to 13 inches in circumference), just received from Japan in splendid condition; a consignment of 500 PAN-CRATIUM CARIBÆUM and AMARYLLIS GRANDIS, received direct from the West Indies; 2000 Double African TUBEROSES, 400 Standard and other ROSES of the best named varieties, from an English Nursery; 2000 Berlin Crowns of LILY of the VALLEY, CARNATIONS, CHRISTMAS ROSES, TROPÆOLUM TUBEROSUM; a choice selection of Hardy LILIES, including extraordinary bulbs of L. giganteum, L. superbum, and L. Humboldtii; and an assortment of BULBS for the GARDEN and GREENHOUSE.

On view morning of Sale, and Catalogues had.

Wednesday Next.—Lilium auratum.

MESSRS. PROTHOROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, on WEDNESDAY NEXT, 10,000 exceedingly fine bulbs of LILIAM AURATUM, including 2000 gigantic roots measuring 10 to 13 inches in circumference.

On view morning of Sale, and Catalogues had.

Friday Next.

NANODES MEDUSE.

MESSRS. PROTHOROE AND MORRIS are instructed by Mr. F. Sander to sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, January 30, at half-past 12 o'clock precisely, the grandest importation yet received of NANODES MEDUSE, and the rare and magnificent ODONTOGLOSSUM POLYXANTHUM, PESCATORIA KLABOCHORUM, ODONTOGLOSSUMS, CATTLEYAS, &c., in the finest order.

On view morning of Sale, and Catalogues had.

The Remaining Portion of the Fallowfield COLLECTION OF ORCHIDS.

MESSRS. PROTHOROE AND MORRIS are favoured with instructions to sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, February 3, the remaining portion of the FALLOWFIELD COLLECTION OF ORCHIDS, containing, among other fine things, a grand plant of Cattleya Trianae alba, in bud or flower; splendid specimen plant of Cypripedium euryandrum, C. mirax, and C. Crossianum; a grand plant, in bud, of Angreum sesquipedale, Masdevallia (Bull's blood), Cologne Massangeana, Masdevallia Veitchii grandiflora, M. Winniana, &c.; many rare Odontoglossums, Vandas, Aerides, &c.

On view morning of Sale, and Catalogues had.

WANTED TO RENT, several GREENHOUSES, with a little Land, near a Manufacturing Town preferred.

Particulars to C. C., Gardeners' Chronicle Office, 41, Wellington Street, Strand, London, W.C.

WANTED TO RENT on LEASE, a few GREENHOUSES, heated with Hot Water, with Ground attached; also Dwelling-house, about 10 miles from Covent Garden.

Address FLORIST, Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

TO BE DISPOSED OF, a First-class FLORIST, SEED, and JOBBING BUSINESS, in a main thoroughfare, about 7 miles from London. All in good working order.

Address L., Nurseryman, Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

Important to Florists, Nurserymen, Market GROWERS, and OTHERS.

TO BE LET, on LEASE, or SOLD with possession, the valuable FREEHOLD ESTATE known as Osborn's Nursery, Sunbury, Middlesex, comprising 17 Acres of excellent Land with Dwelling-house, Stabling, Sheds, and all the extensive range of modern and recently-erected Greenhouses. The Estate having a frontage of 1100 feet to the high road, possesses a great prospective value for Building purposes. Full particulars may be obtained of Messrs. PROTHOROE AND MORRIS, Auctioneers, 67 and 68, Cheapside, E.C.

JOHN KENNARD'S HORTICULTURAL SUPPLIES, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

T. MILLINGTON AND CO., ENGLISH and FOREIGN SHEET and PLATE GLASS, WHITE LEAD, MILLED LEAD, OILS, and COLOUR MERCHANTS, 43, Commercial Street, E.

HUGH LOW AND CO. offer the Trade Ampelopsis Veitchii, 50s., 60s. 10s. Apricots, dwarf maiden, Moorpark, and others, 60s. 10s. 1000; dwarf trained, 24s. 30s. doz. Cherries, dwarf maiden (except May Duke), 40s. 100; dwarf trained, 18s. 24s. doz. Damson, Fairleigh, prolific dwarf maiden, 50s. 60s. 100. Nectarines and Peaches, dwarf maiden, 60s. 100; 1000; dwarf trained, 24s. 30s. doz. 100. Pampas Grass, fine, 10s. to 40s. 100. Pears, dwarf maiden, on Pear and Quince, 50s. 60s. 100; dwarf-trained, 21s. 24s. doz. Pyramids on Quince, 50s. 60s. 100; 2-yr. feathered on Pear stock, 50s. 100. Plums, dwarf maiden, 40s. 100; dwarf-trained, 18s. 21s. 24s. doz. 100. 2-yr. feathered, 50s. 60s. 100. Rhubarb, Champagne, high coloured, early, 6s. doz. Roses, dwarf budded, 30s. 100; dwarf H.P. on own roots, 25s. 100. Seakale, planting, 50s. 100. Vines, planting, 30s. doz.; fruiting, 60s., 72s. doz.—Clapton Nursery, London, E.

HUGH LOW AND CO. offer the Trade Acacia armata, splendidly budded, 9s., 12s. doz. Areca lutescens, "48" pots, 18s. doz. A. rubra, 1 ft., 10s. 100. Adiantum cuneatum, 48-pots, 60s., 75s. 100. A. gracillimum, 32-pots, 12s. doz. Azalea indica, well budded, 12s., 15s., 18s., 24s., 30s. doz. Azalea, white, in flower and bud, 12s., 18s. doz. Camellias, well budded 21s., 24s., 30s. doz. Carnations, Tree, -a bud and flower, 12s., 15s. doz. Cyclamens, in flower and bud, 5s., 7s., 10s. 100. Erica barbata major in flower, 22s. doz. E. gracilis, in flower, 9s., 18s. doz. E. hyemalis in 48-pots, in flower, 60s. 100. E. melanthera, splendidly budded, 12s., 18s., 24s. doz. Euonymus, golden, for pots, 30s., 40s., 50s. 100. Ficus elastica, 18s., 21s., 24s. doz. Gardenia intermedia, well budded, backward, 18s., 24s. doz. G. radicans, well budded, backward, 6s., 12s. doz. Genistas, finely budded, 8s., 10s., 12s. doz. Grevillea robusta, 48-pots, 50s., 75s. 100. Humea elegans, 9s., 12s., 18s. doz. Jasminum gracillimum, finely budded, 18s. doz. Laurustinus, French white, splendidly budded, 12s., 18s., 42s. doz. Pelargoniums, zonals, unnamed, in bud, 30s. 100. Ptychosperma Alexandrie, strong, 12s., 18s. doz.—Clapton Nursery, London, E.

To the Trade Only.

FERNS — FERNS — FERNS.

—Adiantum cuneatum, A. trapeziforme, A. gracillimum, Lomaria gibba, Lastrea aristata variegata, Pteris serrulata cristata Cowan, P. serrulata: nice plants in 60s., 20s. per 100. Adiantum cuneatum, A. gracillimum, A. trapeziforme, in 4 and 4½ inch pots, 40s. to 50s. per 100, according to size; Adiantum Paccotti, in 60s., 30s. per 100; ditto, in 4 and 4½ inch pots, 50s. per 100.

THE LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, The Vineyard and Nurseries, Garston, Liverpool.

WRIGHT'S well-known CELERIES: the finest in cultivation:—

GROVE RED, GROVE WHITE, GROVE PINK, and GIANT WHITE, each per packet, 1s. the four 3s. post-free, or 40s. per 100 packets.

WRIGHT'S PERFECTION BROCCOLI, 1s. packets. „ EARLY MARKET CABBAGE, finest early variety known, 1s. per packet.

CUCUMBERS—TELEGRAPH, good true stock, packet 1s.; 100 seeds, 4s.; per ounce, 12s. PARAGON, good, packet 1s.; 100 seeds, 4s.; per ounce, 12s. PRINCE OF WALES, fine show variety, packets, 1s.; 100 seeds, 4s.; per ounce, 14s.

All my own careful saving, and strongly recommended. Cash from unknown correspondents.

WILLIAM WRIGHT, Seedsman, Retford, Notts.

Orchids.

THE LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, have at present a grand stock of DENDROBIUMS, in variety, and other East Indian ORCHIDS, also CATTLEYAS and other valuable ORCHIDS from South America, and they are constantly receiving fresh importations. Price LISTS and full particulars on application. The MANAGER, The Vineyard and Nurseries, Garston, Liverpool.

To Oiler Growers, Basket Makers, and Nurserymen. BRADFORD AND SONS, Yeovil, Somerset, now Grow and Cut yearly 100 acres and upwards of OSIEK BEDS, and will quote prices to the Trade, according to quantity required. Samples and prices of Osier "S" on application.

## THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At a GENERAL MEETING of the MEMBERS of this Institution, held on January 14, 1885, for the Election of EIGHT PENSIONERS, the following was the result of the Ballot:—

## CANDIDATES.

Votes.	Names.	Age.
1919	WILLIAM BIRKETT	76
1333	RICHARD HAWKINS	69
511	WILLIAM ARCHER	79
595	THOMAS BEST	69
2308	ROBERT PRYOR	74
1597	MARTHA SWANBOROUGH	81
412	GEORGE URGUBART	69
1371	SOPHIA WARE	68
1108	ANNA MARIA ALLAN	76
767	ELIZABETH FOULIS	89
1305	WILLIAM HARMAN	59
1515	ELIZABETH PARR	73
	MARY RABBITT	64

The Meeting declared Martha Swansborough, William Birkett, George Urgubart, Mary Rabbitt, Anna Maria Allan, Richard Hawkins, Elizabeth Parr, and Elizabeth Foulis, as having the greatest number of votes, fully elected Pensioners from the 25th December last.

EDWD. R. CUTLER, Secretary.  
14, Tavistock Row, London, W.C., January 20, 1885.

To the Trade.

BROAD BEANS.

H. AND F. SHARPE have fine samples of WINDSOR and LONGPOD BEANS to offer. Samples and Prices may be had on application. Seed Growing Establishment, Wisbech.

ASH, common, 2 to 3 feet, clean, 17s. per 1000; 3 to 4 feet, 22s. per 1000. ELMS, 1½ to 2 feet, 14s. per 1000; 2 to 3 feet, 17s. per 1000; English, 3 feet, 25s. per 1000. CHESTNUT, Spanish, 2 to 3 feet, 22s. per 1000; 15 to 20 inches, 16s. per 1000. LARCH, 14 to 24 inches, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 4 feet, 18s. per 1000; 4 to 5 feet, 24s. per 1000. SPRUCE FIR, 1 to 1½ foot, 12s. per 1000; 1½ to 2 feet, 13s. per 1000; 2 to 2½ feet, bushy, 16s. per 1000; 2½ to 3 feet, 17s. per 1000. SILVER FIR, 4-yr. transplanted, 22s. per 1000. HALF-2, 2 to 3 feet, 20s. per 1000. OAKS, 18 to 20 inches, 16s. per 1000; 1 to 1½ foot, 12s. per 1000; Evergreen, 2 feet, 15s. per 1000; 1 to 1½ foot, 12s. per 1000; OVALIFOLIUM, 2 to 2½ feet, 30s. per 1000; Oval, 1 foot, 20s. per 1000. SYCAMORE, 1½ to 2 feet, 14s. per 1000. THORN, 1½ to 2 feet, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 3½ feet, 18s. per 1000.

CATALOGUES on application to GARLIES MITCHELL, Nurseryman, Stranraer, N.B.

ANDRÉ LEROY'S Nurseries, at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition at Paris in 1878. Orders must be addressed to Messrs. WATSON and SCULL, 92, Lower Thames Street, London, E.C.

LILIAM AURATUM.—Special Offer.—Good sound dry BULBS, 4 to 6 inches in circumference, 4s. per dozen, 28s. per 100. Cheapest for quality ever offered. Samples twice stamps.

Messrs. MORLE AND CO., 1 and 2, and 162, Fenchurch Street, E.C.

ROSES.—ROSES.—Forty dwarf H.P.'s and 12 Teas of finest named varieties for 21s. Cash. EDWIN HILLIER, Nurseries, Winchester.

Planes (Platanus occidentalis). W. RUMSEY can offer the above by the dozen, 100 or 1000, from 6 to 12 feet. Prices on application.

JOYNING'S Nurseries, Waltham Cross.

TULIPS.—Cut, or on Bulbs, assorted colours, or separate, 1s. 6d. per dozen, Parcels Post free. The GARDENER, Holly Lodge, Stamford Hill, London, N.

CAMELLIAS.—A choice Collection of Specimen Plants for Sale, 3 to 7 feet high, in tubs, all true to name. GARDEN, 97, South Street, Exeter.

STRAWBERRIES FOR FORCING.—The following three varieties are offered in very fine Plants, well established in 32-pots, and ready for immediate forcing:—PRINCESS ALICE MAUD. SIR CHARLES NAPIER. SIR JOSEPH PAXTON.

Price 7s. 6d. per doz., 50s. per 100. THE WESTERHAM NURSERIES AND SEED CO. (late JOHN CATTLE), Westerham, Kent.

GRAPE THIS YEAR. FRUITING CANES, 7s. 6d. and 10s. 6d. each. PLANTING CANES, 3s. 6d. to 7s. 6d. each. Leading kinds, perfect ripened without bottom-heat. DUKE OF BUCKLEBURGH, grafted, 15s. each. JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

Hollyhock and Balsam Seed.

F. T. SMITH AND CO. offer, in Sealed Packets, HOLLYHOCK, in collections of 12 superb double varieties, named and coloured, separate, 3s. 6d.; do. in 6 varieties, 2s.; do. mixed, in 12 colours, 1s. 6d.; do. in 6 colours, 1s.; do. do. good varieties, 6d. BALSAMS, finest double, in 9 colours, separate, 2s. 6d.; do. mixed, 2s.; do. half the quantity, 1s. A LIST of Choice Flower Seeds now ready. West Dulwich Nursery, London, S.E.

Cooling's NE PLUS ULTRA DWARF BEAN.

Per pint, 2s. 6d. post-free 3s. 9d. COOLING'S LEVIATHAN COS LETTUCE, Per packet, 1s., post-free. COOLING'S OMEGA BEET, Per packet, 1s., post-free.

Three of the finest vegetables in their respective classes in cultivation. Trade Price on application. GEO. COOLING AND SON, Seedsman, &c., Bath.



**A. RIEMSCHEIDER**, Brandenburg-on-Havel, Germany, begs to offer the following Flower Seeds in very best quality:—

**ASTERS.**

**BOLTZER**, Dwarf, bouquet, mixed, per lb., 45s.; per ounce, 4s.  
 " " " Separate colours, per ounce, 5s.  
 " " " 6 distinct colours, each 100 seeds, 6d.  
**CHRYSANTHEMUM**, Dwarf, mixed, per lb., 58s.; per oz., 4s.  
 " " " Separate colours, per ounce, 5s.  
 " " " 12 distinct colours, each 100 seeds, 1s.  
**IMBRIQUE POMPON**, mixed, per lb., 38s.; per ounce, 3s.  
 " " " Separate colours, per ounce, 4s.  
 " " " 12 distinct colours, each 100 seeds, 10d.  
**PEONY PYRAMIDE**, mixed, per lb., 60s.; per ounce, 4s. 6d.  
 " " " Separate colours, per ounce, 5s.  
 " " " 12 distinct colours, each 100 seeds, 1s. 6d.  
**VICTORIA**, extra fine, mixed, per lb., 60s.; per ounce, 4s. 6d.  
 " " " Separate colours, per ounce, 5s.  
 " " " 12 distinct colours, each 100 seeds, 4s. 6d.

**BALSAMS.**

**CAMELLIA-FLOWERED**, double, extra fine, mixed, per lb., 35s.; per ounce, 3s.; separate colours, per ounce, 4s.; eight distinct colours, each 100 seeds, 1s.  
**ROSE-FLOWERED**, extra, mixed, per lb., 35s.; per ounce, 3s.; separate colours, per ounce, 4s.; eight distinct colours, each 100 seeds, 1s.

**STOCKS.**

**GERMAN TEN-WEEK**, large flowered, extra, mixed, per lb., 60s.; per ounce, 6s.; separate colours, per ounce, 7s.; twenty distinct colours, each 100 seeds, 3s.  
**INTERMEDIATE**, mixed, extra fine, per ounce, 12s.  
**WINTER or BROUGHTON**, mixed, per ounce, 10s.  
 The seed of Stocks offered here is harvested from plants cultivated in pots. Seed harvested from the grounds, likewise very good, is about 20 per cent. lower in price.

**WALLFLOWERS.**

**EXTRA DOUBLE TALL**, or **DWARF**, mixed, 6s. per ounce; separate colours, 7s. 6d. per ounce.  
**DWARF**, Single, mixed, 4s. per lb., 6d. per ounce.  
 " " " Separate colours, 7s. per lb., 1s. per oz.  
 All my Seeds have been selected with the utmost care and attention, and I have great pleasure in recommending them to your notice.

**BEANS.**

**FLAGEOLET**, Blood-red, 25s. per cwt.  
**DWARF FRENCH**, long early Yellow, for forcing, 24s. per cwt.  
**SUGAR PEARL**, 35s. per cwt.  
**SCARLET RUNNERS**, 25s. per cwt.  
 All other Vegetable and Flower Seeds in best quality and at Low Prices. **LILY of the VALLEY**, strong flowering pips, true Berlin sort, prices on application.  
 All orders should be addressed to  
**Messrs. R. SILBERRAD and SON**, 25, Savage Gardens, London, E.C.

**To the Trade only.**

**CHAS. KERSHAW** offers strong Crowns of his **PARAGON RHUBARB** at 25s. per 100. Strong plants with several crowns—price on application.  
**DECIDUOUS SHRUBS** in variety, fine transplanted stuff, 4s. per 100.  
 He can still supply extra strong plants in pots of **MARECHAL NIEL**, **GLOIRE DE DIJON**, **BELLE LYONNAISE**, **REINE MARIE HENRIETTE**, and other ROSES.  
 The Stead Syke Nurseries, Brighouse.

**EAST LOTHIAN STOCKS.**

**THOMAS METHVEN and SONS** offer their choice strain of the above Intermediate Stocks in five colours—Scarlet, Purple, White, Crimson, and Snow-white, wall-leaved, in packets, 1s., 2s. 6d. and 5s. each colour. Price to the Trade on application.  
 15, Princes Street, Edinburgh.

**ASPARAGUS**.—Extra strong three and four years stuff. Samples and prices on application to  
**THOMAS S. WARE**, Hale Farm Nurseries, Tottenham, London.

**NEW CHRYSANTHEMUMS**.—I offer 25 varieties, selected in China and Japan, which for size of flower, freedom of growth, and distinct colours, surpass the older varieties. Four Certificates of Merit in New York, Dec. 2.  
 Price 50s. the set. Usual terms to the Trade.

**LIST on application to**

**H. WATERER**, Importer of Plants and Bulbs, 3809, Pewelton Avenue, Philadelphia, U.S.A.

**Wholesale List of Vegetable Seeds.**

**H. and F. SHARPE** will be pleased to forward their **WHOLESALE LIST** of Home Grown **VEGETABLE SEEDS** to those who have not yet received it. It comprises all the best varieties in cultivation, and the quality of the seeds is exceptionally good.  
 Seed Growing Establishment, Wisbech.

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THE

## Gardeners' Chronicle.

SATURDAY, JANUARY 24, 1885.

## A TRIP TO JEYPORE.

FROM Agra to Jeypore the country is very uninteresting. As far as the eye can see, on both sides of the railway, there are nothing but plains of *Saccharum moonja*, which was then (November) in flower. It is not unlike the Pampas-grass. There are also immense tracts of *Zizyphus nummularia*, plenty of *Calotropis Hamiltoni*, now and then some *Capparis aphylla*, especially on broken ground, and some other plants, which I could not identify from the railway carriage. Villages are few and far between. Crops, with few exceptions, are very wretched, although this year (1884) they say the rainfall was better than usual. Sorghum and *Penicillaria* were 2 and 3 feet high instead of 8 or 10 feet. Near Jeypore peacocks were feeding on the leaves of plants close to the railway, and some were actually perched on the boundary mud walls of the line. The train passing along did not in the least disturb them. They are evidently never harmed, and held in great reverence. The peacock appears to be the emblem of Jeypore, as I saw it in cast-iron miniature on the tops of the lamp-posts.

The city of Jeypore is rather curious; its main streets are wide and well kept; they are lined on both sides by a series of native house-fronts, the exterior of which reminds one very strongly of a cake in purple-pink, picked out with white. They are all of the same colour, except the fronts of His Highness's palace and stables, which are of yellow-ochre, picked out with white. The city is well furnished with gas-lamps, although when I left early in the dark morning not one was lit on the road to the station. There are also numerous watercocks along the main roads. Both these are novel features in native cities. The narrow side streets, however, had the usual oriental dirt and smells.

His Highness's palace consists of tier upon tier, making five or six storeys. It looks quaint, but I fancy the top storeys must be nice and cool, and fine places for bedrooms during the rainy season, it being a great advantage to sleep high above the chills and effluvia of the level of the ground. The public halls of audience look tawdry, and, as happens in other cases, there is an exhibition of barbaric grandeur, combined with ragged curtain blinds, and now and then dirty walls and corners. The Maharajah's garden is very extensive, and mostly taken up by an infinity of water-spouts placed in shallow fountains on the level of the ground. They say the jets are let off twice a year, on great festivals, and it is said they are fed from a reservoir near the hills. At the end of the Maharajah's palace garden there is a sort of belvedere, which looks over an extensive pond, in which turtles and crocodiles are kept. All this has a certain charm about it, but to show how tastes differ, I there met an American, who was staying at the same hotel as I was. I asked him how he liked His High-



ness' grounds and palace. "Well," he said, "if they were offered to me for nothing I would not have them."

In Jeypore there are many trees of *Ailantus excelsa*. It has very light wood, which is mainly used for sword-scabbards. They say that Mangos do not grow in Jeypore, and I do not remember seeing one. The city on one side is bordered by a crescent of low hills, which are not wooded, but which have low scrubby plants, *Euphorbias* and others, used only for firewood. On one of the hills is a fort and summer palace.

I visited the "Ramnewas" garden. The guide-book stated that "it is probably the most beautiful garden in India." It is extensive, and bears the stamp of having been designed on paper and then of an endeavour having been made to carry out the design on the ground. This, of course, can be easily done, but then the result will be probably such a garden as this. It has here and there little depressions, and some mounds, and several lawns, which could hardly be called green, as they were dotted with brown patches. It has all been recently done—some fifteen or sixteen years ago. The shrubs have grown fairly, but there is not a tree of any size. Some plants of *Cupressus sempervirens* were dotted about in lines and otherwise, looking rather unhappy. One thing I saw which was charming, viz., a "Neem" tree (*Melia azadirachta*) covered on one side with the deep rose sprays of *Antigonon leptopus*. It was so fine that it is a wonder this fine climber is not oftener sent up a "Neem" or other tree. The contrast between the deep rose flowers and the dark green feathery foliage of the "Neem" was perfect. It was the only one I saw, and it appeared to have gone up the tree by chance. A number of these simple natural combinations alone would light up the place, which, although extensive, I thought was not less monotonous. Climbers are tortured into espaliers, arches, and other unnatural positions. This garden, although recent, already shows signs of neglect. The fact is, this style of gardening, on an extensive scale, requires a small army of workmen to keep it in order, and an expenditure which would be enough to ruin any native potentate. It appears to be all non-productive. It would have been better if portions of it had been planted with groups of forest trees, which might have been made very ornamental in various ways, and which would, now and then, have afforded the eye an escape from the monotony of the scenery, and repose to the mind. When the present trees grow bigger—if allowed to do so—the garden may then look less monotonous. I was told, however, that now and then somebody orders them to be pruned. In all the gardens I have seen in native states there is too much chopping and chipping and bothering of plants.

Natives appear to have a fancy for this unnatural sort of gardening. The evolution of the art of gardening appears to necessitate this "stage of clipping." In olden times, in Europe, it was considered the proper thing, and as a relic of the past some gardeners in England still cultivate this fancy. I would say, "Give me one *Antigonon* trailing naturally up a 'Neem' tree, and keep all the clipped things to yourself!" There was an opportunity here for landscape gardening which, I think, has been allowed to escape, while great energy appears to have been expended on symmetry, steps, mounds, ponds, and seats. Where symmetry ought to have been, however, there it was not.

A small symmetrical yard near the aviary had four small plots in the four corners. One had an *Oreodoxa regia*, and the rest other kinds of Palms, which can never by their nature become symmetrical. As the Italians say—

*Qui ci andavano quattro Oreodoxa regia, or quattro something else, all of one kind.*

The aviary contained a number of interesting birds. One thing, however, was rather painful to look at, viz., a small shallow pond, enclosed with wire netting. It was 14 paces long and 12 paces wide, with side recesses of stone, and a small bit of dry ground. In this enclosure were twenty flamingos, several herons, storks, spoonbills, cranes, ibises, paddy-birds, bar-headed geese, knob-beaked geese, Brahmini ducks, and a variety of other ducks, teals of sorts, terns, water-hens, a cormorant, and a hill raven. The cormorant, with his traditional appetite, was diving for and devouring bits of meat in quick succession; herons and terns were doing pretty much the same thing, others were quarrelling. The water was dirty, and I was told was changed only once a week, the dirty water being discharged into a plot of Plantains. I think it ought to make fine liquid manure. Nineteen of the flamingos were having a foot bath, with their heads under their wings, the twentieth, and the finest of the lot, had evidently had enough of this sort of life, and was lying dead on dry land. The other nineteen were probably dreaming of a similar and not distant fate. About a stone's-throw from this aviary the Maharajah is building himself a new palace of marble and stone, and an extensive "zenana," to cost Heaven knows how many lacs of rupees. On charitable and sanitary grounds these poor water-birds might have a few of these rupees set apart for the purpose of giving them a little more space and cleaner water.

(To be continued.)

## PINUS PATULA.

THE branch and cones of *Pinus patula* (fig. 20) are figured from a tree of this graceful Mexican Pine now growing in the gardens at Carclew, Cornwall,



FIG. 19.—CROSS-CUT OF A LEAF OF *PINUS PATULA*, MAGN. (SEE TEXT.)

the seat of Lieut.-Colonel Tremayne, where there are three fine specimens of this rare half-hardy *Pinus*. They have borne female blossom and cones for some years past, in clusters from two to ten in number, but no male blossom has been observed as yet. As this tree is rarely met with, it may be interesting to notice the measurements of the few specimens that are known to us in the West of England. Of the three trees at Carclew, which were planted by the late Sir Charles Lemon soon after their introduction into this country, the stem measures in circumference—

	Girth at the Ground.	Girth at 3 feet from Ground.	Height.	Spread of Head: Diameter.
No. 1.	8 0	6 0	30	52 0
No. 2.	7 0	6 6	40	51 0
No. 3.	5 6	5 0	30	51 0

But perhaps the most ornamental and perfectly well grown specimen of this tree in Cornwall (though younger than others) is that now growing in the pinetum at Tregrehan, the seat of G. R. G. Carlyon, Esq. Its branches are perfect from the ground to the leading shoot to the height of 32 feet, and the girth of its trunk at the ground is 6 feet 9 inches, and at 3 feet from the ground 5 feet 10 inches, with a head spreading 40 feet in diameter. This tree has borne cones for a few years, but no male catkins have been noticed. The accompanying portrait of the tree

(fig. 22, p. 117) is from a photograph by F. A. Allchin, Esq. There are other single specimens of this *Pinus* at Lamorran, in the pretty grounds of the Hon. and Rev. J. T. Boscawen, where it is 24 feet 7 inches high, measuring at 3 feet from the ground 3 feet 10 inches, with a head in diameter 24 feet 7 inches. Another fine tree is at Pencarrow, near Bodmin, height 43 feet 6 inches, and girth at 3 feet, 7 feet 3 inches. Another is at Penjerrick, near Falmouth, a younger tree, but of fine growth. There were other plants at Antony, at Heligan, and at Menabilly, but these have been blown down or killed.

In Devonshire there are a few trees of *P. patula*, the finest being, it is believed, that growing at Bickton, in Lady Rolles' fine collection of Pines, which is 36 feet high, and its girth at the ground 8 feet.

The branch of *P. patula* which is drawn in Lambert's *Genus Pinus* does not show the graceful pendulous character of the foliage, and the cone is larger than those grown in Cornwall, having probably been drawn from a Mexican specimen. *J. R., Menabilly, December, 1884.*

[To the above account of a most graceful tree with which we were favoured by Mr. Rashleigh there is little that need be added, as the tree has been described by Lambert, Parlature, in *De Candolle's Prodromus*, xvi., 2, p. 397; and by Gordon, *Pinetum*, ed. 2, p. 278. We may add, however, as points that have hitherto been unrecorded, that the buds are clustered at the ends of the shoots, each from  $\frac{3}{4}$ —1 inch long, cylindric-conic, and very sharply pointed. The leaf in transverse section (fig. 19) has one convex and two concave sides, and when examined microscopically, may be seen to have a double layer of strengthening cells (hypoderm) beneath the epiderm, and a variable number of resin canals in the cellular tissue of the leaf (sometimes they are wanting). The central double bundle is surrounded by a well marked sheath or endoderm. The cones are borne on short horizontal stalks in whorls, some little distance above the base of the shoot of the year, at about a third or a fourth of the distance from the base to the tip, as pointed out to us by Mr. Rashleigh. The delicate thread-like foliage is not well shown in the engraving of the tree, as there must have been some motion of the leaves when the photograph was taken: in fact the foliage is too fine to be accurately represented on a reduced scale. *M. T. M.*]

## New Garden Plants.

### ODONTOGLOSSUM VIMINALE, n. sp.\*

A NEW *Odontoglossum* of some botanic interest, in the way of *Odontoglossum anthoxanthum*. It has a very long peduncle, much exceeding a foot in length, with few-flowered straight racemes. Flowers as large as those of *Oncidium gramineum*. Sepals and petals brown, with curious pale, whitish-sulphur borders, and linear spots around the margin, which are scarcely to be seen. Lip with an angle at each side of the base and lanceolate anterior part, light sulphur at base, deep yellow in front. There are two thick acute calli at the base. Column pallid green, with some mauve borders at the top. Leaves linear acute, exceeding a foot in length. Pseudobulbs equal to a large hen's egg, glaucous, narrower at the top. It is a new importation of Mr. F. Sander from the United States of Columbia. *H. G. Rehb. f.*

MANCHESTER HORTICULTURAL IMPROVEMENT SOCIETY.—The next meeting of this Society will be held on Thursday evening, January 29, when a paper will be read by Mr. E. Griffiths Hughes on "Insecticides." The chair will be taken at 7 o'clock.

\* *Odontoglossum viminale*, n. sp.—Affine *Odontoglossum anthoxanthum*, Rehb. f. Pseudobulbo oviformi magno demum minute ac varie ruguloso; foliis linearibus elongatis acutis; pedunculo elongato apice simpliciter racemoso, recto, sc. non fructifero; sepalis tepalisque cuneato-oblongis acutis paulisper undulatis; labello basi rhombeo antorsum lanceolato callis geminis oblongis crassis antice acutis parallelis in basi; columna utrinque sub margine androclinii obtusangula.—Ex U. S. Columbiae allatum dicitur. *H. G. Rehb. f.*







## THE BIRD'S NEST ORCHIS.

THE sudden and somewhat mysterious appearance and disappearance of several native Orchids, notably *Ophrys apifera*, *Neottia Nidus-avis*, and some species of *Epipactis*, have not only to the casual observer but to those who have gone deeper into the subject, proved rather difficult to account for. This is, however, not to be wondered at, when we consider that few tribes of our native plants are more imperfectly understood than the Orchideæ.

As this curious fact has been repeatedly brought under notice without eliciting any satisfactory information, the following notes, the result of close personal observation, may be of interest in throwing some light on the subject.

The extraordinary manner in which *Neottia Nidus-avis* springs up in a single season where it was never seen in a young state, and where there had been no intimation of its existence during the previous season, is no longer a mystery, for a careful examination of the rootstock has revealed the fact that the fleshy fibres, though dead at the base or end which had been attached to the old plant, are alive at the other end and gradually push forth young fibres.

The plant dies down after flowering, but is thus capable of reproducing a new plant from the point of the fibres after they have fallen apart, the extreme point becoming a bud or shoot, which increases in bulk underground till it comes to the flowering age, when it grows up vigorously, dies off, and is again propagated in the same extraordinary way. From examination of various roots, and taking the size and strength of the bud or eye into consideration I am inclined to believe that five years are required for the perfect development of the fibre from its young state to the flowering period. This, however, is on no authority, and must only be accepted for what it is worth, for, as the plant cannot be cultivated, a good deal of difficulty is experienced in arriving at trustworthy conclusions. Would the root only increase under cultivation reliable information could then be obtained, but for my own part several careful attempts at transplanting, so that the nature of the plant might be closely observed, have only turned out gigantic failures. The plant may, when in a young state and by having a good ball of earth attached, be removed to the garden, where it will in most cases perfect the flowering stem, but as regards increasing or reproducing its species all attempts have hitherto been productive of the most unsatisfactory results. As to whether all the root-fibres produce young plants I will not at present state positively, although observations tend to the inference that such is the case. Certainly the greater number do.

Another point regarding *Neottia Nidus-avis*, which has occasioned no small amount of comment, may be briefly noticed in passing, that is, as to its parasitic nature. That it is not so careful examinations of the roots long ago convinced me, although the opinions of others are equally strong on the opposite side. The late Charles Darwin, in one of his works, dwells at considerable length on this Orchid, and in a foot-note attached we read as follows:—"This unnatural, sickly-looking plant has generally been supposed to be parasitic on the roots of the trees under the shade of which it grows, but according to Irmisch (*Beiträge zur Biologie und Morphologie der Orchideen*, 1853, s. 25) this certainly is not the case."

Mr. E. C. Malan, who has devoted considerable time to the study of this Orchid, writes to me as follows:—"The opportunities of observing this most curious plant are certainly few and far between, for, besides its acknowledged scarcity, it does not always reappear in those particular localities where it progresses to grow. I have as yet only been able to find it in one place, namely, in a small Oak wood near here. The soil there is hard, cold, uncompromising clay, which, after a short absence of rain, becomes cracked, and on the surface like stone."

"I cannot say that I have been able to observe the *Neottia Nidus-avis* very accurately, for those plants which I placed in pots did not thrive, nor did others which I transplanted when just above-ground ever increase. I cannot say either that I have found them attached to the roots of trees, for the specimens above mentioned were free in the clay. The spot where the flowers grew in 1880 was entirely destitute in 1881, and also in 1882. But quite in a separate part of the same wood, both this summer and last, many

fine single plants were to be observed." For my own part, I could never detect any parasitical attachment either, although the plant is perhaps most frequently found beneath the shade of the Beech or Oak—the tannin matter from the decayed leaves being, in my opinion, the great secret of its growth in such places. [Mr. Webster's note is very interesting, and offers independent corroboration of German and French observations well known to botanists, but which have not found their way into British Floras. Ed.]

## EPIPACTIS PALUSTRIS

is propagated in a somewhat similar manner to the *Neottia*. The rootstock, which is composed of one thick fibre and several smaller ones, elongates each year, the point forming a bud or eye, which is destined to be the plant of the following season. From this eye, two of which are not unfrequently formed in the same year, several short roots are sent out, but between this point and the previous shoot, a distance of usually 2 inches, no rootlets are emitted. On lifting the plant I have frequently found the rootstock nearly 2 feet in length, and composed of a number of joints something similar in construction and appearance to what may be seen aboveground in our common *Ajuga*. Unlike the *Neottia*, however, the eye or bud of the *Epipactis* does not increase beneath ground until a flowering size, as during the growing season numerous plants of all sizes and destitute of flowers are to be observed. Another point of difference, to which it may be well to direct particular attention, is that in this plant the bud is produced from the thick rootstock, whereas in the *Neottia* it is formed at the point of the fibre or rootlet after becoming detached from the parent plant.

I have good reasons for believing, although my investigations have not yet been sufficiently conclusive to state positively, that the tubers of *Ophrys apifera* will increase underground in a somewhat similar manner to the root of the *Neottia*, and which, if true, would readily account for the well-founded statements that have frequently been made regarding the sudden appearance and disappearance of the plant. [Well accounted for by Prillieux's account of the life-history of this plant. Ed.] That the presence of foliage or stem is by no means necessary for the perfect development of the roots of several Orchids I have proved beyond a doubt in various other cases as well as that recorded above. In *Habenaria bifolia* and some species of *Orchis* the tubers if deprived of stem and leaves will become as it were cumulative, and increase in size beneath ground. In the former species especially I have repeatedly proved by experiment that by removing the stem and leaves when the plant is in full flower the succeeding year's growth will be much stronger than had the plant been left unmolested. This I have also proved to be the case with the bulbs of some kinds of Lily and the root of *Cypripedium acaule*.

## EPIPACTIS OVALIS.

It is well known that most recent writers and authorities on plants consider this but a strangely abnormal form of *E. latifolia*, the character of which has become altered by soil and situation. Having special advantages for studying this rare plant both in a wild and cultivated state I may be allowed to point out the wide difference that exists between it and *E. latifolia*, and which has led me, without hesitation, to regard the plants as distinct species. The first and greatest point of difference, and one which will be apparent to any accurate observer, is that the rootstock of *E. ovalis* is shortly creeping, the new buds or eyes being formed, one close to the old stem and the other at the end of a stout shoot, and at a distance of usually 2 inches from the parent plant. In *E. latifolia* the reproduction is very different, the new plant being produced alongside and quite close to the parent stem, and never at the point of the shoots. When examining numbers of the roots of *E. latifolia*, which occasion required when comparing it with *E. palustris*, I never saw a single instance in which the plant was propagated by extension of the root.

Three years ago, so as to study its nature more carefully, I transferred from the Orme's Head (one of the British stations of this plant) to my garden a plant of *E. ovalis*, which was placed in ordinary loam alongside a limestone boulder. The first season after being planted two stems appeared, one close to the old stem, and the other at a distance of 2½ inches. This season there were three plants, one each along-

side the former stem, and a third in a direct line 3 inches from that produced last season. From the above it will be seen that while *E. ovalis* approaches, in root formation, very nearly *E. palustris*, it is widely different from the species (*E. latifolia*) with which it is often associated.

It is also strange that this plant (if only a form of *E. latifolia*) should present little or no variation in the half-a-dozen British habitats from which it has been recorded, or that (if soil and situation are the cause) when planted in good loam it does not, in some degree, revert to the typical *E. latifolia*. That it does not my observations and experiments clearly show, for although planted in good loam and a shady situation it has not increased in stature since being transferred from the denuded limestone rocks of the Orme's Head to the more congenial surroundings of my garden. A. D. Webster. (A Paper read before the Scientific Committee of the Royal Horticultural Society.)

## THE SCLEROTIUM DISEASE OF POTATOS.

DURING last summer I received from Mr. Carroll, Director of the Albert Model Farm, Glasnevin, Co. Dublin, some Potato stems full of the growing mycelium of *Peziza postuma*. Some of this I applied to one or two Potato stalks growing singly—not as a crop—in my garden, with the view of infecting them. The mycelium appeared to die, and thinking the experiment a failure, I took no further note till, a week or so ago, noting the dead stem I examined it and found three or four sclerotia therein, not large, but unmistakable. A second stalk in the same group had no sclerotia, and to the best of my recollection I infected but one stem of that group. The other infected stem I could not find. This observation goes far to show that this disease is contagious, and can be communicated from one plant to another. It is of course possible that the sclerotia might have appeared without any assistance from me, but scarcely probable. The tubers which were produced were very fine and small. If I can obtain the live mycelium I mean to repeat the experiment on a larger scale next summer. Greenwood Pinn, M.A., F.L.S. [The disease here alluded to is that figured at p. 265, August 28, 1880, and 1883, September 15, p. 333. Ed.]

## CAPE HEATHS.

ON leaving the quaint-looking old city and environs of Cape Town, formerly settled by the Dutch in 1652, the enthusiastic traveller soon begins to meet here and there a variety of the small, handsome, evergreen *Ericas*, as a foretaste of what is in reserve for him as he journeys upwards and onwards. And presuming he is one of those inquisitive persons who let nothing escape their keen observation, his progress will be slow indeed.

On all sides, and especially while passing over the long stretches of undulating country, his attention will continually be drawn towards the increasing numbers, in many varieties, of these elegant miniature flowering shrubs. And if he fortunately knows their botanical names, he will be much pleased with the winsome features he joyfully recognises, like the meeting of old companions after many years. And numbers of free growing kinds, such as *Erica cerinthoides* major, from 5 to 6 feet high; *E. dichromata*, from 4 to 6 feet; *E. vernalis*, 6 to 7 feet; *E. Masoniana*, 8 to 9 feet; and *E. urceolaris*, 12 to 15 feet. He will occasionally meet, overlapping those of a more dwarf and compact habit, such as *E. comosa*, *E. nigrita*, *E. blanda*, *E. petiolata*, *E. minima*, *E. elegans*, and *E. carnea*. To specify individual kinds by name from upwards of five hundred indigenous varieties, would give the reader but a faint idea of what they are like unless well versed in botanical nomenclature. And as he approaches the rising ground, along the well beaten path which winds up the mountain sides, further on, these luscious gems assume a more symmetrical and sturdy habit, and if possible become more beautiful until the summit of Table Mountain is reached.

After hard and persistent struggling up and along the tortuous and rugged footpath, which frequently doubles and zigzags among immense masses of detached rocks, through deep defiles and apparently impassable chasms, along which the purest spring water comes splashing over precipitous cascades



from near the apex, the tired pedestrian will find an inviting resting-place in a natural alcove. To his great surprise, he will then see what may seem incredible to old Heath growers who have only seen them in pots under glass—namely, low bushes of *E. vestita elegans*, and *E. princeps*, flourishing with all the freedom of bog plants, in soil apparently never dry. While, *per contra*, *E. pumila*, *E. densiflora*, *E. incana*, and *E. penicillata*, seemed equally healthy, growing in small cracks or crevices in the fissured rocks, where it was high and dry, with only a few grains of sand to root in.

The writer was completely nonplussed at the sight of healthy blooming Heaths growing upon the face of precipitous rocks, upon the sunny sides of which it was unpleasantly hot to the touch, conditions fatal to them under cultivation.

Returning again to the subject, and following the ascending path, which to his intense delight will be found closely margined on each side with handsome Heaths, which absolutely cover every inch of soil possible to root in with masses of highly-prized species, the sight cannot fail to remind him of those he may have often admired at home. True there are no legends of the past wound around them, as there are about the Heath or Heather of other lands, of which the poet has often sung. Savage Hottentots and Caffres, who for ages have ignorantly wandered among them, keep no historical records; and although no charm of romance invests them with anything prosy or poetical, they are nevertheless most intensely interesting to those who admire frutescent beauty. And whoever has enjoyed a ramble among them will not be likely to ever forget the peculiar refreshing odour arising from the myriads of pretty blossoms.

And while still ascending, at every onward step brilliant colours and fresh forms of Heath beauty will delight the eye with pleasant changes, until, when near the summit, the novel sensation of passing above the fleecy clouds which externally drape the top of Table Mountain will be experienced. Even when in cloudland the somewhat stunted, though symmetrical, Heaths will still be there; and with every possible tinge or shade of green tiny leafage these compact little plants seem to vie with each other for the palm of grace and beauty. All of this large and interesting family are exquisitely bedecked with a profusion of delicate, lovely, wax-like flowers, from pure white to flesh and cream colour; yellow, dark green, light green, orange, and purple; red, pale red, red and green, red and yellow, red and orange, orange and purple, white and scarlet to brilliant scarlet, crimson, flame-colour, &c. *W. T. Harding*, in "*Gardeners' Monthly*."

## LEICESTERSHIRE APPLES.

THE splendid lot of Apples exhibited by Mr. Ingram from the orchards and gardens of Belvoir at the meeting of the Fruit Committee at South Kensington on the 13th inst., for which the Society's Bronze Medal was awarded, forms an excellent commentary on the remarks of Messrs. Harrison & Sons, of Leicester, in the report of the National Apple Congress.

Mr. Ingram's exhibit consisted of thirty-five varieties, many of which were of an exceptionally fine character; specially remarkable for colour and size were the examples of Blenheim Orange, which is the most popular Apple, judged as both a dessert and culinary variety, in cultivation. Peasgood's Nonsuch was also very large and fine; this variety promises to become very popular and useful. Bramley's Seedling was especially noteworthy, proving how well suited this Nottingham Apple is for the Midland Counties. Finer examples of Betty Geeson, an Apple raised somewhere in Mr. Ingram's neighbourhood, we have seldom seen; and the same remark applies to the examples of that most beautiful of French Apples, Mère de Ménéage. Rosemary Russet was unusually large and fine; this is a variety in great repute at Frogmore, and was largely cultivated there by the late Mr. Ingram. The examples of Frogmore Prolific are "Ingram" Seedling. The old Caldwell, or Rymer, Tower of Glamis, Lord Derby, and Northern Greening may also be mentioned as being specially fine amongst the culinary varieties; and amongst the dessert varieties the examples of Cox's Orange Pippin, Ribston Pippin, Margil, Old Nonpareil, King of the Pippins, and others of the leading sorts were all that could be desired.

No better illustration than this of Mr. Ingram's could have been submitted to demonstrate and to prove that Apples may and can be grown in Leicestershire equal to any in the country—ay, and further, we would submit, equal and superior in some respects to American produce. There is no question of the superiority of home-grown Apples in point of quality for culinary purposes; they have far more of that brisk acidity which is so much relished by most people. American Apples are flat and tasteless by comparison. In the matter of dessert Apples the American varieties surpass our own for the most part, having that peculiar short tender flesh that is extremely agreeable in an eating Apple; but not one of the American sorts is equal to our Cox's Orange or Ribston Pippins.

How comes it that doctors disagree? Messrs. Harrison take a somewhat pessimist view, and state that Leicestershire "is not a county in which Apples are grown extensively, or considered of much importance," and are of opinion that the "red clay" which predominates in their district is "too cold for Apples in most seasons." The elevated situation of Belvoir renders it probably the finest for fruit culture in the county, and there can be no doubt of their receiving the very best attention as to cultivation. The Lias clay subsoil existing here is evidently well suited for Apples, especially in hot and dry seasons like the past.

There is a very great deal in situation, and very great variety exists in comparatively small districts sometimes. Soils also and subsoils exert considerable influence. But positive neglect in regard to the pruning, &c., of the trees, and to the cultivation of the land, has more to do with the miserable condition of our orchards, and the disrepute into which home-grown Apples have fallen, than any other cause whatever. Messrs. Harrison subscribe to this when they state that "the trees are allowed to grow without either manure or management." Plant more trees, certainly, but plant with judgment in situations similar to those of Belvoir, and in particular pay attention to their after-management and cultivation. There are many places, not only in Leicestershire, but throughout the country, where Apples may and should be grown in far greater quantities and in better condition than they are at present. *A. F. B.*

## DR. REGEL ON THE CULTIVATION OF PLANTS.

SINCE the days of Sir Joseph Paxton but very few men in the gardening world have had so successful a professional career as Dr. Regel, of St. Petersburg. From the time of his instalment as Director of the Botanic Garden in the Russian capital, some twenty-five years ago, he has been indefatigable in his efforts not only to make that establishment one of the first in Europe, but also to spread a knowledge of gardening among the Russian people. Twice he has organised an International Exhibition on a very grand scale; the second especially may be considered as having been a decided triumph. The highest personages in the land have shown him every mark of favour and encouragement. His biography and portrait were published some four years ago in one of the most extensively circulated illustrated papers of the capital; and during the last ten years especially his books have increased in number, and have passed through many editions. Some of these are small treatises on the cultivation of Raspberries, Currants, Strawberries, and others, ranging from 15 copeks (about 6d.) upwards. One of the latest of these small books refers to the cultivation of fruit trees on walls and espaliers, and it may be considered as timely enough, for such modes of cultivating fruit trees are almost unknown in this country, where nobody has an idea of an enclosed fruit garden kept under lock and key. So far as I have seen, at least, fruit trees and forest trees grow together, and no kind of effective enclosure exists. Dr. Regel has therefore done well to write this treatise, for apart from the technical question of choice, planting, pruning, and training, it is quite clear that something must be done with respect to enclosures and the general arrangement of a fruit garden. No other writer in this country has so much authority on this subject as Dr. Regel.

But though his pen has been prolific enough during the last ten years, it is not my purpose to notice in detail all the smaller publications; my present object is chiefly to consider the merits of one which is allowed to be his most popular work among all intelligent amateurs in Russia, viz., *The Cultivation and General Treatment of Plants in Rooms*. Most people might think that such a matter would scarcely occupy more than a modest treatise, but Dr. Regel's work is a book of two good-sized volumes, extending to over

700 pages. This book Dr. Regel very appropriately dedicates to his friend and patron, General Greig, as a tribute of gratitude for the unfailing help and encouragement which that powerful Minister has always afforded him in his various undertakings.

It would be a long and fruitless task to enumerate all the subjects that are treated in this book, the "contents" at the beginning of the first volume alone occupy no less than four pages, and in making a cursory analysis of the material employed I am involuntarily led to the conclusion that the author must have lost sight of the object originally aimed at.

Amateurs who have a garden and greenhouse with a certain number of frames will find this book very useful, but most of those who live in towns are not likely to derive so much benefit from it.

No doubt all that Dr. Regel states is quite true. The same things have been said many times before, and it is only fair to infer that they will be repeated, with more or less variation, a good many times more. But the most enthusiastic lovers of flowers and plants will not consent to turn their saloons into regular greenhouses. They have something else to do with cellars and larders than store them with plants in winter, and there are but very few, if any, who would like to make a material change in the windows of their drawing-room in order to grow or propagate favourite flowers.

Most people are quite satisfied to have a certain number of fine plants in their rooms near the windows, so long as they do not interfere with mirrors, curtains, statues, pictures, and other ornaments of fashionable dwellings. And if ladies and gentlemen do not keep a gardener who can attend to their window plants, they are generally guided by the directions of the gardener or nurseryman from whom the plants have been bought. For the most part a few explanations about watering, ventilation, and cleaning, are all they require for their own guidance, the rest they willingly leave to a professional man. Now Dr. Regel sets out, apparently with the conviction that all he states is not only quite new to his readers, but that all his directions admit of being strictly followed. Everything relating to the cultivation of plants is carefully and minutely described. Everything that gardeners take years to learn in nurseries and private gardens is elaborately treated in this book—to enlighten refined people how to keep a few flowers and plants in their saloons. Upwards of one thousand genera or species are enumerated in the Latin index of one volume only. There are many respectable gardens in Russia at least, which do not contain so many.

The author is, no doubt, aware that the great majority of his readers are not likely themselves to undertake most of the operations which he has described at length, such as the composition and preparation of soils, planting, and sowing, &c. Still what is stated is quite correct if anybody requires such information. The quality and longevity of seed has received much attention, and a great many interesting facts have been brought together.

There are some people who have not the slightest idea as to how Ferns are constituted and propagated. I have known one or two myself who, though otherwise intelligent and well informed, really believed that the spore-cases were so many filthy insects. I once even found an old peasant (a gardener) who affirmed that that was quite true. Dr. Regel, very properly, does not leave this subject unnoticed. At the same time I think he might have been much clearer. It would have been well, for instance, to give figures of one or two fronds, showing the arrangement of the spores at the back, and the distinction between fertile and barren fronds, male and female. This is a subject on which he might have enlarged to great advantage without making it very special.

One of the most interesting and instructive parts of the first volume is devoted to some explanations respecting the distinctions between genera, species, and hybrids: the author points out how new varieties are obtained, and shows how amateurs may derive a fund of real pleasure by crossing one species with another, and watching the result. But on this subject Dr. Regel seems to have introduced a new word to the Russian language, that of bastard. This word in English jurisprudence means an illegitimate child, and though it passes current among gardeners I think it ought not to be used in a scientific work, especially as the word hybrid (*gémace*) is sufficiently expressive. If the learned Doctor is fond of introducing new or foreign words into the Russian language he has a very wide range. Many thousand such words are already



naturalised, and no doubt many thousands more will be added in the course of time. A language like the Russian always admits of being much softened, modulated, and improved, and for scientific terminology in particular there is still something to be done. In botany, for instance, there is not a definite and distinct term for species, that employed by botanists (*vid.*) has at least twenty different meanings all more or less expressive of view, form, aspect, appearance, &c. Now, as Dr. Regel has introduced the word *bastard* and one or two others, it might be worth his while to consider whether it is not possible to find a more precise term for species.

About the end of the fourth chapter, Dr. Regel has a good deal to say about the different parts of the flower. This lesson in elementary botany and the physiological process of fructification is intended to prepare the amateur for the work of hybridising and obtaining different varieties by crossing. It is a very learned chapter, but I fear not many of those who study it will find it easy in practice. A long chapter of about thirty pages is devoted to all the various other modes of propagation, such as cuttings, budding, grafting, layering, &c. Of course this is a subject which would exhaust a whole volume, but Dr. Regel has wisely confined himself to a certain limit, and I think most people will find that quite sufficient.

Respecting glass cases, such as the famed Wardian case, the author has a good deal to say, and even mentions that the first was introduced by Mr. Ward, of Clapham Rise. Dr. Regel employs a word which I have not noticed before, that of *Terrarium* as differing from *Aquarium*, and whatever its merits may be as a new term it is certainly more euphonious than his translation in Russian of the Wardian case. I think, however, such cases do not require so much attention as he advises. It is one of the chief merits of such cases that by the principle of evaporation and condensation the plants inclosed in them will thrive well enough for a long time without either ventilation or watering. We all know that plants sent from distant countries in closed cases arrive in England after a voyage of several months not only quite fresh but even sometimes in flower. The patterns which Dr. Regel has figured are well known, and pretty enough, and such modes of growing a certain number of plants in a saloon are much to be recommended.

Now, with respect to watering in general, this seems to be a subject which most amateurs find it very difficult to learn, and yet it is one of the most important in the cultivation of plants. Dr. Regel has treated it at length, but I cannot conceive that such large pumps and syringes as he recommends can ever be employed in an elegant drawing-room. I shall close for the present. *P. F. Keir.*

## PROTECTING POTATOS.

IN your issue of Nov. 22, 1884, I see that, in the experiments on protective moulding carried out at Chiswick, "it soon became obvious to the experimenters that Mr. Jensen's proposals would prove very costly to carry out, and that, as a matter of practice, the grower for market would have to face the problem whether, as a mere matter of cost the gain would be worth the candle." Will you allow me to observe that protective moulding by my system is carried out in many (I think I may say in thousands of) farms in Denmark, both by the means of the hand hoe and by means of a plough constructed for the purpose, and that up to the present time I have not heard the objection raised that this moulding is very expensive. As a matter of course in large fields the plough must be employed. I have before me now as I write an account from a Danish farmer in which it is stated that it took one and a quarter days for a man and a horse to mould up an acre of land (English measure) in the way designed by me. I suppose that at the very least it would take three quarters of a day to mould an acre of land in the common way; if so, the difference would be half a day, which for a man and a horse cannot, I think, be reckoned at more than about 4s. (in Denmark it would cost less than 3s.), so that at all events it does not cost much more to high-mould by means of a plough than to perform the moulding in the common way. But in reality I think the difference will be even less, or none at all, if, as it ought to be, the protective moulding be done before the time of flowering, when the plants are not high enough to incommode the plough; for in the case above referred to the plough was fre-

quently stopped on account of the size of the Potato tops. It is true that the ridges must be made much higher than in the case of ordinary moulding, yet all that is required is that the earth-cover on the uppermost tubers should be about 3 inches thicker than that produced by the old system of moulding. Again, it must be remembered that protective moulding shall be performed from one side only; this is a very great advantage, since it will save the man and the horse half the distance. Finally, it must be remembered that on account of the greater distance between the rows, which is rendered necessary by the protective system, the cost will be essentially reduced both as far as the planting, moulding, and lifting are concerned. Therefore, all things well considered, I think that the protective system may be carried out not only as cheaply, but undoubtedly even more cheaply than the common system of Potato growing. As for hand-moulding it has been experimentally stated by the Société Nationale d'Agriculture de France that high-moulding costs in that country 40 francs, or about 13s. per English acre. What the cost of hand-moulding in the common way is I cannot tell, but at all events it is evident that the difference, if any, can be of but little practical consequence. *J. L. Jensen, 162, Gamle Kongevej, Copenhagen, V., Dec. 13.*

## FASCIATED MEDLAR.

THE specimen from which our illustration (fig. 21) was taken was forwarded to us by Miss Owen. It will be seen that the fruit is curved like a ram's horn, and presents some forty calyx teeth instead of five. The explanation is that a tuft of perhaps eight flowers was in all probability formed in place of the ordinarily solitary flower, that these eight flowers instead of becoming separate in course of growth remained in union, or, as it is said, adhered one to another. The spiral twist is accounted for by the much greater and more rapid growth on one side, where growth was possible, than on the other, where it was necessarily restricted. But to be sure as to the way in which these malformations are brought about one ought to see them in their earliest stages and trace their growth onward.

## FRUIT NOTES.

**BEURRÉ BOSCH PEAR.**—The *Beurré Bosch* is a Pear to which I give my unqualified praise. It is large, pyriform, a little uneven, tapering long and gradually into the stalk, and of a rich delicious perfumed flavour. It bears singly, and not in clusters, looking as if thinned on the tree, whence it is always of fine size. It is a good and regular bearer; the fruit as it approaches maturity is subject to the attack of flies and wasps. This is rather remarkable, as they rarely or ever touch any of the other sorts of Pears that grow close by them. It should be grown as a standard. It grows freely, shoots long, brownish-olive; season in use, from the beginning of November to the end of December. It was raised, I believe, by Van Mons, and named *Calebasse Bosch*, in honour of M. Bosch, a distinguished Belgian cultivator. Having been received at the garden of the Horticultural Society of London under the name of *Beurré Bosch*, Mr. Thompson, I understand, thought it best to retain this name as less likely to lead to a confusion with the *Calebasse*, a distinct fruit. *M. Saul, York.*

### APPLE, GOLDEN SPIRE.

I can fully endorse all that has been published in *Fruit Notes* at p. 16 of *Gardeners' Chronicle* in favour of this most valuable Apple. Five years ago I was favoured with a number of Apple scions, then considered to be the leading varieties of the day. Having grafted all on the free stock, and with care and special attention, my results have been that *Golden Spire* has yielded two crops of good fruit, considering age and size of tree. Several of the others have rewarded me with one solitary fruit, therefore I have no hesitation in saying that the free stock is the proper one of this sort. Its keeping qualities are so good that it is usable long after Christmas. I doubt not that, wherever it is grown, it will soon become a favourite, as all who have seen it here were quite pleased with its habit of growth and the beauty of its fruit. *D. Wilkie, Sundrum, Ayr.*

### LATE GOOSEBERRIES TRAINED ON ESPALIERS.

Some of the best late varieties of these have such a drooping habit that they seldom make good bushes, the fruit lying in many cases within reach of rain splashing spoils the fruit. The following method of growing and training will amply repay for the trouble it entails, considering the facilities it affords for netting, to keep the fruit until the end of August and September. A shaded part of the garden or north border is a good situation for late Gooseberries. The soil best suited for them is a deep strong loam, which should be trenched 2 feet deep, working in plenty of good rotten manure. If a north border, say 15 feet wide, it will take five rows at a yard apart longitudinally, fix the wires for training 4 feet high, using iron posts at the end or straining posts let into stone with a stay to each; the intermediate posts can be of light iron with two legs, or if desirable use 4-inch Oak posts with Larch intermediate. A light gauge wire answers better than a stronger one, it does not require so much straining. Place them 9 inches apart. Plant either one or two-year-old trees that have not been cut back. One foot apart is a good distance to plant them. Let them grow as they like the first season, then cut them close down to the ground; the result will be one or two strong shoots that will nearly reach the top of the trellis, then train either upright or diagonally, and after they are established lay in a young shoot each season to replace the old ones. Another method is to put in cuttings where they are to remain, and fix the trellis afterwards when established, only fork amongst them lightly, and top-dress with good rotten dung in autumn for mulching in summer. The grass from the lawns is excellent for the purpose: it keeps the ground cool, prevents the fruit from being splashed with heavy rains; since using the grass, commencing with the first cut in March and letting it lie on 4 inches deep in summer, I have not been troubled with caterpillar. I should not like to say that it has kept it off. If it does make its appearance use *Hellebore powder*, dusting it on when the trees are damp. It is a certain cure. Some of the best late varieties are *Red Warrington*, *Slaughterman*, *Ploughboy*, *Yellow Leader*, *Rumbillior*, *Leveller*, green or white; *Whitesmith*, *Pitmaston*, *Green Gage*, *Antagonist*. *Wyeside.*

### A HOUSE OF GRAPES IN JANUARY.

It was very common during the summer and autumn months to read of the splendid crops of Grapes in vineries at different establishments, but it is not so common to hear of them in the month of January. In one of the divisions of the long range of vineries at Longford Castle the Grapes are now in splendid condition. The Grape which takes the eye on entering this house is *Roberts' Gros Guillaume*, producing, as it does here, splendid bunches, ranging from 10 lb. to 12 lb. in weight, well proportioned and well coloured. Some of the smaller bunches of this variety are very elegant, quite models of what a bunch of Grapes should be, being about 18 inches in length from the wood to the tip of the bunch, with no shoulders to tie up, and the berries all of a size, large, and sufficiently thick, so that to all appearance the bunch would preserve its form if laid on its side. It will probably be in the memory of some of your readers that in this establishment the variety *Gros Guillaume* and *Barbarossa* appeared distinct, but not sufficiently so to class them as distinct varieties, and Mr. Ward decidedly gives the palm to *Roberts' variety*. It was surprising to me to know how these huge clusters are preserved from damp through the dull, foggy weather through which we have lately passed. To all appearance not a damped berry has yet been cut out. Other varieties are equally good, viz., *Gros Colmar*, *Mrs. Pince*, *Lady Downe's*, and *Alicante*. There were many bunches of these from 2 lb. to 4 lb. in weight, well-coloured and handsome bunches. There were in the fruit-room some excellent bunches of *Trebbiano* and *Muscat of Alexandria*, especially the latter, and it would appear from the appearance of the two varieties named that the last-mentioned would run the other hard in its keeping properties, and if so there is no question as to which is preferable and best flavoured. *C. Warden, The Gardens, Clarendon Park, Salisbury.*

## TRADE MEMORANDUM.

THE address of Samuel Hawley, lately carrying on business at Forest Gate, is asked for.



## THE PROPAGATOR.

### ROOT PROPAGATION OF HARDY PERENNIALS.

YEAR by year, as the winter season comes round, the propagation of almost all classes of plants is reduced to a minimum, and none more so than hardy perennials. By the adoption of root cuttings, however, we are enabled to increase at this season of the year many good and choice plants which either do not flower sufficiently early with us to ripen seeds, or which are slow to produce cuttings. In either of these two cases the system of root-propagation is of great value, inasmuch as the root cuttings inserted now, or up to the end of January, will make really good plants by the middle of June, and there is no great amount of skill required in carrying out the work, and which may be briefly described in a few words. Where large stools of the plants I shall hereafter cite exist, one or more, according to the number of plants required, should be lifted, the roots carefully removed with a sharp knife, and, being duly labelled, taken to the potting shed. In the root-pruning process use sufficient discretion as not to permanently injure the several subjects which are destined to be operated on, for it is

great value is this: presuming we have a fine bed of seedling Gaillardias, much varied as they are sure to be in colour, among them are some exceptionally fine forms, but the seeds cannot be depended upon; amidst so many of inferior quality and growth cuttings are of little value; in this case we may mark the good kinds, lift them in autumn, and by the ensuing spring have a nice stock of selected kinds. By this very means I was enabled some three or four years ago to increase the stock of a very fine variety with flowers 4 inches across, which to my mind was a step in the right direction.

#### PLANTS THAT CAN BE INCREASED.

I will now briefly describe some of those plants which lend themselves to the process of root propagation, excluding those which produce stoloniferous growths in quantity. The first genus is the *Acanthus*, a stately and ornamental group of perennials, suited either for the large rockery, the border, or for isolated specimens on the lawn. Any and all of these are easily reproduced in the above way, the three most distinct being *A. latifolius*, *A. longifolius*, and *A. spinosissimus*. *Anchusa italica*, a highly decorative Boragewort and a free seeder, is a telling border plant. The largest roots of this may be quartered if required, and all will break from the top on the bark side. The next genus, that

dividing of which any spare roots must be carefully preserved, for the stock of this plant on this side of the Channel will never be too great.

In passing, the genus *Senecio* next presents itself, containing some remarkable and fine decorative plants. The finest and probably the best of the group is *S. pulcher*, which, while being among the most difficult to increase by means of seeds, breaks with unequalled freedom from root cuttings. Another fine member of this genus is *S. japonica*, also called *Erythrochete palmatifida*, a desirable and ornamental foliage plant, having lax panicles of golden-yellow flowers; it is uncommon, and should be increased. In specimen form, its distinctly palmate leaves on petioles 3 feet in length, have a unique appearance; indeed, it may briefly be stated to be distinct from any other plant.

The *Statice*, or "Sea Lavender," are the next most important group of which the species and varieties may be readily increased by root cuttings; the same remark may be applied with equal force to the tender species, *e.g.*, *S. Holfordii*, *S. profusa*, and so on. In close alphabetic order is *Stokesia cyanea*, a plant deserving of far more extended cultivation, seeing it is one of the few bits of blue among late autumn perennials. As a rule it is not easily increased by division, owing to the tufted or conglomerate growths on the root-stem. It makes abundance of roots,

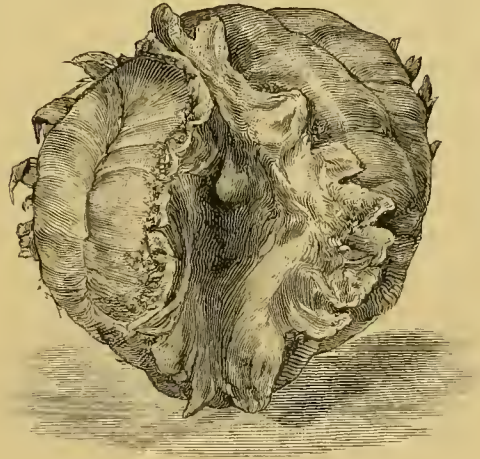
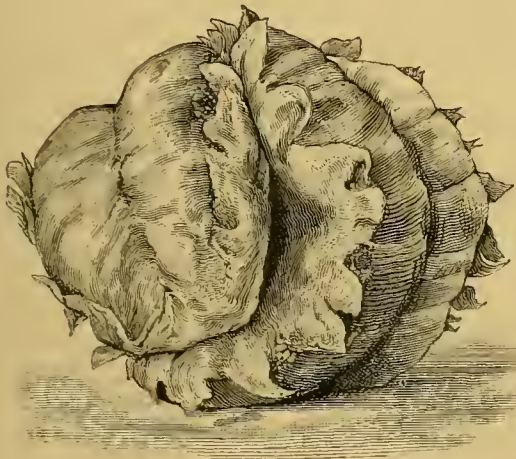


FIG. 21.—FASCIATED MEDLARS. (SEE P. 112.)

not impossible to carry it to such an extent as to kill the plant outright. The next thing to be done is to cut the roots into lengths of from 1 to 2 inches, keeping the roots in straight lines, and so prevent their becoming reversed before being placed into the soil. Any good ordinary vegetable soil will be found to suit the purpose, making it rather sandy. The cuttings may be inserted in pots, pans, or boxes, in the ordinary way, excepting that in this case the apex of the cutting only shall be visible, the remaining portion being buried. After the cuttings are inserted they may be plunged in gentle bottom-heat among stove plants, or be placed under the stages in the greenhouse or stove—anywhere, in fact, where they will receive slight warmth till they show signs of life, when they must be removed to cooler quarters and receive more light; when large enough, pot them as required, placing them in pits and frames, and keep close till new roots are formed. It will be seen at a glance that there are no great secrets contained in the foregoing remarks, and in this the writer concurs; indeed, the only secret really is in the knowledge of those plants which not only readily submit to the process but pay for the trouble.

For example take the Japanese *Anemones*, which occupy a position second to none among autumn-flowering plants. No one would think of sowing seeds of these who wanted plants quickly, in preference to root cuttings.

#### GAILLARDIAS.

Another case in point where root cuttings are of

great value is this: presuming we have a fine bed of seedling Gaillardias, much varied as they are sure to be in colour, among them are some exceptionally fine forms, but the seeds cannot be depended upon; amidst so many of inferior quality and growth cuttings are of little value; in this case we may mark the good kinds, lift them in autumn, and by the ensuing spring have a nice stock of selected kinds. By this very means I was enabled some three or four years ago to increase the stock of a very fine variety with flowers 4 inches across, which to my mind was a step in the right direction.

of *Anemones*, or Windflowers, is an important one, and is propagated for the most part by dividing the tubers; but for such kinds as *A. alpina* and *sulphurea* together with *A. Pulsatilla*, which root deeply, root cuttings may be depended upon as making good plants. All the forms of *A. japonica* may be increased in this way, indeed in this case it is the best possible means. Next in order are *Doronicums* and *Echinops*, both good and useful, and possessing some interesting and ornamental species, also *Eryogonias*, a group well known among perennials, most of which are highly ornamental foliage plants. Now we come to *Gaillardia*, to which I have previously alluded, apart from which we have few genera possessing such excellent free flowering qualities, highly decorative and profuse flowering to a degree, valuable as cut flowers, and indeed so good are they that I feel sure they have a great future in store. The next plant to which I shall refer is *Jaborosa integrifolia*, an uncommon plant somewhat, having large tubular white fragrant flowers which nestle amidst its mass of deep green leaves. Though for the most part free seeders and generally rooting freely from cuttings, it will be nothing lost to remember that *Oenothera macrocarpa* and *O. missouriensis* come freely from root cuttings. The same remark applies to the Eastern Poppies, *Papaver orientale* and its numerous forms, in which I include *P. bracteatum* and others closely allied.

The genus *Primula* is next, and while many species may be had in this way, it must here give place to seeds, one solitary case excepted, and that the double crimson, *Primula acaulis rubra plena*, in moving or

however, and almost every particle will grow if treated as described above. All the *Symphytum*s may be propagated in this way; but, as decorative plants, it will only be necessary to select the best variegated forms. Many others might be enumerated; in the present note, however, I have merely mentioned those for the most part which do not exhibit any tendency to break from the root unless assisted in this way; others there are, such as *Harpalum rigidum*, *Zauschneria californica*, with some of the *Achilleas*, that produce stolons so abundantly as to soon overgrow their neighbours if allowed so to do. This is especially so with the first and last-named, and some *Asters*; but as these suggest all that is needed to keep them in bounds, I will not make further comment here. *E. Jenkins*.

### FLOWERS IN STAINED GLASS.

[The following note refers to the representation of a Tulip in the centre of a window of the chancel of the church of Tolleshunt D'Arcy, Essex, and a tracing of which was kindly sent us by Mr. R. M. Christy. The flower is white, shaded reddish-brown, and the glass is doubtless of Dutch origin, and possibly rather more than two centuries old. Similar flowers are represented in Dutch glass, to be seen in the Canterbury Museum, the Bodleian Library at Oxford, and elsewhere. In the present instance the Tulip has evidently been inserted amid fragments of glass of much earlier date, and containing heraldic cognizances



of the D'Arcy family. As to the Tulip it is a flamed Byblomen. ED.]

Mr. N. H. J. Westlake, F.S.A., author of *A History of Design in Painted Glass*, writes as follows:—"There is no difficulty about the portion of canopy-work and the bouquet. From 1400 to 1425 would probably be their date. It is, however, hardly possible to give an exact date without examining the glass itself. This refers, even more especially, to the Tulip, which may have been done at any time from A.D. 1500 to 1884. The probabilities are, however, that it dates about Dutch William's time. The enamel system of painting on glass was much cultivated in Lucerne in the sixteenth century, and in Holland and Flanders later on. It may, therefore (if ancient), be from Holland, and of the time of William; but, as I have said before, it is impossible to assign a certain date without examining the material and pigment."

Mr. F. Chancellor, a good ecclesiologist, and the architect for the diocese of St. Albans, writes of the portion of canopy work, that he imagines it to be of late fifteenth century work. The water-bouquet he considers of the same age, and believes it to have been the badge of the Bouchiers, Earls of Essex, who were slightly connected with the D'Arcy family. The Tulip, Mr. Chancellor says, puzzles him very much. He adds "It looks more like a drawing of the nineteenth century than of the sixteenth," and he intends to go and see it to clear up the doubt.

The Rev. Robt. Vernon Otley Graves, Rector of Tolleshunt D'Arcy, writes:—"I am sorry that I do not know more about the Tulip than I now send you. It has been there as long as people remember, and the window in which it is has for a long time been known as the 'Tulip window.' The fragments of glass you noticed round it are of a very much older date undoubtedly. I should think that the probable explanation of its (the Tulip's) presence there is that it was brought over from the coast of Holland by some of the refugees who fled from France at the time of the revolution of 1792—or, possibly, even at the time of the revocation of the Edict of Nantes—and by them or their descendants, got placed in the church, among fragments of older glass, of which there used to be a great number that have, of late years, disappeared. It is unlikely that a representation of the Tulip, whose cultivation in England dates from comparatively recent years, would have been produced by native talent, therefore the probability that it was brought by one of the refugees who, at both of the above dates, came in large numbers to that part of Essex," where their descendants may still be found.

## The Arboretum.

### ACCLIMATISED CEDARS.

I SAW lately in the *Gardeners' Chronicle* an account of some Cedars that had been successfully transplanted to this country, but I have not heard of an instance of cones proving fertile. In the neighbourhood of Inverness, N.B., there is a property which belonged to the late J. B. Fraser, author of the *Persian Adventurer*, the *Kuculbash*, &c., and who acted as interpreter for the Persian princes on the occasion of their visit to this country some twenty or thirty years ago. He brought home some Cedars, and planted them in his garden. It is not known exactly when, but they have thriven remarkably well. In July, 1878, I led a field club to the garden, and I have just come upon memoranda made at the time as to the Cedars at Reelig, a copy of which may be interesting to your recent correspondents:—

"The number of the Cedar trees in Reelig garden was thirty-three. Nothing of a certainty can be said as to when they were planted, or from whence they were brought. The tallest—of which a few are about the same height—may be about 60 feet. The largest girth within 1 foot of the ground is 13 feet 6 inches. The next largest similarly girthed, 12 feet 9 inches; girth of largest branch on said tree, 6 feet 1 inch; extent of ground covered by largest branches on said tree, 87 feet to inches."

The cones were well developed, as large as a good-sized Apple, but the gardener told me he had never succeeded in raising plants from the seed.

"*Cedrus Deodara* in the garden:—Height about 36 feet; girth within 1 foot of ground, 7 feet 3 inches."

I can give little or none of the history of the *C. Deodara*. I am told it had been planted by Mr. McCallum, present gardener at Greisacban, and which may have been about 1840. W. C., *Inverness*.

### AMPELOPSIS SEMPERVIRENS.

This will not cling to a wall, and it, therefore, will require to be fastened on or to be intermixed with some other plant that the tendrils can cling to. Its proper place seems to be over a rockery or similar place, but I have never seen it cling to a wall yet. Trails of it are very useful for decorations in winter, but it has very little in common with *A. Veitchii*. *Wyeside*.



## The Herbaceous Border.

### HELLEBORES, &c., AT BROCKHURST, DIDSBURY.

IT WAS with the idea of seeing Mr. Brockbank's Christmas Roses at home that I found my way to Didsbury recently, and was agreeably surprised with much besides them to interest one, even at such a dull time as the present is, in the open ground. But of course it is not every garden which contains within such an area so much to charm, nor was there anything which in the least was opposed to good taste; and, although I had never before seen the place, the conclusion was forced upon me that, go when one would, there was a vast amount of interest centreing there. But, to come to the Hellebores: they were simply astonishing. As Mr. Brockbank grows them everybody must be fascinated therewith; I should think in sufficient numbers to stock two or three nurseries; represented in many sizes, and under varying conditions; you meet with them everywhere—in the beds and borders, on sloping banks, in small flat beds in the wild garden—indeed, when one would have thought the stock had all been reviewed, from many a nook and corner they greet you; all those in flower protected with *cloches*, or covered with sheets of glass supported upon pegs fastened in three stakes, or small lights.

The most abundant are *H. altifolius* and *H. angustifolius*, sometimes called the "Brockhurst" variety, and synonymous with Mr. Burbidge's "St. Brigid's" variety. This, I believe, Mr. Burbidge now admits. *H. altifolius* is synonymous with *H. maximus* of many gardens and nurseries, but not of all. It is much the earliest, many of the plants being nearly over, but sufficient were in flower to show one what they were, and had been: large and beautiful, some of the flowers measuring 5 inches across, most of the peduncles carrying two flowers, most of the foliage looking very strong and healthy; although Mr. A. Mottershead, the excellent head-gardener, informed me in this respect they were not so conspicuous as at other seasons, owing, he presumed, to the late excessively dry season. The variety *H. angustifolius* was abundantly crowded with its white blossoms; some of the clumps will produce over a hundred flowers; some in pots were carrying from sixty to eighty flowers each. As seen here one feels convinced that this is a variety that will be much sought after. These fine clumps had, I understood, only been planted four years, and at the time of planting they were but small pieces—indeed, so well do they grow at Brockhurst that small single buds cut from the base of old stools, put in two years since, have now several good flowers. There are beds of *H. angustifolius* which have only been planted twelve months, and as in my experience after being disturbed, they present anything but a satisfactory appearance; but the second season they recover themselves, while those which have been planted three seasons are in full healthy condition. Many growers unacquainted with them are sadly disappointed with the outlook the first season, but about which there is no reason to despair; it may be taken as a sure indication that they do not like being often disturbed.

The soil at Brockhurst is light and blackish, but inclined to become clogged; consequently Mr. Brock-

bank finds it necessary to add sand and leaf-soil for the Hellebores; in addition to this it is deeply stirred, most liberally manured at the time of planting, and in the autumn the surface is well mulched with sawdust thoroughly saturated with stable-manure, which seems to be the very stimulant—or shall I say the right larder?—for them; other than this they do not appear to receive any special treatment. It seems pretty evident the stable sawdust is the chief factor in the production of such luxuriant foliage and fine large flowers.

Several other species and varieties of Helleborus are encouraged, some of which were in flower; conspicuous was *H. abchasicus*, with its purple-red flower-buds subtended by the green foliaceous bracts; and the variety *purpureus*, with extremely pretty purplish flowers, the inner surface of which is especially beautiful. *H. foetidus*, *H. dumetorum*, *H. guttatus*, *H. argutifolius*, and several hybrids, are now in or about to flower, while several others will be in flower later on, the whole forming an interesting series. *R.*

### COMMELINA CÆLESTIS.

This favourite of many of our forefathers appears to be in great danger of becoming a much neglected plant, if it has not already found its way into that category; and yet the beautiful clear blue of its flowers should make it a favourite, added to the fact that it is not difficult of management. As it is a true herbaceous perennial, the roots can be wintered when the stems die down, much as Dahlias are preserved. They should be lifted with care if they are growing in the open ground, so that their fleshy spindle-shaped tubers be not injured, and planted or potted entire in spring. In warm southern localities the roots can be left on the open ground all the winter if a heap of ashes or some kindred material be placed over them. During the growing and flowering season a rich light soil should be given them. The type *cælestis*, and its white variety, *alba*, can be propagated by means of seeds, which can be procured without difficulty, and by dividing the roots in spring after being placed in heat to break in growth. *R. D.*

## Orchid Notes and Gleanings.

### ORCHIDS AT MESSRS. LOW'S, UPPER CLAPTON.

THE best and most interesting feature during the winter season is the large house set apart specially for the culture of Phalenopsis. The lovely *P. amabilis* is just coming into bloom; the best varieties of this the "Queen of Orchids" are very lovely. *P. Sanderiana* is also in flower; it is a very distinct and beautiful species—the pale rose or lilac tints of the sepals and petals are distinct from those of *Schilleriana* or any other. There seem to be hundreds of plants of this fine kind established and starting into bloom. *P. leucorrhoda* was also in flower; this and the very pretty *P. casta* are supposed to be natural hybrids from the same parentage, but crossed in different ways. Messrs. Low consider that the first-named is better *P. amabilis* as the seed-bearer, and *P. Schilleriana* as the pollen-bearer; while *P. casta* is the reverse of this. Doubtless the pollen-bearer has the most influence in determining the character of the flowers.

In the *Cattleya*-house the advanced guard of *Cattleya Trianae* and *Dendrobium Wardianum* are just opening their flowers; a succession of the latter can be kept up for five months. A variety of this useful winter flowering *Cattleya* is very pale, almost white, and the flowers of large size. The pure white forms, and those with rich crimson blotches on the labellum, are the most esteemed; but between these there are many varieties of rare beauty.

The cool-houses are still filled to overflowing with *O. ontoglossums*. A few pretty hybrid forms are to be found amongst them, and occasionally a well-formed, richly spotted variety of *O. crispum*; and amongst the importations of *O. triumphans* the handsome *O. tripudians* was flowering.

There is a good importation, in one of the warmest houses of *Vanda Sanderiana*, but this handsome novelty will never be plentiful; it seems to be difficult to get at, and not easy to import. The true *V. insignis* is also plentiful, and no collection should be with-



out this distinct and richly marked species, now that good plants can be obtained at a guinea each. J. D.

#### BARKERIA ELEGANS.

On referring to the *Gardeners' Chronicle*, vol. xiii., n. s., p. 72 (January 17, 1880), our readers will find a figure (15) called *Barkeria cyclotella*, which accurately represents *Barkeria elegans*, as exhibited by Mr. Phillbrick at South Kensington on the 13th inst., when the Floral Committee awarded a First-class Certificate. Professor Reichenbach described *Barkeria cyclotella* in terms which do not entirely agree with the figure, the spotting of the column and lip being somewhat discordant from the learned Professor's description. The drawing shows a spotted column and a white lip, with deep blotch in the centre of the anterior portion. *Barkeria cyclotella* has a dark lip, with a white spot, instead of a white lip and dark spot, and is without the spotting on the column ("columna immaculata"), so that the drawing represents *B. elegans* and the letterpress describes *B. cyclotella*. At p. 716 of the same volume (June 5, 1880) the error is corrected, under a notice of a representation of the plant attributed to its right name, *B. elegans*, in the *Floral Magazine*, t. 394. From the remarks of Professor Reichenbach, he seemed to desire further information, but that the plant from Mr. Phillbrick's garden is the true old *B. elegans* admits of no doubt; its appearance excited keen interest, and it was at once identified by Mr. B. S. Williams and Mr. Dominy, neither of whom remembered to have seen so fine a variety.

#### VANDA INSIGNIS.

An evergreen with two rows of closely-packed, recurved, strap-shaped leaves, and numerous flowers loosely disposed in erect axillary racemes. Each flower is 2—2½ inches across, with spoon-shaped segments, yellow, heavily blotched with reddish-brown spots. The lip is contracted above the white base, and expands into a deep reddish-violet cup-shaped limb. It requires the temperature and moisture of the East India-house. *Orchid Album*, t. 172.

#### CATTLEYA DOLOSA.

Referring to a paragraph on p. 83 of the last number of the *Gardeners' Chronicle*, your correspondent Sir Charles Strickland will find figures and a full description of *Cattleya dolosa*, by Professor H. G. Reichenbach, if he refers to the number for April 1, 1876. I flowered it first in October, 1874, and again in 1875 and 1876, from a batch of plants received from Mr. Linden a few years before under the name of *Cattleya sp.*, from Minas. *John Day*.

#### ORCHIDS AT MR. J. E. BONNY'S, DOWNS PARK ROAD, HACKNEY DOWNS.

The collection of Orchids at this neat and model establishment fully bears out all the encomiums that have been passed upon it by those who have had an opportunity of inspecting it. The houses are rather small, but, as the space is limited, and every corner and passage is utilised for the growth of these interesting plants, the size is not so obvious. Having many opportunities of attending sales at the great auction marts in the city Mr. Bonny has made good use of them, and many fine pieces have thus been secured, which otherwise could not have been obtained so cheaply. But the buying is only one part of the matter, and by far the easiest, the successful culture and satisfactory flowering being of greater difficulty. Here, however, it would seem that this has all disappeared, as the collection all through is very healthy and vigorous, and sheaths and spikes are abundant and strong. Mr. Bonny is a great advocate for baskets and rafts. This is perhaps to be expected, and that it is the best method for many Orchids the condition of the plants here amply testifies. *Cattleya citrina* on rafts hanging close to a wall is in excellent health, making growths of a clear glaucous hue, and many just showing for bloom. Other large pieces in baskets are equally satisfactory. *Oncidium Marshallianum*, too, is growing strong. This is one of the most showy of the genus, but is often killed by permitting the spikes to remain too long on the plant. *O. cheiroporum* is here flowering most beautifully, its neat compact spike of small bright yellow flowers making it an object of interest. *O. concolor*, *O. nubigenum*, and *O. Rogersi* are also in good heart. *O. curtum*,

*O. Gardnerianum*, and *O. macranthum* are growing vigorously.

The *Cattleyas* and *Lælias* are exceptionally fine, that grand species *O. Mendelii* being represented by scores of specimens in fine condition, splendid in colour, and with numerous sheaths. Remembering something of the first plant of this that ever bloomed, a natural liking for good pieces of this is, perhaps, pardonable, for there is no gainsaying the fact a good *C. Mendelii* is one of the finest Orchids in cultivation. *C. Sanderiana*, on blocks, are growing well; many *C. gigas*, amongst them *C. Trianae* in quantity, also. A fine lot of the dwarf compact *C. Regnelli*, on rafts, are rooting and breaking freely. *Cologyne cristata Lemoiana* is represented by many nice plump-bulbed plants. This is a veritable gem, and should be found in every collection of Orchids. *L. purpurata* and *L. elegans* are numerous and good; *C. speciosissima*, on blocks, is doing well. In *Promenaea citrina* and *P. stapeloides* we found two old friends seldom met with now, but still pretty and pleasing to those who may have made acquaintance with them when the Messrs. Loddiges, of Hackney, grew and flowered them so successfully. Here, too, are many fine plants of *Zygopetalum rostratum*, on blocks, growing well and some showing flower; one plant, with ten leading growths, is exceptionally strong. Mr. Bonny has certainly hit upon the right method of culture with this sometime difficult grower.

The *Phalenopsis* here deserve mention. The leading varieties are grown into fine specimens, whilst some of the lesser forms, as *Lowii* and *tetraspis*, &c., are not overlooked or neglected. *Cypripediums*, too, are well done; that trying species, *C. concolor*, does well on a narrow shelf close to the glass, treated to abundance of water for a good part of the season, and never allowed to get dry; it is now flowering nicely. *C. niveum*, *C. Spicerianum*, *C. Dominionum*, *C. ciliolare*, *C. levigatum*, with the leading sorts, are all of them in robust health, and of a splendid dark green colour. *Aërides*, *Vandas*, and *Saccolabium*, are doing nicely; the specimens, however, of these are not quite so large as those of the *Cattleyas*, *Lælias*, and *Dendrobiums*.

Large numbers of plants suspended from the roof are in excellent health, the roots protruding through the baskets, though in many cases they are treated to but a very small quantity of moss or Peat. *Coryanthus macrantha* on rafts are thus managed, no soil of any sort being used; the plants, however, are growing freely and strong. A careful inspection of the various operations necessary to their culture, and a particular regard to the temperatures of the various divisions, more especially that the night readings are kept as low as can safely be done, has secured for Mr. Bonny one of the healthiest collections of Orchids it has been my good fortune to see for some time past. *W. Swan, Fallowfield*.



### MARKET GARDENING.

At no time has it been more needful for tenants who hire land for purposes of cultivation to extract therefrom the largest and best crops possible than at present. Whilst farming proper languishes, growers, who may be more properly called market garden farmers, nevertheless, generally hold their own. As a proof of the exceedingly depressed state of the farmer it is computed that no less than 60,000 acres of good corn land are bidding for tenants in this county of Essex alone. Nevertheless, market garden farms, which are lands lying in an extensive area round the metropolis, are still very highly rented, the mean charge for rent being an average of £3 per acre; indeed, instances occur where the price approaches nearer to £5. It will be seen, therefore, that very superior annual crop returns must be made to maintain a tenant's banking account against this first high charge, with its excessive additions in the form of tithes, rates, transit expenses, salesmen's commission, &c.

Very advanced theories are suggested by modern agitators regarding the "rights" of individuals, and suggested desirability of parcelling land out into minor holdings, &c., this being advanced as a panacea for many existing ills. No more fallacious suggestion can be made. Old-established growers only hold their

own by very careful attention to necessary "change crops," or a needful rotation, based on long experience of what is desirable, in reference to each space of ground, past and contemplated future markets, and seasons past, present, and future. These, added to the monopoly won by such experience, prove an all but insurmountable obstacle to all who would desire to obtain a "living" from an acre or two of land only devoted to vegetable growing for market. In a word, the smaller the grower's capabilities the more is he handicapped, and readers who contemplate competing under pressure of such disadvantage will do well to hesitate.

Past experiences of private gardens, and more intimate recent knowledge concerning market garden farming, have shown me how much the gardener may yet learn from the latter. Superficially this fact is readily shown by examination of the contents of private gardens generally, and the results of more extended farm culture, as represented at the several metropolitan fruit and vegetable markets throughout the year. Far too generally an old rule-of-thumb practice is adopted whereby certain limited quarters in private gardens are devoted year by year to their familiar thinly clad crops, consisting mainly of not more than two, during the twelve months, much time being lost, not only as regards space, but also in connection with a possible rapidity of succession.

The calendarial date for sowing and planting is, in fact, misleading. Calenders are well enough for the uninitiated amateur, &c., but master minds should not be curbed by such restraint, as future details in reference to special and separate crops and cropping will show.

#### PLOUGH AND SPADE.

Whilst the market-garden farmer depends exclusively on plough-work and cultivation, private growers use of necessity the spade, or its equivalent, the digging-fork. Spade husbandry is considered the best of the two. Judging by results, however, the difference cannot be so great as imagined, else why should the very best vegetables result from plough culture? No matter what subject we examine, whether it be Beans, Cauliflowers (as witness Veitch's Autumn Giant, which markets annually team with), Savoys, Cabbages, Coleworts, spring and autumn Onions, Carrots, Parsnips, Brussels Sprouts, &c., all afford proof; and yet the plough is, by comparison with the spade, to say the least, a shallow cultivator.

Where are we to find an explanation for this fact? On the one hand exists spade labour—deep, thoroughly manipulated culture; on the other, ploughed up ground, comparatively shallow, simply turned over in united ribbon lengths, and superficially disintegrated, or harrowed, and forthwith planted.

Our highly worked, frequently dug, spade-husbanded gardens, are too freely chopped down, broken up into minute particles by hand labour. Bulk of soil or clods are destroyed, and their coherent properties destroyed to such a degree that the firm roothold necessary does not exist. Nature nowhere unduly lightens up this plant-root abode so as to destroy this mechanical consistency. We have here, therefore, anything but a misleading finger-post. Fallen leaves, the debris of decayed portions of vegetation, feed the surface-soil, worms bring maiden lower strata to the surface, but generally a medium firmness exists where tree and every form of seedling plant grows and thrives. The firmness of soil-culture of market gardens may therefore advantageously be copied by private growers.

Market-garden farmers prepare their manures specially for the soil. They turn over their heaps of light straw, stable sweepings, &c., once or twice, as the case may be, until it becomes the best of its kind when in admixture with soil for immediate root-food. This is done always, regardless of the outlay, which is very considerable. In private gardens this is rarely or never done; certainly gardeners use up old Cucumber, Melon, or forcing-frame manures. These are generally dry, however, and greatly wanting in the high-class nutriment the above manures possess. It would be a great gain to mix the old frame manure, all fresh green manures, and cesspool emptyings together, and, as is the case with the market gardener, apply them to the land when made properly "short," without—and this is very important—any undue or excessive heating in process of fermentation, which, to say the least, is destructive of the best form of nutriment for roots and permanent enrichment of lands. *William Earley, Ilford*.

(To be continued.)



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Jan. 26	Sale of 5000 <i>Lilium auratum</i> and other Bulbs, at Stevens' Rooms.
TUESDAY,	Jan. 27	Special Sale of Orchids in Flower, at Protheroe & Morris' Rooms.
		Clearance Sale of Greenhouse Plants, at The Vineries, Wood Green, by Protheroe & Morris.
WEDNESDAY,	Jan. 28	Sale of Roses, Fruit Trees, Bulbs, &c., at Stevens' Rooms.
		Sale of Lilies, Roses, and Bulbs, at Protheroe & Morris' Rooms.
THURSDAY,	Jan. 29	Sale of Imported Orchids from Mr. Sander, at Stevens' Rooms.
FRIDAY,	Jan. 30	Sale of Imported Orchids, at Protheroe & Morris' Rooms.

THE desirability of employing ENGLISH NAMES FOR PLANTS has been once more brought under attention by Mr. WM. MILLER.\* At the request of Mr. W. ROBINSON, the Editor of the *Garden*, and at his expense, Mr. MILLER has compiled with care what is the most complete dictionary of the kind hitherto published, and for this he has won the thanks of all horticulturists. The retention of the old, or the adoption of new names is a matter in which the general run of gardeners, who care much for the beauty or utility of plants, and for little or nothing besides, will decide for themselves—as they have every right to do. But those whose interest in plants lies much deeper—the students of the family history of plants, the investigators of the machinery and of its mode of action, and even those whose concern is purely of a commercial character, will find—have found—that they have no choice in the matter. The botanical nomenclature is sometimes repulsive and offensive to the scholar, incomprehensible to the unlearned; but for all that, once it comes to a question of serious study or business, away go the popular names. Why is this? Surely, it might be argued, our own language is sufficiently expressive—surely we ought to retain and even cherish the old names handed down from our Saxon forefathers, made dear to us from their association with the language of authorised versions of Holy Writ, the sweet songs of CHAUCER, the touching notes of SHAKESPEARE, the homely strains of BURNS, or the learned lyrics of TENNYSON—the last-named more thoroughly abreast of the science of the day perhaps than any of his predecessors were. Well, we shall retain them, whether we will or no, and cherish them, too; but we must put them to their proper uses, and those only. As illustrations of the history of the language, of the habits, thoughts, and feelings of our predecessors, we shall surely retain them. For their sympathetic associations, for the appeals they make to some of the purest and best sentiments of our nature, they will be respected in the future as in the past. But for everyday use, in the library, the herbarium, the laboratory, the field, the garden, the office, these popular names are an embarrassment and a nuisance. Those who have to use these names most frequently know it but too well. Any one who for any serious purpose has occasion to deal with plants very soon finds out that the balance of advantage lies unmistakably with the “barbarous, uncouth, repulsive,” but nevertheless wholly indispensable system of botanical nomenclature. And the reasons are obvious. When the plants known in gardens might be counted by the score, or at most by the hundred, and when accuracy and minute determination were not as essential as they are now, a comparatively small number of names sufficed, and these might as well be English as not. But now garden plants are numbered by thousands. The old names will not fit the new-comers, and who will undertake to coin new ones, or, having coined them, will have power to enforce their adoption? Gardening has, happily, one qualification of science in general; it may be national, but it is cosmopolitan also. Every day makes it more so.

\* A Dictionary of English Names of Plants. . . . By WILLIAM MILLER. London: Murray.

The intercourse of the botanists is with the countries of the whole civilised world, that of the gardeners is daily extending to Germany, Holland, France, Belgium, Russia. These are all countries with which our gardeners have increasing concern. The “barbarous, uncouth, repulsive” nomenclature is understood by all these people, even by the Japanese. Are we, then, to complicate matters by sticking to our own vernacular, and leaving these outer barbarians to find out what we mean as best they can? That game can be played at by two persons, and if the Japanese horticulturists choose to retain their own system of names—no doubt as venerable, as poetic, as sympathetic as our own—we cannot find fault, however much inconvenience we may experience.

But the one great objection which dominates all the rest is the vagueness and want of fixity of application of the popular name. If a plant in popular language is called a Rose, a Laurel, a Lily, a Thistle, a Cedar, an Aloe, a Box, a Myrtle, a Fir, a Pine, a Reed, a Rush, a Daisy, a Primrose, a grass, a Syringa, ay, even a Cabbage, it is most probable that in the great majority of instances the name is wrongly applied—applied, that is, to plants which do not respond to their names. It is only needful to turn over the pages of the dictionary before us to see countless instances of this. Take, for instance, “Cabbage,” this might stand very well in a general sense for the Latin equivalent *Brassica*, but we find from the list before us at least nine other genera called Cabbage and not all Crucifers even, for one is a Saxitrage, and another is an Aroid! We should not prefer to have leaves of *Symplocarpus* cooked for Cabbage!

And this leads us to speak of another most serious objection to the use of popular names for other than popular purposes. In many cases the confusion and vagueness of application is of no great moment: the sciolist is satisfied with them, he wants no better; the botanist—even the amateur botanist—can generally find out what is meant, and so no harm is done beyond the loss of a little time. But the case is different when Aroids are mixed up with Cabbages, the aromatic Bay (the true Laurel) with the poisonous or “common” Laurel, which, by the way, is a Cherry and no Laurel. Instances of similar confusion attended with the greatest inconvenience occur in the commercial nomenclature of timber trees, the Deals, the Firs, the Pines, the pitch Pines, the Rosewoods, of which latter Mr. MILLER enumerates twelve widely different trees, neither of them, it is needless to say, being a Rose. The invaluable Gum trees (*Eucalyptus*) are in a similar state of confusion, a confusion mainly created by the haphazard, unsystematic way in which the colonists have done what they thought proper in their own eyes, and named things so that it is impossible for others to know what is meant. Such illustrations, and we might multiply them by the score, are sufficient to show the extreme inconvenience for commercial or business purposes of an unauthorised system of nomenclature, one amenable to no rules, and destitute of any but fanciful significance. By the side of the serious inconvenience that arises from the use of popular names, other things are of less importance, and, indeed, afford amusement, as in the endeavour to ascertain by what cross circumstances a *Helianthus*, already provided with a good English name in Sunflower, should be called a Jerusalem Artichoke, or the tree of Judæa (*Cercis*) get converted into Judas Tree by the same process that converts Hoary Morning Apple into Honeymoon, or the Josephine de Malines of the pomologist into the Joseph-on-the-Palings of the costermonger!

Mr. MILLER, in the work before us, endorses the view that good native names are rejected in

favour of some Latin name through mere contempt of homely things and affectation of novelty. We greatly doubt the truth of this statement; when homely things are dealt with, homely names are used—Onions, Cabbages, Carrots, Apples, Pears, Vines, Lettuces, and the like. With a pretty large acquaintance with botanists and gardeners, we never remember to have on a single occasion heard these plants spoken of by other than their popular names, unless when the occasion expressly demanded the use of the scientific name, so that the accusation of scholastic pedantry and social pretension seems rather void of foundation.

The compiler of the volume before us, in his advocacy of popular names, turns round upon the botanists for their long lists of synonyms; and there is much to be said on this score, but there are, what Mr. MILLER overlooks, synonyms and synonyms; some are the mere outcome of differences of individual opinions, others are evidence of insufficient knowledge, defective materials, or careless workmanship. It does not much matter, for instance, whether a Silver Fir be called *Abies* or *Picea*, but to call a true Pine, like the Scotch, a Fir, or to call a Cherry a Laurel is a much more serious matter. Mr. MILLER is unfortunate in the book he cites in illustration of the evils of synonymy. There are, it is true, a dozen or more synonyms quoted in GORDON'S *Pinetum* for many of the trees mentioned by him, but there is nothing to show whether the author had any grounds at all for his use of them. For aught that appears his relegation of so-called synonyms to particular species might have been effected haphazard, by guesswork alone, and without the comparative study which is expected of authors. This may have been, as it frequently is, unavoidable, but then the fact should have been stated. No one working after GORDON could take upon trust his synonymy, but must work it out for himself. But this very fact illustrates the reason why, in the competition between popular and so-called scientific names the latter survive, the former tend to disappear. For the names of the botanist—and for the synonyms that unfortunately encumber his lists, chapter and verse can be cited—GORDON failed to do this, or to tell us how he arrived at his conclusions, and his synonymy is consequently next to useless. But the synonyms of the botanist, when properly authenticated and verified, however objectionable from some points of view, are landmarks of history, signposts of progress, indicating by what gradual and conscientious, sometimes painful processes the truth has been arrived at.

Popular nomenclature owns allegiance to no laws but those of the Lord of Misrule—it may be harmless, it may be amusing—more often it is mischievous, sometimes it is dangerous—it does not concern itself with the truth. Botanical nomenclature, with all its faults, is regulated by code—it is a means to an end, and that end the pursuit of truth.

—MR. SHIRLEY HIBBERD.—Deep sympathy will be felt by horticulturists and friends for Mr. HIBBERD in the sad catastrophe which, as will be seen by reference to our Obituary column, has befallen him.

—MESSRS. VEITCH AND SONS.—Mr. HARRY VEITCH has, we learn, received a Royal Warrant appointing him nurseryman and florist to the QUEEN. Her Majesty has also permitted MESSRS. VEITCH to prepare and present the bridal bouquet on the occasion of the marriage of H.R.H. the Princess BEATRICE. This is the eighth time in which the firm have had a similar honour.

—“LINDENIA.”—Under this heading it is proposed to publish in monthly parts a series of coloured plates of Orchids, comprising many out of the 900 species discovered or introduced by M. LINDEN. The first part will be issued on March 15, and it will form to some extent a continuation of the *Pescatorea*, which is now scarce; woodcuts will also be given. The new publication will be issued under the auspices of the Compagnie Continentale d'Horticulture of Ghent.



— SOCIETY JOURNALISM.—Always in the worst possible taste, generally false, and too often malicious, it is to be hoped that this pestiferous form of literature, which had begun to invade journals of reputed respectability, will suffer a check to its further development from recent occurrences.

— THE JARDIN DES PLANTES.—We have received the annual list of seeds collected for exchange by the authorities of the Paris garden. The list occupies fifteen large quarto pages, each of four columns, so that the number of seeds offered is very large. Applications for exchange should be made without delay to M. le Professeur CORNU, Museum d'Histoire Naturelle, 27, Rue Cuvier, Paris.

present time in the market a consignment of Custard Apples (*Anona*). As in the case of most tropical fruits in this country, they do not bear out the high character given them in countries where they can be eaten under more favourable conditions. Under the quite erroneous name of *Granadillas* are also to be seen in the market the egg-shaped, orange-coloured fruits of *Cyphomandra betacea*, which may be eaten as Tomatos.

— SEEDS FOR THE MICROSCOPE.—Messrs. CARTER & CO. send us a little assortment of "seeds for the microscope," but they are mostly so large as readily to be seen by a pocket lens. There is a vast amount of beauty in seeds, and we have no doubt

is evergreen, firm and rigid in texture, amply clothing the stems and branches. There is a figure of the plant in the *Botanical Magazine*, t. 4688, and a good sized plant flowers regularly in one of the octagons of the Temperate-house, Kew.

— CONTINUITY OF PROTOPLASM.—At a recent meeting of the Boston Natural History Society, Dr. G. L. GOODALE, of Cambridge, read a short and instructive paper on the "Continuity of Protoplasm in some Vegetable Tissues," in which he stated that all the recent discoveries on this subject had been confirmed by the students at work in his laboratory at Harvard College. He said that by the new process of staining it had been proved that delicate threads



FIG. 22.—A MEXICAN PINE (*PINUS PATULA*), GROWN IN CORNWALL. (SEE P. 108.)

— M. SEVEREYNS.—This gentleman, on the proposition of the Minister for Agriculture, Industry, and Public Works, has been appointed by H.M. the King of the BELGIANS a Chevalier of the order of Leopold, in recognition of his services to commerce and science as a lithographer. M. SEVEREYNS is the chromo-lithographer by whom most of the coloured plates of this and of some other gardening journals have been executed.

— SNOWSTORM IN MALAGA.—The snowstorm in Malaga on the 16th lasted three hours. Such a fall of snow has not occurred since 1861. The frost and snow have entirely destroyed the Sugar-cane crop in the province, as well as damaged the plantations of Oranges and Olives.

— COYENT GARDEN.—Those on the look-out for curiosities for the dessert-table will find at the

Messrs. CARTER would have no difficulty in improving on the idea they now originate. For one thing we might suggest to them the foundation of small collections of authentically named grass seeds, and seeds of pasture weeds. Such collections would be valuable for reference, and would form desirable acquisitions in rural schools and agricultural colleges.

— VACCINIUM ERYTHRINUM.—The specific name, implying red, is here very appropriate, and applies, not only to the flowers, but to the whole of the young foliage, the shoots, and to the nerves of the leaves even in an adult stage. The flowers are deep brownish-red, and rather freely produced at the ends of the branches, in one-sided racemes. The species is a native of the mountains of Java, and accommodates itself accordingly to greenhouse temperature, where it keeps up a succession of bloom for many weeks during the winter months. The foliage

of protoplasm run through the cell walls and that the cells are not always separate, as previously thought. It has also been proved that protoplasm can escape through a thin, unbroken cell wall, as was previously suspected. These discoveries all go to prove STRASBURGER's generalisation, that all the protoplasm in a plant may be connected to form a whole.

— COAL.—At 50 feet below the surface a uniform temperature of 50° occurs, below which an increase of 1° for every 60 feet of depth takes place, so that at 4000 feet a temperature of 116° is obtained, one which, according to an article in *Nature*, renders the working of coal mines at that depth commercially unremunerative. The output of coal for 1881 was calculated to be sufficient to build fifty-five Great Pyramids, or to rebuild the Great Wall of China and add a quarter to its length; while the total output for thirty years would build a column 9 feet 4 inches in



diameter, which would reach 240,000 miles high, the distance of the moon from the earth!

— **CATTLEYA TRIANÆ.**—Mr. JAMES sends us a bloom with two additional lips. The sepals are normal, as also is one of the lateral petals; the other petal is developed as a lip like the normal one, which is present in the usual place. A third smaller lip is placed in front of the column, in the position occupied by the solitary stamen of the inner row of three, potentially present, but actually abortive. The ovary is altogether wanting.

— **ROYAL HORTICULTURAL SOCIETY.**—At the ensuing annual meeting the following changes in the Council and officers are proposed:—For President, in the room of Lord Aberdare, Sir Trevor Lawrence, Bart., M.P.; and as members of Council Hon. and Rev. J. T. Boscawen, Colonel Trevor Clarke, and W. T. Thibetson Dyer, Assistant Director, Royal Gardens, Kew, in place of Lord Aberdare, Lord Enfield, and the late Mr. Mangles. The election of Sir Trevor Lawrence will be hailed with acclamation by all horticulturists, who will rejoice to find the President's chair once more filled by a thorough horticulturist. The new members of Council are also men of the best stamp, and will be welcome acquisitions. To the newly formed Council we may in every confidence look for every effort to be made to secure proper meeting-rooms, offices, reading-rooms, and quarters for the Lindley Library.

— **MASSACHUSETTS HORTICULTURAL SOCIETY.**—A meeting of this Society was held at Boston on January 3, President MOORE in the chair. The President delivered his inaugural address, in which he first paid a tribute to his predecessor, the Hon. FRANCIS HAYES, the first President of the Society, who had died in office. Mr. HAYES was energetic in the performance of all his duties, a good manager of the financial affairs of the Society, an excellent presiding officer, urbane and courteous, and an enthusiastic lover of trees and plants, and everything pertaining to rural life. His country home at Lexington was fast becoming one of the notable estates in the suburbs of Boston. The founders of the Society, who have passed away, were remembered with gratitude by the President, who said that their successors, who enjoy the benefit of their labours, hold a trust which they are bound to improve for the good of those who come after them. At the same time we should not forget the debt of gratitude that we owe to the living, among whom the venerable ex-President, Hon. MARSHALL P. WILDER, who has devoted a long life to the advancement of horticulture, and who in his green old age is as interested in new fruits, flowers, and methods of cultivation, as a young beginner, was specially mentioned. The weekly shows of the Society have, during the past year, been better and more fully attended than usual. The four large shows, for which a small admission fee has been charged, have, under the energetic management of the committee of arrangements, proved more successful, not only in the quantity and quality of the exhibits, but in a financial point of view, than in previous years. The appreciation of the exhibitions evinced by the public has been most gratifying.

— **HORTICULTURAL CLUB.**—The usual monthly dinner and *conversazione* took place at the rooms, 1, Henrietta Street, Covent Garden, W.C., on Tuesday the 13th inst. Amongst those present were Mr. JOHN LEE, Chairman; Dr. HOGG, Rev. F. H. GALL, Messrs. COUSENS, C. T. DRURY, and L. UPCOTT GILL. Mr. DRURY exhibited pinæ of *Athyrium Filix-femina* clarissima, illustrating his recent discovery upon that Fern of the hitherto unknown phenomenon of "Apospory," i.e., the formation of archegonia and antheridia upon prothalli originating, not in the normal way, from the germination of spores, but by direct vegetative outgrowth from the fronds, like buds. An interesting discussion took place on the whole subject. The annual dinner of the Club will take place on Tuesday, February 10, under the Presidency of Mr. JOHN LEE, and, as it will be the tenth anniversary, a large attendance of members is expected.

— **SCUTICARIA STEELII.**—The most striking and characteristic feature of this plant is the long pendent twig-like leaves, often attaining a length of 2 and 3 feet, or even more. They are of a dull

glaucous green, about the thickness of a good-sized quill, with a channel on one side, representing the upper surface. They arise singly, and appear continuous with the apex of the excessively short stems on a branching rhizome. The short peduncle supports a solitary, large, and showy flower. The sepals and petals are pale yellow, blotched all over with deep dull purple. The large labellum is of a creamy-yellow, and beautifully striped with purple, and possessing a large bright yellow crest situated towards the base. The plant is figured in the *Botanical Magazine*, t. 3573, under the name of *Maxillaria*; but the plate scarcely does justice to it, owing to the limited space for the foliage. It is a native of Guiana, and may be seen in the Orchid-house at Kew. The only other known species, *S. Iladweni*, differs in the very much shorter, erect or arching leaves, and in details relating to the flower.

— **THE NATIONAL CHRYSANTHEMUM SOCIETY.**—The annual general meeting of the members of this Society was held at the "Old Four Swans," in Bishopgate Street, City, on Monday, the 19th inst., when there was a numerous attendance of members; E. SANDERSON, Esq., President, in the chair. The annual report, which was read by the Secretary, Mr. W. HOLMES, set forth that it was the thirty-eighth report and balance-sheet, that the first year of the National Society had been most successful, that the show in November last at the Royal Aquarium was the largest yet held, over 3000 blooms having been staged; that the establishment of a Floral Committee in connection with the Society had answered well; that a scheme for the affiliation of suburban and provincial societies had been promulgated; and that donors of special prizes had increased in numbers. The receipts from all sources for the year amounted to just over £300, the expenditure reached this amount, excepting a balance £1 6s. 6d. carried forward to next year; of this sum over £200 had been paid in prizes. The membership of the Society had increased in a remarkable manner, from 140 in 1883, to 260 in 1884. The following officers were then re-elected:—Mr. E. SANDERSON, as President; Mr. R. BALLANTINE, as Vice-President; Mr. J. STARLING, as Treasurer; Mr. W. HOLMES, as Secretary; Messrs. DRAIN, jun., and CRANE, as Auditors; and thirty-six members were elected on the General Committee. The appointment of a Floral as well as of an Exhibition Committee, and also of Judges at the Annual Show, were referred to the General Committee. A Schedule Sub-committee brought up a report recommending a few material alterations in the schedule, and a general augmentation of prizes in the leading classes. The class for a group of Chrysanthemums in pots covering a space of 100 feet is divided into two classes, one for incurved varieties only, the other for Japanese varieties only, and these will now be restricted to 60 square feet. The leading class for forty-eight blooms, twenty-four incurved and twenty-four Japanese, is also divided, and now forms two classes, one for twenty-four blooms of incurved varieties, the other for twenty-four Japanese, the prizes being in each £10, £6, £4. Several alterations of a less important nature, but not less useful in their results, were also made. Several special prizes were offered for various objects, among them for stands of single Chrysanthemums, also for English raised seedlings, and Mr. W. CULLINGFORD has placed at the disposal of the committee the sum of ten guineas, to be awarded in prizes for late-flowering Chrysanthemums, the competition to take place about the second week in January. This was considered a step in the right direction, and a supplementary exhibition will be arranged, probably at the Royal Aquarium, early in 1886. It is also intended that the sittings of the Floral Committee shall take place in the afternoon instead of the evening, as heretofore; and it is probable the meetings will take place at the Royal Aquarium. Among other novel features to be introduced to the schedule of prizes will be a class for the new Anemone-flowered Japanese Chrysanthemums. The result of the year's operations, and the enthusiasm which prevailed at the annual meeting, appeared to amply justify the Society in ceasing to be local, and taking on a national character.

— **A BIRMINGHAM NATURALIST.**—The Linnean Society never has more than twenty-five Associates on its roll of members. Not only is it an honour to be elected an Associate, but the honour is all the greater, inasmuch as no one is elected who has

not done some really good work in at least one branch of natural history. This honourable distinction has lately been conferred on a much-respected Birmingham man, Mr. JAMES E. BAGNALL, who, at a meeting of the Linnean Society last week, was unanimously elected an Associate. Mr. BAGNALL is one of the Vice-Presidents of the Birmingham Natural History and Microscopical Society, of which he has for something like a quarter of a century been one of the most useful and hard-working members. He has devoted his principal attention to the study of botany—structural and systematic. Years since he won for himself a name as a bryologist. He has always been a ready helper to young beginners, and many local botanists have benefited by his assistance. Many of his contributions have appeared in the scientific journals. His most important published work is the latest and by far the best *Flora of Warwickshire*, which has appeared by instalments extending over several years in the *Midland Naturalist*. This important work will, we are informed, shortly appear in a thoroughly revised form, as an independent publication. Mr. BAGNALL has achieved his success as a scientific man in the leisure hours of a working life spent in one of our large manufactories, where he has been as "diligent in business" as he has been diligent in observation and study when the day's work has been finished.

— **APPLE AND PEAR EXHIBITION, EXETER.**—It is finally arranged to hold an exhibition of the above on October 22 and 23 for the year 1885. The number of classes are considerably increased, also many of the larger prizes to both trade and private growers. With the additions, the experience acquired by the late exhibition, and ample time before them to make their arrangements, the committee anticipate that a large and successful exhibition will be held. The committee at their last meeting presented their Hon. Sec., Mr. PENGELLY, with a very handsome clock, as a mark of their appreciation of his labours in connection with the late exhibition, as to him in a very great measure was due the success of the undertaking.

— **CHINESE PRIMULAS OF RECENT RAISING.**—Seven beautiful varieties of these favourite winter flowers have been sent us from Mr. BULL's establishment, Chelsea, which have colours and size of an unusual character. The colours range from rosy-purple through lilac and flesh-pink to pure white. *P. rosea flore-plena* is destitute of any eye, but has small malformed petals standing erect in the centre. *P. filicifolia striatiflora* is also a faint pink with crimson dots. *P. punctata elegantissima* is purple-rose with a large extended bronzy central patch, the whole bloom being spotted with white; *P. albo luteo-oculata* is like the second named, but the eye (yellow) is an inch across; *P. violacea* is a trifle darker than a Neapolitan Violet, the petals delicately margined with white; *P. rubra* is a very massive bloom of rich colour, and scarcely any eye; and *P. alba* is good, having a pentagonal orange eye.

— **NOTTINGHAMSHIRE HORTICULTURAL AND BOTANICAL SOCIETY.**—The annual meeting of this Society was held at the Mechanics' Institute, on Wednesday, January 14, Mr. EDMONDS, Head Gardener, Bestwood Lodge, in the chair. The report of the committee and the balance-sheet were read and adopted. Votes of thanks to J. Manning, Esq., J.P., as President for the past year; the Auditors, Messrs. Field and Sibley; the Treasurer, Mr. C. Pearson; the Chairman of Committee, Mr. A. Paige; and the Honorary Secretaries, Messrs. Don and Steward, were passed. The election of T. B. CUTTS, Esq., Malvern House, as President for the ensuing year, was carried unanimously. As one-third of the committee annually retire, the following were elected:—Messrs. Anderson, Bush, Bardell, Harvey, Locker, Gadd, Clements, and the Honorary Secretaries. A vote of thanks to the Chairman for presiding brought the proceedings to a close.

— **GARDENING APPOINTMENTS.**—Mr. W. WHIBBERLEY, late Gardener to the Countess of KINGSTON, Mitchelstown Castle, has been appointed Gardener to Sir PHILIP DE B. GRAY EGERTON, Bart., Oulton Park, Tarporley.—Mr. ROBERT WILSON, late Gardener to the Earl of Desart, Desart House, Kilkenny, succeeds Mr. WHIBBERLEY, at Mitchelstown Castle.—Mr. F. DAV, for the past five years Fruit Foreman at Lockinge, has been appointed to succeed Mr. THOMAS as Gardener to Colonel Sir B. LOYD LINDSAY, K.C.B., V.C., M.P., Overstone Park, Northampton.—Mr. F. J. THORNE as Gardener to Mrs. MORISON, Hampworth Lodge, Downton, Salisbury.



## Plants and their Culture.

### STOVE BULBOUS PLANTS.

THE Gloxinia is now, without doubt, one of the most popular plants grown. Where these are valued the first batch should be started without delay. Select those that have had the longest rest for this purpose, shake them out of the soil, and repot with fresh compost. A light friable loam and good peat in about equal proportions, with a liberal addition of silver sand and a few handfuls of bone-dust, will be found to suit their requirements. If a good sample of leaf-mould is at hand it may be substituted for the peat, or a portion of it, and a few bones crushed small can be placed next the drainage in lieu of the bone-meal. If any of the tubers show symptoms of shrivelling and do not feel so plump and firm as they should do, they had better be placed in a pail with some lukewarm water for a short time before being repotted. At this early period of the year they had better be placed in a brisk temperature, and near the glass, to prevent drawing of the stems. After having been once watered to settle the new soil, be cautious in giving water before active growth begins, but afterwards, and through their flowering stage, they should never become quite dry.

### SEED SOWING.

Where the stock of Gloxinias is somewhat short, a pinch of a thoroughly good strain of seed should be sown at once. With the great improvements that have been made in the quality of the flowers during the past few years no cultivator need now possess an inferior strain. Seed sown now will produce flowering plants by the end of June; some of the stock will continue to furnish successions to the earlier ones, and carry the flowering season well on into the autumn. If the requirements are such as to need flowering plants late in the year, then it will be better to sow again in a few weeks time.

### CALADIUMS.

Among all the varieties of this beautiful foliage plant few are more useful than *C. argyræ* in supplying materials for decorative purposes either as a small pot plant or in the cut state. Where a healthy lot of good sound bulbs is at command a portion may be shaken out and repotted at once, then, if given an extra amount of heat they will soon start into growth. A few also of the best coloured varieties may be started gradually; they will afford bright and cheerful tints at a time when there are not so many flowering plants in season. *James Hudson, Gunnersbury House Gardens, Acton, W.*

## FRUITS UNDER GLASS.

### FIGS.

No trees, in my opinion, are so well adapted for early forcing as those which have been cultivated in pots for a series of years, and attained a good size; and no method better than the plan of having in the house or pit a bed of Beech or Oak leaves to give a little warmth throughout the season, and also to induce the roots from the pots to take hold and permeate it by the time the fruit is ripening. Trees of this description which were started a month ago at a temperature of about 50° at night and 55° or 60° during the day, will now be showing fruit and breaking forth into leaf. As these growths proceed they should be stopped at an early stage at about the fifth leaf, and where too thickly placed some should be removed to give room for those remaining to develop properly. The atmospheric state of a house under the foregoing conditions will be such as not to need syrioging, and at this season it should only be done when the trees and surrounding surfaces have become dry; an artificial temperature of 60° daily should be maintained, and by natural influences from 70° to 80°, with air admitted so long as it will keep up to 70°, when the place should be shut up.

### SUCCESSION FIG-HOUSE: BORDERS.

Now is a good time to begin forcing another division to come in after the first crop from the fore-

going trees. In most cases this house will comprise trees planted out. Fig trees under these conditions are in some cases in restricted borders confined within brick-wall boundaries, which certainly are very ineffective barriers, as the roots will go through them and so defeat the purpose for which they were made. I find the best mode to deal with such trees is to provide a solid basis beneath the trees, to have a border about 6 feet square and 2 feet deep, and to confine the old roots to this mass only; outside it may be added 2 feet of fresh border, into which the fresh young roots will run readily, which, with the roots it contains, should be removed annually in the early autumn months and be replenished with a similar compost for the ensuing season. These means are calculated to somewhat restrict the growth, accelerate the ripening of the wood, and provide the roots with the nutriment necessary to obtain a good crop of fruit and finish it off perfectly. The temperature in this house should range from 55° at night to 60° or 65° in the day, and 70° to 80° when sunny weather prevails.

### LATE HOUSES.

The disrooting and adding of fresh compost, if not completed, should not be further delayed. The trees should be cleaned, taking care not to injure any fruit if it be in an advanced state. See that the borders are made thoroughly wet at this season also. *G. T. Miles.*



### THE AURICULAS AT DIDSbury.

THESE are wintered in small cold frames, which may be considered "models" for the work. They are 3 feet wide, so there is no difficulty in attending to the plants, and they have a sharp pitch; the divisions separating the lights are stout and deep; as it is by an ingenious yet simple adaptation of these that ventilation is effected. There are in each two round holes, one at the upper the other at the lower end, and in which stout round pegs can be placed when the light is raised, and upon which the latter rests when air is necessary; hence, when it is only desirable to admit air from the top of the frame the top pegs are put in, and *vice versa*. When desirable that a current should pass over the plants all the pegs are put in; and a current of air passes between the light and the plants. Another great advantage is, the lights may be pushed up and down without disturbing the pegs as they easily slide over them: hence the great superiority over the old method of tilting the lights with blocks. The plants are raised near the glass upon boards, and they are the very picture of health. I should say there are nearly a thousand plants, mostly large, and some very fine indeed: for example, those of John Simonite, than which we have never seen better; the same may be said of Colonel Taylor, Prince of Greens, and indeed of all the leading varieties. The collection is remarkable, because it is enriched by the stock of the late Mr. Tom Mellor, many of whose selfs are turning out very satisfactory, Mr. Brockbank holding the entire stock of several excellent varieties, although such stock in some instances is very limited. I may mention Lord Rosebery (Mellor), which gained the premier award at the Manchester show last year as a red self of no mean rank; there are also Miss Brockbank, Cymbaline, Mrs. Heap, and others, very desirable and uncommon in their way, and there are others to follow, as active progress has been made in crossing these varieties with others, and the progeny will be watched with enthusiastic pride.

### LATE-FLOWERING CHRYSANTHEMUMS.

Much the greater part of the work which the raisers of new flowering plants set themselves to do seems to be in one direction—that is, obtaining varieties that will bloom earlier. No one is likely to object to the bringing into existence of varieties that will lengthen the blooming season of any desirable plant, whatever it may happen to be; but it might not unreasonably be urged that it would be better if the work, so desirable in itself, was more evenly directed—that is, to the obtaining of later flowering sorts that would come in after all existing kinds were over. This especially applies to Chrysanthemums, which from their natural

disposition to bloom during the late months of the year, and their adaptability for decorative purposes, cutting included, may be said stand unequalled to an extent that causes a blank when they are over such as other kinds of plants that succeed them only partially fill. Of late years many new sorts have been raised, and old ones hunted up, that come into bloom during the latter part of the summer, or even earlier, at a time when there is no lack of material in the way of other flowers to choose from. Independently of their being then unneeded, there is somehow or other a feeling attached to these early flowerers that they are before their time—forecasting prematurely the waning season, with its fogs and dreariness, which comes soon enough without any reminder. More, we suspect, through accident than design, there are in existence a few varieties of this useful flower that bloom after the time when the greater portion are over; but might not more be done in this direction by saving seed and raising from these late sorts? So that those who have not an unlimited amount of glass wherein to grow other things more difficult to manage might "cut and come again" during the early months of the year in the way that a supply of Chrysanthemums admits of. The work does not present any particular difficulty. *T. Baines.*

—We have lately received from Mr. G. Stanton, of Park Place, Hlenley-on-Thames, an interesting lot of Chrysanthemums. Without exception the flowers were good of their kind, especially so Meg Merrilies, Madame C. Andiguer, Ethel, Princess Teck, Baron de Prailly, and Grandiflora. These Japanese kinds predominated, and show how readily they adapt themselves to a course of retarding. The sender tells us that fully a fortnight will elapse ere the bulk of them cease to be objects of attraction; so that we find the blooming period of the autumn flowering section extending from October to the end of January.

## The Kitchen Garden.

### SEED SOWING FOR THE NEXT FORTNIGHT

PROVIDING a sufficient supply of young Cabbage plants do not remain on the autumn-sown beds to make a planting to succeed those set out in the autumn, some seed should now be sown, either in boxes in one of the houses, or on a gentle hotbed in a shallow frame. If sown in boxes they can be pricked-out in a frame when commencing to show the rough leaf.

### CELERY.

A pan of some white kind may now be sown, simply to obtain a few early unblanched heads for flavouring, as this is indispensable in the kitchen.

### CAULIFLOWER.

If a good stock of autumn-sown plants are not on hand, sow in boxes (near the glass) in heat, and prick out in a frame later on. The above remarks also apply to Lettuce.

### LEeks.

To obtain exhibition productions a pan of seed ought to be put in soon, these when large enough should be potted into "Long Toms" and gradually hardened off prior to planting out.

### SPINACH

For the earliest crop is better grown alone. Select a warm open position, and if the soil is adhesive and heavy fill in the drills with lighter soil, such as siftings from the potting-bench, or old frame soil; treated thus, it will germinate much better than if covered with cold heavy soil.

BEANS and PEAS as advised in last Calendar.

### GENERAL WORK: SEED BEDS.

Assuming that the positions of the most important crops have been decided upon, and that the ground has been prepared accordingly, a piece of ground fully exposed to sun and air should be set aside for the general seed sowing. A moderate light soil is preferable to heavy soil for the purpose of raising young plants free from club. Sprinkle it over with lime and soot in equal quantities prior to digging, which should be done with a fork, leaving the surface lying rough for the present.

### MANURE.

If the ground is in good heart none will be required,



but if it is somewhat poor, only well decomposed stuff should be added, and it should not be charged with strong animal matter. I shall say more about this later on.

#### RHUBARB.

To have a constant supply of roots for forcing we must divide the roots and make fresh plantations according to demand; every division should have a good bold crown. A plantation can be made at any time before growth commences, but the sooner the better. Plant on trenched ground, and if planted for lifting to force indoors 1 yard apart each way will be sufficient space, but to be covered and forced on the ground under pots, plant 4 feet apart from plant to plant, and 5 to 6 feet between the rows.

#### SEAKALE.

Any Seakale roots laid in and intended for the making of cuttings should now get attention. When the cuttings are made lay them in a shallow pit or well drained ground, and cover over with 3 inches of fine light soil; over this a little protection can be given in sharp weather only. Here they will form a callus and make good "sets" for April planting. This system of raising plants is decidedly quicker and better in every way than the old method of sowing seed.

#### ROOT STORE.

Let this be carefully looked over on wet days. Seed Potatoes should be kept lying thinly, and be exposed to as much light and air as possible, provided no frost can enter. This applies especially to late varieties. *G. H. Richards, Somerley, Ringwood.*

### FUNGUS IN LILIUM AURATUM BULBS.

YOUR correspondent, "W. J. M.," p. 57, is quite correct as to there being a Japanese fungus which attacks Lily bulbs first in the warehouses of Japan, and whose rapid development in the hold of the steamers on the voyage, fostered by the high temperature, has brought death to thousands of imported bulbs. It is the one great difficulty importers have had to overcome. If "W. J. M." will turn to pp. 209—213 of my *Notes on Lilies* he will find further information about this fungus, and the means used to destroy it; and if he will take up a Lily bulb affected by this rot, and keep it in a warm moist place at a temperature of 60° or thereabouts, he will soon have abundant evidence to submit to his microscope of the nature of this fungus. Importers now take special protection against this evil. "W. J. M." should in future, if he wishes to avoid this risk, make a point of buying either home-grown bulbs, or those that have been at least three months in the country, not newly imported bulbs. Of course he will have to pay a higher price, but he will find it cheaper in the end. In fact it is an open question still whether imported bulbs may not bring with them into the garden these objectionable germs, so as to infect other neighbouring bulbs. We import every year thousands of choice Japanese Lilies, but we do not offer them to our customers till they are safe, that is, till they have been with us so long in a cold frame that root-action has commenced, and the bulbs are as firm, sound, and heavy, and as free from all fungus germs as home-grown bulbs. In this way, and in this way only, can we obtain results satisfactory to ourselves and our customers. If "W. J. M." will pay us a visit we shall be happy to show him our bulbs and explain the process we use to de-vitalise the fungus germ. *Alexander Wallace, New Plant and Bulb Co., Colchester.*

—"W. J. M.'s" remarks with respect to the mortality which he finds amongst imported bulbs of *Lilium auratum* amount almost to an indictment against dry foreign bulbs. What is desirable to learn is whether his experience is general or only singular. When we read of the sales of these bulbs from year to year, offered as they are in enormous quantities, one is tempted to ask what becomes of them all? and "W. J. M." supplies a clue to the mystery, assuming that the mortality which occurs in his dry bulbs is general. At the rate at which *Lilium auratum* bulbs are put into commerce, this Lily should be as abundant almost as Potatoes, and as cheap. Of course, if they die largely, their comparative scarcity is explained. The points for consideration are, first, whether the bulbs suffer from drying; and, second, from imperfect packing in transit. It

would be strange if it were found that the bulbs suffered from some fungoid disease on arrival here, because it seems evident that they must have been perfectly healthy during the previous season. If it is found at home that rotting and keeping the bulbs in soil, and slightly moist through the resting period, are essentials to future health, it seems obvious that the cleansing the bulbs from soil, and permitting them to become comparatively dry, must be productive of evil. It would be of exceeding interest to learn the experience of large buyers of imported bulbs here, and especially of any who may grow them for market. Still further, some definite information as to the longevity of home-raised bulbs as compared with that of imported ones would be full of interest. It may be that only comparatively few bulbs are raised at home, and if it be so then it is to be deplored, and the more so if such are the most enduring. It would also be interesting to learn how long lived an *auratum* bulb may be. Soon after this Lily was introduced we read of some grand specimens, one of the finest having been that grown by Mr. Cross, at Melchet Park, some sixteen or more years since. Are there any such bulbs now to be seen, and if so what are the secrets of their special vigor and longevity? As it is well known that so many dried bulbs show the first signs of decay at the base, might not that disease or rot arise from the withering or decay of the stout fleshy roots always found on these bulbs when lifted in the autumn, and which it is so important should be well preserved? Again, "W. J. M." finds that his bulbs largely decay from the points of the outer scales downward. Does this decay arise from injury caused to the scales in the process of packing and in transit, and though it may not be apparent, yet suffice as soon as the bulbs are moistened to promote downward decay? It is doubtful whether the effects of such injury have been fully considered. *A. D.*



### EUCHARIS AMAZONICA.

IN continuation of this subject, I mentioned lately that I had got within sight of "game," but for some time before that occurred I had lost all faith in systematic cultivation as a remedy capable of arresting the progress of this consuming disease. I felt convinced, that whatever might be the cause, it must be sought in the bulb itself, and that a process of "disinfecting" would probably lead to better results than persistence in remedial cultivation, however carefully carried out. Baths were prepared of quicklime and water, soot and water, solutions of soft-soap and tobacco-water, Fir-tree oil and water, &c., and thousands of bulbs had their leaves and roots cut off and were cast into these baths and allowed to remain immersed from three days to three weeks, after which the bulbs were "laid in" in a pot set apart for them, and duly labelled. They soon began to grow, the first batch that started being those bulbs subjected to a lime-and-water bath, and the last to start being those that had been immersed in soot and water. We potted them in 48-pots, in batches, as the bulbs began to root, and after they had developed a couple of leaves on each plant—'twas a sight "fair to view" indeed!—enthusiasm began to usurp the place of sense: I had evidently made a discovery—took an extra glass of "toddy" at night, complimented myself upon my good luck, began to speculate as to patenting the process. A fortune's to be made! —'s patent devil-killer! Cost price, 1d. a gallon; wholesale, 5s.; retail, 10s. 6d. Agents in every town, customers everywhere! These pleasant little dreams are cut short by my better half's reminding me that the room is becoming unbearably full of tobacco-smoke. Smoke, indeed! it may inconvenience some unsympathetic mortals, but it is a tremendous neighbour of enthusiasm. However, "all is not gold that glitters," and as my plants began to get into a stage of growth from which I might expect flower-stems to show, I began to observe leaves on some plants becoming of a paler green colour round their edges, and ultimately it was clear that the old enemy and only suffered a check, but was not conquered. I tacked about, gave up the hydropathic treatment, cut down a lot more affected plants, and "roasted" the bulbs upon galvanised sheets in a hot dry vinery, and it was at this stage of experiment and enquiry when, tearing up some bulbs, scale after scale, that I came upon the

"game" of which I have spoken—an insect which in habit and appearance reminded me much of *Phylloxera vastatrix*. The ordinary cultivator of *Eucharis amazonica* will have observed at times red spots or eruptions on the roots and outside the bulbs of even the most healthy stocks of *Eucharis*. I have examined these ruptured spots very often, but until now never could make out the agency by which they were produced. I sent some bulbs to a friend, an enthusiastic local entomologist. He informed me that "the little insect was a species of *Acarus*, or mite," which he could not then determine—"that they were considered to act merely as 'scavengers.'" "Scavengers," indeed! I want to know whether these little pests were prosecuting their legitimate business when I found them all through the bulbs, and invariably in these little red ruptures. My friend was just going to Cornwall, for a holiday with a congenial "chip," said to be very learned in mites, and I promised to send some affected bulbs—which I did—but my friend occupied some fisherman's cottage on some remote part of the coast, and they never reached him, so that I lost the assistance of the mighty (for he has written a monograph on them) in mites. However, with the exception of a few plants that had been put under process, I had all the bulbs of *Eucharis* that I had reduced scale after scale as far as the red ruptures could be found. Many were spotted to the very heart, and were cast away; others reduced to the size of a horse Bean, washed, and sown in pots. Time only will determine whether these "spawn" will remain healthy. In my experiments with these bulbs I have invariably found that the small leafless offset bulbs give better promise of renewed health than the main bulbs, and this fact is worth bearing in mind by those who love experiment. My experience leads me to the conclusion that the little insect—whatever it be—is the real cause of *Eucharis* disease, either by extracting the juices which nourish the plant, or by producing upon the nourishing elements something analogous to "blood poisoning," and, if I might be allowed to make a recommendation to "A. E." and all such cases, I should say—"Clear out your diseased stock; get a new start, and be sure it is from a clean stock;" and he will find it time saved and economy in the end. I know that diseased stocks of *Eucharis* flower, and flower freely; but with me it is a case of Hamlet's father—"Look on this picture—and look on that." Had I the ear of Her Majesty's Government I could suggest some valuable work for them to engage in. We pay thousands upon thousands every year to uphold establishments presided over by very scientific men, possessing every tool and facility for unravelling the aberrations of plant life, and yet how little advance has been made in vegetable pathology. *Z.*

—In reference to the culture of this much esteemed and free-flowering Lily I may be allowed to say that I have never experienced the slightest difficulty in growing and flowering it. Indeed we have plants of *Eucharis amazonica* in flower more or less throughout the year, and some of them have not been disturbed at the roots for several years—the last time they were potted in a compost consisting of three-parts good fibry loam, and one of pulverised cow-dung, charcoal and fine lime rubble. In potting the bulbs, which were sized at the time and kept close to the surface, the soil was pressed moderately firm about the roots, which were placed in their natural perpendicular position. The bulbs so potted were then placed on a retaining wall in a Pine-stove, and watered with tepid water to settle the soil about the roots. After this they received no water (excepting a sprinkling overhead morning and afternoon when the house was being damped with the syringe) until the roots had pushed well into the soil, which they did freely. Tepid liquid manure was afterwards given to the roots, with the result that by the end of July (four months from the time of potting) these plants had filled their pots with roots, and at the same time developed plenty of large dark green leaves of firm texture. Water was then withheld from the roots, when, after an interval of about three weeks' rest, most of the bulbs sent up a flower-spike, and then tepid liquid manure was again given to the roots—continuing the application for a few weeks' after the plants have done flowering, when water is again withheld from the roots until the flower-spikes appear, when it is again given. Thus treated this beautiful Lily, providing there are sufficient plants to be operated on in small batches—say from three to twelve plants—at short intervals—may be had in



flower all the year by giving it ordinary stove temperature. *H. W. W.*

— Just allow me to encroach on your space to make a remark or two in reference to the two cases you mentioned I had overlooked in last week's issue. I hold that the rule applies to all plants in pots, and even such great absorbers of moisture as Orchids should not be watered until the last watering is pretty well exhausted by evaporation and absorption. Of course if the plants of *Eucharis* were plunged in such material as sodden cocoa-nut fibre, the soil in the pots was certain to get too wet, and cause injury to the roots, but that would be the result of mismanagement, and although not a disease in itself it would develop a diseased condition of the entire plant. Plants in well-drained pots in stove heat can be watered every twenty-four. I do not plunge mine in the tan-bed in which I force them, but place them on the surface, and they do as well as it is possible for any to do. I am very sceptical about the second case. I syringe mine in the stove twice a day, and I may say it is covered with creepers, and it does them no harm. *A. Macdonald, Cheddle Royal Asylum Garden.*

I was surprised, on reading Mr. Macdonald's reply to my remarks in your last issue, that he certainly had not paid much attention while he was reading, or he would have seen that I did not give it as my opinion that there is a disease in the *Eucharis*, neither did I say anything about red spots. I have seen *Eucharis* which had red spots, and they were healthy plants compared to mine and others I have seen and read about. Certainly my plants have never been in a hot dry atmosphere, for if I err at all, as we all do sometimes with plants, it is not on the dry side. I gave an accurate account of the treatment of my plants from the time of starting them till the end of the year, leaving it to your readers to discuss through your columns whether or not the appearances are the result of a disease. I have had visits from cultivators of *Eucharis*, who saw my plants last April, and since this discussion began, and they told me they had never seen a finer or healthier lot of young plants. About that time they were moved out of that house into the one under the *Stephanotis*; and there they became affected as was stated in my former letter, saturated day after day with the syringe, and watered too. It was then they began to look sickly, at the same time I have a vague impression of having introduced amongst them some unhealthy specimens. But to return to the red spots. I should like to explain to Mr. Macdonald it is not red spots, but a rust beginning on the extreme edges of the leaves, and travelling towards the leaf-stalk from each margin for about  $1\frac{1}{2}$  inch; the leaf then withers up and the stalk gets flabby and eventually rots. My own opinion of it agrees with that of Mr. Lucas, that is, they are required to furnish too much bloom, no one seeming contented with natural results; and in trying to get two blades of a *Eucharis* where only one grew before, the plant fails to respond and eventually succumbs. I hope with Mr. Lucas now that the subject is started it will be thoroughly investigated, and that all who have diseased plants will describe their treatment; believing, as I do, that there is as much learned from people's failures as from their successes. *W. B.*

## METHOD OF KEEPING CUT GRAPES.

SINCE the inexpensive and excellent method of keeping late Grapes was introduced it has already necessitated at many places the conversion of some existing building for this purpose, which nowadays is properly termed the Grape-room, and which locality at this particular period of the year forms an interesting sight, when the produce of several vineries is brought together and arranged for easy inspection. As the growing of keeping Grapes extends these places will doubtless be more and more required, and on this account it may not be amiss to record any information which is calculated to be useful to others, who, in all probability, may have to provide accommodation for the same purpose.

For several years after the bottling process was first introduced I was in the habit of keeping late Grapes in the most suitable place I had at command, but from such causes as dust, sunshine, and others, that were inimical to the proper preservation of the fruit, I determined to have an appendage in the way

of a Grape-room, and made one, with which I am satisfied, as fully answering the purpose for which it was intended. The building selected is part of a range of tiled sheds, having a north aspect; its dimensions are 17 feet long, 10 feet wide, and 11 feet high; a ceiling was constructed beneath the roof, into which two wood ventilating flaps, 2 feet by 11 inches wide, are fixed; these, in connection with the windows in front of the building, form the means of ventilating.

### HEATING.

If but little heat is needful under ordinary circumstances for keeping late Grapes fresh and plump, yet it is well to have the means of driving out dampness in case of any excess being present; ours is furnished by means of a  $1\frac{1}{2}$ -inch flow and return pipe, with a valve inserted to regulate the heat, being run along the front and two sides of the building; these pipes are connected with a neighbouring boiler, and meet the requirements very satisfactorily.

### THE RACKS.

The accompanying sketch (fig. 23) will convey an idea of the plan adopted. The upright pieces are deal, 3 inches square; these are inserted and fixed flush with the walls, the racks consisting of two  $\frac{3}{4}$ -inch planed deal boards 9 inches and 10 inches wide—the former is placed at the top; these are nailed together,

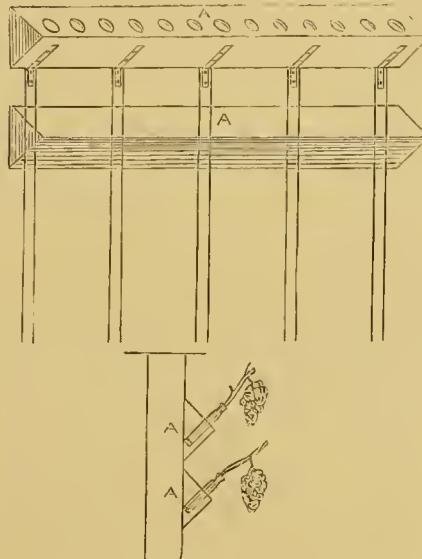


FIG. 23.—GRAPE TROUGHS.

and are supported by angle iron brackets, 7 inches each way by 1 inch, made to fit, and fixed to the uprights in the wall. Circular holes 4 inches in diameter and 8 inches asunder from centre to centre form the receptacles for the bottles, which are partly filled with water and a few bits of charcoal added, into which the shoot, with the bunch attached, is inserted. The means by which late Grapes can be kept in excellent condition until the middle of May is an advantage in many respects, inasmuch as it does away in some measure with very early forcing, always an expensive operation, and one also under any conditions most exhausting to the Vines, and frequently ending with the results not altogether satisfactory. *G. T. Miles, Wycombe Abbey Gardens.*

## Notices of Books.

**Bulbs and Bulb Culture.** By D. T. Fish.  
L. Upcott Gill.

The term bulb is here used in an elastic sense, and is made to comprise in addition to bulbs proper, Anemones, Crocuses, Gladioli, Cyclamen, Ranunculus, Irises, Dahlias, Gloxinias, Alströmérias, Pæonies, Oxalis, Arums, Tropæolums, Mirabilis, &c. A short description is given of each of the principal species and varieties, and full directions for their culture given. So full are the details, that we fear the amateur may be alarmed at their appearance. For instance, under Lilies we find nearly thirty closely

printed pages of small type without break or division of any kind. The matter is excellent, but the form would be calculated to deter all but the most enthusiastic amateur. Side headings, devoted to soil, culture, seedlings, hybridisation, diseases, &c., would be an immense boon. Nevertheless, even as it is, the reader will find within the pages of this volume a perfect mine of practical information which it would be if not impossible, at least difficult and time-consuming to find elsewhere.

## HOME CORRESPONDENCE.

**Asplenium germanicum.**—The communication by Dr. Lowe, of King's Lynn, regarding the above Fern is to me of special interest, as the following instances will show. Some years ago a single specimen of *A. septentrionale*, which was found near here on the Snowdon range, was brought home, potted, and placed along with other Ferns in an unheated greenhouse. Gradually the young fronds developed into those of *A. germanicum*, and the plant, half of which is now in my possession, would to an ordinary observer be at once classed as that species. On closely examining this plant to-day I found fronds intermediate between the typical *A. septentrionale* and *A. germanicum* (none of the former now exist), several of which approached very closely in form the illustration given by Dr. Lowe. I can, so far, corroborate the late Professor Balfour's statement, that *A. septentrionale*, at least, has been found in company with a *A. Ruta-muraria* or at no great distance from it, as two years ago I saw in this country three remarkably fine specimens of *A. septentrionale* growing on an old wall and almost in company with *A. Ruta-muraria*. I may also state that at less than 100 yards from where these three plants grow several specimens of *A. germanicum* were at one time found—a fact which can be verified by a most reliable authority. When examining an old wall near Bangor on which almost numberless specimens of *A. Ruta-muraria* occur, I was agreeably surprised to find one plant bearing fronds of both *A. germanicum* and *A. Ruta-muraria*, the latter in greatest quantity. With no little difficulty I removed the plant from the wall but with such a miserable root that my best attempts at cultivation were of no avail. Fronds were, however, preserved which have more than once passed off as those of *A. germanicum*. The above cases, which have come under my own notice, combined with information received from various sources, have but added fuel to the flame of an opinion I have long entertained, and now publish with an amount of reluctance, viz., that two of the three plants—*A. germanicum*, *A. septentrionale*, and *A. Ruta-muraria*—are but forms of one species. *A. D. Webster, Llandegai, Bangor, North Wales.*

**The Report of the Apple Congress.**—I note the editorial remarks in reply to Mr. Divers (p. 90), which are calculated to convey a wrong impression if not explained. It is quite correct that Fellows of the Royal Horticultural Society may obtain the report on application. It is now the property of the Society, having been handed over to it by the committee. There is no arrangement or understanding to supply exhibitors, although in one way or another the greater number of them have received copies. Mr. Divers was not an exhibitor. The question that naturally arises is this—Who is to bear the expense? I have no copies at my disposal, but I shall be pleased to forward any application I may receive to the proper authorities. I was pleased to undertake the work of preparing the report, and my recompense is in seeing that my labours are not altogether unappreciated, and that a decided impetus is given to the cultivation of Apples—the most important fruit grown in this country. *A. F. Barron.*

— I was pleased to see W. H. Divers' letter in your last issue, and agree with his remarks. I sent a collection of Apples to the Congress, and expected a copy of the report when issued, if not free, at a reduced price, and as I could not afford to go to London expressly to see the exhibition I was naturally anxious to see a copy of the report; but to do so I had to forward 2s. 9d. to the publishers, although at the same time my employer was a Fellow of the Royal Horticultural Society, and did not receive a copy. I do not begrudge my labour, but it would have been a compliment to



have forwarded a copy of the report to all exhibitors, which would have been appreciated, particularly by those who had not the privilege of seeing the exhibition. If it was to be had for the asking, why was it not mentioned in the gardening Press? *Northern Exhibitor*.

**Ensilage.**—When paying a Christmas visit to Mr. McIntyre of Gwydyr-uchaf, near Llanrwst, I had the satisfaction of not only seeing the working of his patent silo, but also of testing the quality of the ensilage produced. This, I may say, is in every way satisfactory, the ensilage being of excellent quality and a beautiful colour, indeed in this latter respect it is superior to several other specimens sent from silos in the immediate neighbourhood, and with which I had the opportunity of comparison. In Mr. McIntyre's invention, pressure is obtained by means of water or other liquids which is conveyed to tanks placed above the crops in the silo, thus doing away with the expensive method usually adopted of placing stone or other weights thereon. The water is conveyed to the tanks by means of gravitation, and can, when required, be discharged by pipes or troughs from the bottom of the tank or over the top by syphons, pumps, or elevators. Several horses and cows belonging to Mr. McIntyre prefer the ensilage to well saved hay, as several experiments clearly proved. A cubic foot of the ensilage weighs 45 lb. *A. D. Webster*.

**Cauliflower, Veitch's Early Forcing.**—Your correspondent, Mr. Horsefield, has done well in praising the good qualities of the above fine variety, and which, from experience, I can fully endorse. I consider too much cannot be said in its favour. I would likewise recommend that useful vegetable, Veitch's Self-protecting Autumn Broccoli, which comes in when the Cauliflowers are done, and lasts till February, its foliage thoroughly protecting the head from frost. *W. C. Leach, Stamford*.

**Senecio elegans.**—Why are these called American Groundsels? Can it be that at some time or the other they were improved in America, and came to be known as American Groundsels? Certain it is, they are not natives of America, but of the Cape of Good Hope. It would seem that the single purple and single white, together with the double form of the latter, and the double red, were introduced from the Cape about 1700. At one time they were classed among the half-hardy annuals, now they find a place among the hardy annuals; and seed sown in the open ground in a good light soil will produce plants that flower freely the same season. In seed lists they will be found under the head of *Jacobæa*, probably because of the relationship of the common *Senecio jacobæa* of our fields and roadsides. Twenty years ago "*Jacobæas*" were looked upon as useful bedding-plants, and found a place in lists of bedding-plants in the same way as *Pelargoniums*, *Calceolarias*, &c. Cuttings struck in August, and also in heat in early spring, make capital plants, and especially so for pot culture for the greenhouse, growing into nice bushy specimens and blooming freely, and propagated plants made excellent subjects for bedding, coming into bloom before plants raised from seed; and in addition to being less vigorous bloom most profusely. The varieties of *Senecio elegans* are now among neglected plants—more's the pity. It is worth while paying a visit in their season to Messrs. Carter & Co.'s seed grounds in Essex, if only to see the masses of *Jacobæas* in all their beauty. There are two types—the older and taller-growing one in good soil reaching a height of from 15 to 18 inches, and a more modern dwarf type not more than 8 or 9 inches. Then there is a good variety of colour, the crimson-purple, rose-white, and flesh-coloured being the best; and there are as many varieties almost to be found among the dwarf strain. Let any one take the dwarf strain in hand, raise some from seed, and then select the best for propagation by means of cuttings. Some of the side-shoots can be taken off as early as July and August, put into cutting-pots in a light sandy soil, then, when rooted shifted singly into small pots, kept in cold frames until there is danger of a check from frost, and wintered in a warm frame with *Cinerarias*, or on the shelf of a greenhouse. In spring they require repotting as one would *Cinerarias*, and grown on similarly, stopping the leading shoots if large and bushy specimens are wanted. To many gardeners they are unknown, by some almost forgotten; but as one of the characteristics of the present day, that old plants are revived and received into the sphere of popu-

larity, there is no reason why the *Jacobæas* should not experience such a revival. Many amateur gardeners spend their time in cultivating plants not nearly so well worthy their attention as this old and useful plant. *R. D.*

**Seakale Growing and Forcing.**—Will some of your correspondents say if they find light or strong soils influence the growth and flavour and crispness of Seakale? Ours is a light sandy soil, and my employer complains of ours being bad flavoured, and a little stringy. I force the first batch in the Mushroom-house, later on out on beds. *E. T.*

**Lapagerias in the Open Air.**—Mr. Boscawen is to be envied in having *Lapagerias* in the open air, but those less favoured than he is by climate will do well to pause before venturing their plants out, or they will most likely lose them, for here, in the east of England, they will not live in sheltered spots without protection, as I have tried them again and again. We have one now in our hardy fernery, where it has been some years, but though taken every care of by covering it during winter, its progress is slow. It may be remembered that a shoot found its way out on to the roof of one of the houses at Gunnersbury Park, in which it was growing, and though in a good position there from lying on the glass with warmth under, it succumbed to the frost. If plants would only live out they would form lovely objects to clothe trellises over doors, but except in Cornwall, the Scilly Isles, or the Isle of Wight, I fear the *Lapageria* is not hardy enough. *J. S.*

**A Hint to Young Gardeners.**—I think your correspondent, "F.," p. 726, vol. xxii., could not have brought a more interesting and useful subject to the notice of young gardeners than drawing. I can assure them that I have spent many an hour in the evening in drawing that perhaps would have been spent far less usefully. I might further add that it has proved of great advantage to me, as it has enabled me to lay plans before my employers that I could not otherwise have done. When I was a young man in a botany I had an opportunity of attending a drawing-class at the village school. At the commencement of one winter I took up practical geometry and freehand drawing. In the following March I was examined in the second grade in both subjects by a Government inspector, and got "first-class" in each. Now I mention this to show others similarly situated what can be done, and to encourage them to "go and do likewise." After that I took up perspective and model drawing, all of which I have found very useful—geometry and perspective specially so. Instead of commencing with plan drawing, as "F." advises, I would strongly recommend "Young Gardener" (see p. 790, vol. xxii.) and others wishing to take the matter up, to get Gill's *First and Second Grade Practical Geometry*, which will cost him 6d., a box of instruments for 1s. or 1s. 6d., that will answer his purpose until he gets better acquainted with his work, a drawing-board and T-square (which any carpenter will make for him) will be all that he requires, except paper. The instructions are so plain and simple that any one can understand them, and I feel sure that it will prove highly interesting and useful to all who think well to take the matter up, and they will find, when thoroughly acquainted with geometry, plan drawing will be comparatively easy. *J. H.*

**The Age of the Victoria regia.**—I see it is stated in the *Gardeners' Chronicle* that the Victoria regia on one occasion lived over two years, and Mr. Williams, in his book on greenhouse and stove plants records of the Victoria that it has only on one or two occasions lived two years. Our plant here has lived four years, and has produced both leaves and flowers more than any other I have seen or read of. I, therefore, and others would doubtless like to know which was the oldest Victoria regia that has ever been known in England, as we are under the impression here that ours are the oldest on record. *C. Penford, Leigh Park, Havant*.

**Amateur Dealers.**—We are pleased to see "Nurseryman's" article in the *Gardeners' Chronicle* respecting gentlemen's gardeners turning nurserymen, seedsmen, florists, or rather the gentlemen doing it under cover. They certainly are now going too far, as they grow all they possibly can for sale, and cut the price down of legitimate tradesmen who have to

pay rates, income tax, and live out of their produce. We shall be glad to see more correspondence through the *Gardeners' Chronicle* on this point, as it will be doing the trade great service. *W. & J. Brown*.

—I observed in your valuable paper of December 20 an article on what the National Rose Society has in its byelaws headed "What is an Amateur?" You are perfectly right in saying you are afraid their decision will lead to disputes. It has done so already, and it is the Society that will be the loser. I would like to see the amateur now-a-days say No to a good offer. There are many kinds of amateurs. One disposes openly of what he does not require of his produce, and for that he is called, not an amateur; another disposes of his produce privately, and he is an amateur, in their eyes all right. Surely the line should be placed in a proper position. It would confer a very great favour on many if the nurseryman florist amateur were definitely and clearly defined, which is a matter not very clear to many of the committee of the National Rose Society. *What is an Amateur?*

**Pink, Tom Thumb Scarlet.**—This gem of the Pinks is now very scarce, and probably in a few years will become extinct. It is of very slow growth and difficult to increase, making but little grass. There are five plants of it in the collection at Floore, where it does well. *Dianthus*.

**Brussels Sprouts.**—"Ebor" (p. 59) asserts that this has been an unfavourable season for Brussels Sprouts, but though it may have been so with him I do not think it has with others, as I do not remember seeing better vegetables than are to be met with almost everywhere this winter, for the growth of all the Brassicas during the late summer and autumn was rapid. Why so many fail in growing good Brussels Sprouts is through not sowing early enough, as it is impossible to get good results without strong plants, and these can only be obtained by starting them in March, and planting them out in deep well manured ground as soon as they are large enough to be moved. To raise the first batch we generally sow on a gentle hotbed, and prick the plants out afterwards under glass, which is done in light leafy soil, as then they lift with good balls and may be transferred to the open quarters without feeling a check. Some noted growers of Brussels Sprouts sow them where they are to stand, and thin out so as to leave them at the required distance apart, which is a good plan, as under such treatment the plants get no roots broken, but start right away from the first. In beds, sown thickly as they often are, the plants become drawn, and when in that leggy condition they remain weaklings for some time, and never make Sprouts low on the stems. The finest lot I have ever seen are those where the rows were wide apart and Potatoes grown between, which system of management benefits both crops, as they get much more light and air than they do planted in the ordinary way. *J. S.*

—Your correspondent "Ebor" in last week's *Gardeners' Chronicle* will find that the so-called disease is brought about by the plants being infested by fly, or as the market gardeners call lousy—a complaint that has been very common during last summer. The fly or louse attacking the plants when young and the Sprouts small, the young leaves are thereby damaged, and as time goes on and the Sprouts get matured and hard, the leaves first attacked begin to decay, more so after rain and hard frost, and give out a very offensive smell, rendering many of the Sprouts unfit for use. But I have always found that Sprouts planted early in the season, and that have not received any check from the time they were sown, and put out on a good brake of ground, generally escaped the louse—A failure in not having good Sprouts being, that they were not sown early enough; in fact if you have a good strain of Brussels Sprouts, the sooner you sow them the better. I would mention that Colewort Cabbage, which should be planted early in July, are often attacked with the louse, and when fit for use are found damaged in the same way as "Ebor" describes his Sprouts. *W. C. Leach, Stamford*.

**Effects of the Past Dry Autumn.**—In hot countries where rain falls periodically and only at long intervals the marked effects of an alternate dry and a saturated condition of the soil are very evident; immediately the immense downpour comes deeply moistening the parched earth and charging the heated atmosphere with vapour to saturation point; under



these influences the rush of growth in plant life is such as to be scarcely conceivable by the inhabitants of cool climates, where the exciting effects of rapid transitions of this kind in the weather are unknown. The natural result of this quick development is that the season's growth is quickly completed; after this a stop is put to shoot extension by the exhaustion of moisture in the soil and its proportionate absence in the atmosphere, brought about by the dry rainless period that follows the deluging rainfall. Then comes stagnation, which in its turn extends for a longer or shorter period, according to the nature of the climate of the particular country. In parts of England, where the exceptional drought of the past summer and autumn was greatest, here was seen something of the influences which an over-dry condition of the soil annually exerts on plant life. The fine warm autumn through which we passed had not the effect of forwarding the growth of plants that usually start early into activity to near the extent that generally occurs in a mild autumn. Snowdrops, Crocuses, Scillas, and others, first to greet the dawning year with their leaves pushing through the soil, are backward. Many shrubs and trees that usually by the prominence of their buds at the commencement of the year show the effects of a protracted summer, are now small and motionless; fruit trees especially, as also bush fruits, are in this state—a condition, happily, which conduces in no slight degree to the chances of a favourable blooming time, which, needless to say, is indispensable to a fruitful season. *T. Baines.*

**Foster's Seedling as a "Stock."**—In reply to "H.'s" query as to whether Foster's Seedling Vine was a suitable stock for inarching upon, my experience leads me, without the least hesitation, to say Yes. I may mention Grapes (Maresfield Court) produced by the above union were awarded 1st prize at Reading and Crystal Palace shows, August, 1881. *E. Crump, Ranelagh Gardens, Leamington.*

**Cucumber Growing.**—Thinking probably Mr. Longthaw would communicate to the *Gardeners' Chronicle* the information asked for by your correspondent, "F. B. T.," respecting his (Mr. Longthaw's) method of Cucumber growing, I did not deem it prudent to reply at once to the observations made by the same correspondent on this subject respecting myself, but as no article has appeared in two recent issues of the *Gardeners' Chronicle* I think it my duty now to reply. In the first place I must ask "F. B. T." to read with more care the article of Mr. Longthaw before he criticises mine, as the question asked was for the average per plant, and not per square yard, as "F. B. T." seems to think; and he also states I was less successful as a grower than Mr. Longthaw by just 20 per cent. I suppose this is based on the average per square yard. Now I am one amongst many others who greatly object to this method of calculating the success of a Cucumber grower. For instance, should I plant a new vine with Cucumber plants (as I frequently have done) with a rafter of 18 or 20 feet, and get what would be termed a good crop of Cucumbers if they had been grown in a 13 feet span Cucumber-house, but taking into consideration the dimensions of the viney the crop would be insignificant. For I contend that if Cucumber plants are properly pruned and attended to they ought to cover a space of about 6 or 8 feet, that is, 3 or 4 feet on each side of the rafter. Those I grew to produce the average of over nine dozen did not exceed 5 feet in height, as my then employer can testify. *Alfred Bishop, The Gardens, Abbotsford, Burgess Hill, Sussex.*

**Selecting Potato Sets.**—There is a good deal in this, much more than people imagine, and one reason of Potato exhibitors growing such fine and handsome samples is owing to the care with which their planting sets are selected. The champion exhibitor of the season—Mr. J. Hughes, of Eydon Hall Gardens, states that when he proceeds to select the sets he intends to plant he chooses them according to the variety; if it is a weakly growing variety, good sized tubers are put on one side for planting; if the variety be a strong growing one, medium-sized sets will be selected, and these are cut in two at planting time, all the eyes being removed but one. In the case of varieties of medium growth, medium-sized tubers are also selected, but these are planted uncut, as in the case of the varieties of weakly growth, all the eyes being removed excepting those which Mr. Hughes

denominates the crown eyes. The planting sets are selected as soon as the Potato crops are lifted, they are then put upon shelves in a cool shed; care is taken to select sets of the best shape. Whether this helps the production of handsome tubers or not, Mr. Hughes is not prepared to say, but he adopts the practice on the ground that good-shaped tubers may just as well be planted as ungainly ones. *R. D.* [The fine samples seen at exhibitions are the produce of kinds that are too often quite unfit for the tables, such exhibitions proving a snare to those who do not know: there are Potatoes for eating, and others that are fit to please the eye only. *ED.*]



ROBERTSON v. RALSTON AND OTHERS  
ET E CONTRA

*Bowling Green Dispute at Campeltown, Argyleshire.*—This action, with the consent of both parties, was raised in the Sheriff Court of Ayr, and after several hearings before the Sheriff Substitute the case was remitted by consent of both parties to Mr. James Anderson, Meadowbank Nurseries, Uddingston, the Sheriff appointing Mr. Anderson judicial referee, and the following are his findings and notes, which sufficiently explain the nature of the case:—

In terms of your Lordship's remit of December 5, 1884, I made a personal inspection of the bowling-green at Campeltown; and after taking evidence of parties concerned in conjoined actions, and hearing procurators, find as follows:—

(1.) That in respect to the items in specification under the heading "stone bottoming," "engine-ashes bottoming," and "sand bottoming," that they have not been put down by the contractor in uniform layers in terms of specification, but that the committee or their inspector, or both, homologated the alterations while the work was proceeding.

(2.) That the item in specification under the heading of "turf" is not satisfactory, a part of first cargo, and nearly the whole of the second cargo, being wet when laid, and overheated in transit or in bulk on or about the premises, consequently the turf during the season contracted, and the grasses died, mainly from want of forethought and attention on the part of the contractor, and in part from not being watered when the turves were laid.

(3.) The extra items charged by the contractor have been mainly due to the interference, and have had more or less the tacit sanction, of the committee.

(4.) Find, on the whole, that on the contractor supplying and putting down on the grounds adjoining the Good Templar's Hall 500 square yards of Irvine turf, cut in terms of specification, that the committee pay him a balance of £84 8s. 11d. sterling, being the difference between items of specification amounting to £190, together with extras of £29 8s. 8d., and the sums paid on account either to or for the contractor.

(5.) Find each of the parties liable to pay their own expenses and half fees and costs in the conjoined actions.

(Signed) *James Anderson.*

January 14, 1885.

**NOTE.**—This contract from beginning to end has not been conducted on business principles. The contractor draws out his own specifications, the committee accept them unconditionally, and the work is little more than begun before extra excavation is suggested by the contractor, and permitted by the committee, and consequently additional expenses incurred.

The committee may have considered if the contractor sold the sand excavated beyond the cubical dimensions of what was scheduled, he was held bound to replace with a material of a satisfactory character, but there is no stipulation by letter or otherwise in evidence to that effect.

Then as to the respective layers of stone bottoming, ashes and sand, while the committee and their inspector declare in evidence that they were all along dissatisfied with the work as being disconform to specification, they not only allow it to proceed, but aid and abet the alterations, and latterly do a considerable portion of the foundation work during the contractor's absence.

As to the "rubble bottoming," which was specified to come from "Weir's Quarry," there seems to have been an abundance, but of a more costly character than the contractor had estimated for; and the committee, instead of exacting, as they might have done, for bottoming of this quality, conjoin to permit the contractor to break through this item of the specification, and go along with him to places at much greater distance to get

the requisite quantity, which appears according to evidence to have been of a very indifferent quality throughout. Therefore, in so far as regards the foundation work of the bowling green, the committee have, no doubt somewhat unwisely, homologated the doings of the contractor, and consequently are entitled to pay him for the several extra items charged in his statement of account.

The "turfing" is exceedingly unsatisfactory. The first and second cargos of turf particularly had been stowed away in the holds of the respective vessels along with other goods. The turves appear to have been shipped in a wettish condition, fermentation to a greater or less degree ensued, most of the grasses perished and what little life was left was not conserved as it ought to have been. Moreover, the turf, if placed at all in a rademanlike manner, closely fitting together at first (which looking to the green as it stands now is somewhat open to doubt), would never have contracted to the extent of each layer being separate on a moist winter day to the extent of a full inch throughout unless they had been thoroughly saturated when laid. No doubt, judicious sanding, watering, and rolling, together with close shaving or mowing from the month of July, when it was so-called finished, to the end of October, would have helped appearances much, but nothing has been done. What was both the contractor's and the committee's business to correct remains uncorrected. It is not denied that the committee through their convener or inspector ordered and paid of their own accord for the watering of the first portion of the turf when laid. By doing so they interposed authority and assumed a responsibility which generally belongs to the contractor, at least until the work is finished, and consequently the referee cannot rid them of a portion of the onus and its consequences of the bowling-green being in the plight that it is.

The award must therefore strike at both parties, the contractor to supply the 500 square yards of turves same as specified, 12 inches wide, by 14 inches by 2 inches, and the committee to engage their own man and provide the funds for the laying of the same and finishing it. *J. A.*

#### EDINBURGH BOTANICAL: Jan. 8.

The third meeting of the Society for the session was held at 5, St. Andrew Square, Professor Dickson, President in the chair.

##### PALMS.

Mr. Lindsay gave notes on some of the large Palms at present growing in the Palm-stove at the Royal Botanic Garden, Edinburgh, a portion of which will appear in our columns next week.

##### PYTHIUM ON DAHLIAS.

A note was communicated from Messrs. Owen, Gorey, Ireland, on "The Occurrence of *Pythium De Baryanum* on the Roots of Dahlias." The fungus at first appeared as brown patches, which gradually spread into the substance of the tuber. When microscopically examined it was identified by Mr. Worthington Smith as the above form. It was noticed that the cells invaded by the fungus hyphae were filled with bodies exactly resembling sphere crystals of inulin, while those in the normal condition had liquid contents.

##### SAPROLEGNIA.

Dr. Macfarlane exhibited and described specimens of a *Saprolegnia* from the body of a blackbird found floating in a water-cistern. The fungoid growth on the submerged part of the body was wholly zoogonidial, while the portion immediately above water was oogonidial. From several experiments subsequently made, he considered that the presence of the two generations under the above conditions was frequent. He drew attention also to the excellent results obtained by preserving such fungi in chrom-acetic acid, the microscopic appearances remaining quite as in the fresh state.

##### NEPENTHES, &c.

Dr. Macfarlane exhibited pitchers of *Nepenthes* and *Heliamphora nutans* received from Messrs. Burbidge and Veitch. The *Nepenthes* included *N. villosa*, *Edwardsiana*, *Harryana*, *Rajah*, *sanguinea*, *Norihiana*, *cincta*, *Lowii*, and *bicalcarata*. He mentioned that in *N. Lowii* the digestive glands at the bottom of the pitcher were so large and densely arranged as to resemble a piece of shagreen. In *Heliamphora nutans* he pointed out a very striking resemblance in the young state to pitchers of *Sarracenia rubra*, this being departed from more and more as the pitchers became older.

##### THE WEATHER AND THE PLANTS.

Mr. Lindsay gave a report on vegetation at the Royal Botanic Garden, Edinburgh, for December, 1884. —Frost was registered on twenty mornings during the past month of December, indicating collectively 88°; during the same month of 1883, 22° only were registered. Although frost has thus been pretty constant throughout the month, yet it has not been very severe at any particular time, the lowest point reached being 12° of frost. On the 23d more or less frost occurred every night from the 15th till the end of the month. A slight fall of snow took place on the evening of the 16th, which had not altogether disappeared by the end of the month owing to the recurring frost at nights. The highest day tem-



perature was 50°, which was registered on five occasions between the 6th and the 14th; the lowest was 29° on the 22d of the month. The lowest night readings were on the 22d, 22°; 23d, 20°; 26th, 22°; 29th, 24°; 30th, 27°; and the highest morning readings were on the 3d, 44°; 7th, 46°; 11th, 43°; 13th, 46°; 14th, 45°. The following six species of plants came into flower, on the rock garden, during the month, viz., *Crocus byzantinus*, *Helleborus niger angustifolius*, *H. orientalis*, *H. albicans major*, *H. purpurascens* var.; *Hepatica triloba*, as having flowered during the past year. At the meeting of the Society on January 10 last, Mr. Lindsay exhibited flowers of fifty-three species of plants which were gathered out-of-doors; to-day only twenty-six species could be found, none of which are typical spring flowers.



STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, JANUARY 21, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.		RAINFALL.
	Mean Reading Reduced to Sea Level.	Departure from Average of 18 years.	Highest.	Lowest.	Range.	Mean for Month.	Departure of Mean from Average of 50 years.	Dew Point.	Degree of Humidity.	Average Direction.	
Jan.	In.	In.	°	°	°	°	°	°	°		In.
15	29.82	+0.11	38.5	30.0	8.5	34.6	-1.9	32.8	93	E.N.E.	0.11
16	29.84	+0.11	39.0	32.0	7.0	35.4	-1.3	30.8	89	E.N.E.	0.05
17	29.89	+0.16	38.0	31.5	6.5	34.9	-1.9	32.8	89	E.	0.00
18	29.98	+0.24	37.0	34.0	3.0	35.4	-1.5	33.1	91	E.	0.00
19	30.03	+0.29	38.0	33.2	4.8	34.9	-2.1	33.1	92	E.	0.00
20	29.91	+0.16	35.0	27.5	7.5	31.0	-6.2	28.8	91	N.E. E.N.E. E.	0.00
21	29.80	+0.06	31.5	24.0	7.5	27.9	-9.4	23.8	84	E.N.E. E.	0.00
Mean	29.90	+0.16	36.7	30.3	6.4	33.4	-3.8	30.9	90	E.N.E.	0.16

Jan. 15.—Rain in early morning. Dull day and night.  
— 16.—Dull day and night; strong wind.  
— 17.—Dull day and night.  
— 18.—Dull day and night.  
— 19.—Dull day and night.  
— 20.—Dull day. Fine clear cold night.  
— 21.—Dull morning; sun shining in afternoon. Fine clear cold night.

LONDON: *Atmospheric Pressure.*—During the week ending January 17, the reading of the barometer at the level of the sea decreased from 29.06 inches at the beginning of the week to 28.91 inches by 9 A.M. on the 11th, increased to 29.72 inches by 3 P.M. on the 13th, decreased to 29.71 inches by midnight on the same day, increased to 29.99 inches by 9 A.M., and decreased to 29.98 inches by 3 P.M. on the 15th, increased to 30.06 inches by 9 A.M. on the 16th, decreased to 29.99 inches by 3 P.M. on the same day, and was 30.11 inches by the end of the week.

The mean reading of the barometer for the week was 29.76 inches, being 0.20 inch lower than last week, and 0.15 inch below the average of the week.

*Temperature.*—The highest temperature in the shade in the week was 44°, on the 11th; the highest on the 13th was 35°. The mean of the seven high day temperatures was 38° 4.

The lowest temperature was 29° 5, on the 13th; on the 11th the lowest temperature was 37° 1. The mean of the seven low night temperatures was 31° 6.

The greatest range of temperature in one day was 8° 5, on the 15th; the smallest was 5° 5, on the 13th and 14th. The mean of the seven daily ranges was 6° 8.

The mean temperatures were—on January 11, 40° 1; on the 12th, 33° 1; on the 13th, 32°; on the 14th, 33° 2; on the 15th, 34° 6; on the 16th, 35° 4; on the 17th, 34° 9; and these were all below their averages (excepting the 11th, which was 3° 8 above) by 3° 3, 4° 4, 3° 3, 1° 9, 1° 3 and 1° 9 respectively.

The mean temperature of the week was 34° 8, being 2° 7 lower than last week, and 1° 8 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun

was 67°, on the 11th. The mean of the seven readings was 51° 7.

The lowest reading of a minimum thermometer with its bulb placed on grass was 20°, on the 13th. The mean of the seven readings was 22° 8.

*Rain.*—Rain fell on five days to the amount of 0.25 inch.

ENGLAND: *Temperature.*—During the week ending January 17 the highest temperatures were 51°, at Plymouth and Leeds, and 49° 7 at Nottingham. The highest at Bolton was 40° 2, at Hull 41°, at Liverpool 42°. The general mean was 45° 7.

The lowest temperatures were at Wolverhampton, 25° 1, at Cambridge 25° 2, at Bolton 25° 7; the highest at Leeds, 31°, at Liverpool 30° 9, at Nottingham 30° 8. The general mean was 28° 4.

The greatest ranges were 24° 4 at Wolverhampton, 22° at Plymouth, 20° at Bradford and Leeds; the smallest ranges were 11° 1 at Liverpool, 13° at Sheffield, 14° at Hull. The general mean was 17° 3.

The mean of the seven high day temperatures was highest at Plymouth, 42° 5, at Truro 42° 3, at Preston 40° 9; and was lowest at Bolton, 37° 4, at Hull 37° 6, at Brighton 37° 8. The general mean was 39° 4.

The mean of the seven low night temperatures was highest at Truro, 34° 3, at Liverpool 33° 8, at Preston 33° 6; and was lowest at Wolverhampton, 29° 7, at Cambridge 30° 2, at Bolton 30° 5. The general mean was 32° 1.

The mean daily range was greatest at Plymouth, 9° 3, at Wolverhampton 9°, at Bradford 8° 7; and was least at Liverpool, 4° 9, at Brighton 5° 8, at Sheffield 5° 9. The general mean was 7° 3.

The mean temperature was highest at Truro, 38° 1, at Plymouth 37° 7, at Preston 37°; and was lowest at Bolton, 33° 7, at Cambridge 33° 8, at Hull 33° 9. The general mean was 35° 6.

*Rain.*—The largest falls were 0.85 inch at Nottingham, 0.80 inch, at Hull, 0.64 inch at Bradford; the smallest falls were 0.03 inch at Liverpool, 0.06 inch at Truro and Bolton. The general mean fall was 0.33 inch.

SCOTLAND: *Temperature.*—During the week ending January 17, the highest temperature was 46° 7, at Edinburgh; at Dundee the highest was 39° 8. The general mean was 42° 7.

The lowest temperature in the week was 20°, at Perth; at Leith the lowest temperature was 31° 8. The general mean was 25° 9.

The mean temperature was highest at Leith, 36°; and lowest at Perth, 31° 1. The general mean was 34° 2.

*Rain.*—The largest fall was 0.49 inch, at Edinburgh and Aberdeen; the smallest fall was 0° 01 inch at Greenock. The general mean was 0.30 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, January 19, 1885; issued by the Meteorological Office, 116, Victoria Street, London, S.W.:—The weather has continued in a cloudy, gloomy condition in most parts of Great Britain, with some fog or haze and a few showers of cold rain or sleet; over Ireland, however, the sky has been rather clearer, and the rainfall very slight.

The temperature has been below the mean in all districts, the deficit ranging from 2° in "England, N.E.," to as much as 6° in "England, S.W.," and "Ireland, S.," and 7° in "Ireland, N.," and the "Channel Islands." The maxima, which were recorded on the 18th or 19th in Ireland and Scotland, and on various dates over England, ranged from 39° to 44° in most districts to 46° in "Ireland, S.," and the "Channel Islands." The minima were generally registered on the 15th, when the thermometer fell to 16° in "Scotland, N.," 18° in "Scotland, E.," and to between 23° and 31° elsewhere. During the greater part of the week the diurnal range was very slight.

The rainfall has about equalled its normal value in England, but has been less in all other districts, the percentages of possible duration varying from 32 in "Ireland, N.," and 28 in "Ireland, S.," to less than 4 over the greater part of England; while in "England, N.E.," bright sunshine has continued altogether absent.

*Depressions observed.*—Beyond an irregularly shaped

disturbance which was shown over Holland and the south of Denmark as the week commenced, there have been no depressions of importance in our neighbourhood, the distribution of pressure over north-western Europe being anti-cyclonic. During the earlier part of the time the highest pressures lay off our north-western coasts, and the lowest over the south of France; but as the week progressed the former was slowly transferred to the south of Scandinavia, and the latter to the south-west of our Islands. The wind, after blowing freshly from the north at the opening of the period, subsequently became fresh or strong from the north-east and east, and finally moderate or light from the east or south-east.

## Obituary.

DEATH OF MR. ROBERT T. VEITCH, OF EXETER.

WE regret to announce the death of Mr. R. T. VEITCH, of the Exotic Nurseries, Exeter, he being the last surviving son of the late Mr. James Veitch, of Exeter. Mr. Veitch had been in failing health for some time past, and had resided at Torquay during the last two winters, his death taking place at his residence there on Sunday, the 18th inst.

In early life Mr. Veitch studied farming near Slough. He then went out to Smyrna as manager of an extensive corn-growing estate there, some time after removing to the Cape of Good Hope, and settling down as a squatter farmer in that colony. In the winter of 1856 he returned to Exeter, and joined his father in the management of the well-known nursery there. Since the death of his father he has been the sole partner in the nurseries at Exeter, until about two years ago, when his son, Mr. Peter Veitch (who was previously at the Chelsea establishment), joined him as a partner in the Exeter nursery.

Mr. Veitch had an extensive knowledge of the pomology of the Western Counties, whilst he rendered service to horticulture in introducing and placing in commerce some plants of rare interest and beauty, such as, for instance, the greenhouse Rhododendron (*R. exoniense*), and the beautiful climber, *Tacsonia exoniensis*, the popular *Adiantum Farleyense*, &c. The Exeter newspapers, in a long obituary notice, speak highly of Mr. Veitch as a citizen. He was sixty-two years of age, and leaves a widow and eight children—four sons and four daughters.

The nurseries and seed business will be carried on by his son (Mr. Peter Veitch) under the same title as formerly, namely, Robert Veitch & Son.

MR. PETER CLIFFE.

The subject of this notice had served the Egerton family (of Tatton) as gardener for nearly half a century, first as foreman in the gardens at Tatton Park, and eight years subsequently as gardener to Lord Egerton of Tatton, at Mere Hall, till his Lordship's succession to the Tatton estates and title in 1857, when Mr. Cliffe went with him, fulfilling his duties with great ability and faithfulness until his Lordship's decease in the beginning of the year 1883. The death of his employer was a severe blow to Mr. Cliffe, whose health had been failing for many years, the result of severe inflammation. He, however, was one of those old servants chosen by the present Lord Egerton to continue his services at Tatton Park, which he did until September last, when he was obliged by his failing health to retire from active life, and there is no doubt that his retirement affected him painfully in his then weak state. His Lordship kindly allowed him to retire on a pension of £1 per week. During the last few weeks of his illness Lady Egerton constantly visited him, which cheered him very much, bringing fruit and flowers.

MRS. J. SHIRLEY HIBBERD.

On the 21st inst., at The Priory Park, Kew, of peritonitis, Ellen, second wife of J. Shirley Hibberd.

THE SURVEYORS' INSTITUTION. — The next meeting will be held on Monday, January 26, when a discussion will take place on a paper (taken as read at the last meeting) by Mr. R. W. Mann (Fellow), entitled, "The Enfranchisement of Urban Leases," and a paper to be read by Mr. H. Martin (Fellow), entitled, "Recent Proposals for Leasehold Enfranchisement."



## Enquiries.

"He that questioneth much shall learn much."—BACON.

**HORTICULTURAL BOILERS.**—*Cruciform* writes:—"While the correspondence is going on in your paper as to which is the most economical boiler for private and public gardens, will any reader kindly give his or their experience with the old Cruciform boiler (not the modern Cruciform saddle)? I fear, in these days of new inventions, this fine old boiler is nearly, or quite, lost sight of. If any one can give it a good word I will be pleased to add my testimony as to the value of the above old form of boiler."

**MYOSOTIDUM NOBILE.**—What is the proper soil and situation for this fine plant? *D.*

**NEPENTHES.**—Would any successful cultivator of *Nepenthes* give a few hints on their cultivation? *D.*

**RANUNCULUS LYALLII.**—Has any one succeeded in growing this fine New Zealand Buttercup?

## Answers to Correspondents.

**ADDRESS:** *W. Reid.* Botanic Garden, Chelsea, S.W.

**BOOKS:** *M. M. M.* The *Rose Amateur's Guide*, by T. Rivers, affords ample information as to the propagation of Roses and their culture in pots; published by Longmans, Green & Co., London. The *Clematis as a Garden Flower*, by T. Moore, F.L.S., and G. Jackson, of the Woking Nursery, is one of the best and cheapest works on the Clematis; sold by G. Jackson & Son, Woking Nursery, Surrey.—*W. W. Fruit Farming for Profit*, by G. Bunyard, Maidstone; to be had of E. Stanford, Charing Cross, or of F. Bunyard, 29, Week Street, Maidstone.

**CORRIGENDA.**—On p. 58, col. 2, fourteenth line from the bottom, "waxing" should read "coaxing."

**CYPRIPEDIUM INSIGNE:** *Constant Reader.* Yes, it is unusual for *Cypripedium insigne* to carry two flowers on one stalk. It is considered to be the result of extra vigour in the plant.

**DISEASED PINE TREE:** *E. F.* We are not able to say what caused the death of the tree. The bark is perforated by the grubs of a wood-eating beetle, but we do not think the insects caused the death of the tree.

**INSECTS:** *H. L.* The heart of your *Echeveria* is eaten out by the larvæ of the brown weevil (*Otiorynchus sulcatus*). Sift the earth carefully, and bake it, if necessary, before repotting the plants. *J. O. W.*

**LEAF FROM SURFACE OF APPLE:** *X.* Rare, but not unprecedented. Pliny describes a variety which produced one or two leaves from the side: "Melo-folius folium unum aliquando et geminum erumpit e latere medio." Lib. xv., cap. xiv.

**LIST OF PERSONS ELIGIBLE FOR PENSIONS FROM THE GARDENERS' ROYAL BENEVOLENT INSTITUTION:** *Constant Reader.* Ours was the correct one.

**NAME OF BUSINESS HOUSE:** *C. W. S.* A nurseryman at Cape Town, dealing largely in African bulbs, is Mr. Charles Ayres.

**NAMES OF FRUIT:** *Fowler, Leeds.* Your Apple is named the Plum Apple.—*J. H. R.* Not recognised.—*W. & G. Brown.* Probably Golden Reinette.—*T. Cripps & Sons.* 20, Beauty of Kent; 42, Osborn Golden Reinette; 74, Mannington's Pearmain.

**NAMES OF PLANTS:** *F. P. W.* So far as we can tell from small scraps without flowers your specimens are as follows. Another time please send not more than four at one time. 1, the Irish Yew; 2, *Taxus adpressa*; 3, *Picea orientalis*; 4, *Berberis dulcis*; 5, *Leucothoe axillaris*; 6, *Gaultheria Shallon*; 7, *Vaccinium nitidum*; 8, *Ruscus racemosus*; 9, *Cotoneaster* sp.; 10, *Tsuga canadensis*.—*E. Thrupp.* *Zygopetalum Mackayi*; the other indeterminate.—*H. W. Hartland.* Seedling varieties of *Gladiolus Colvilli*. It is a pretty variety, but an English name for it would be better than the French one.—*H. H.* No. 2 is *Trachelospermum jasminoides*, which will do in the stove, it the highest night warmth does not exceed 60° in the winter; it is properly a greenhouse plant.

**PICEA PARRYANA GLAUCA:** *Fir Cone.* The plants you mention are referable to two species, of each of which there is a glaucous variety, thus—*Picea Engelmanni* (*alias* *P. commutata*) and *P. Engelmanni* var. *glaucous*, *Picea pungens* (*alias* *Parryana*) and *P. pungens glauca* (*alias* *Parryana glauca*). The latter is by far the best as an ornamental tree.

**PLANTS FOR A TANK IN CONSERVATORY:** *A Constant Reader.* *Calla palustris*, white, from January to August; *Richardia ethiopica* (Abyssinian Lily), from January to May, white; *Cyperus alternifolius*, January to September, greenish-white; *Juncus zebrianus*, with zebra-like markings on the leaves; *Eichornia speciosa*, a few blooms in early spring; *Limnorchis Humboldtii*, sometimes in winter. The treatment the plants will receive will have much to do with having them in bloom during the time they are wanted, viz., from September to April, as not many species bloom in that period, unless compelled to do so by special treatment.

**POEY:** *A. D. W.* A contraction from "poesy," and originally applied to the copy of verses which accompanied the gift of a bunch of flowers, and ultimately, when versifying went out of fashion, to the flowers themselves.

**RAINFALL REGISTER:** *E. Gilman.* It is not desirable to insert any more tabulated matter concerning the rainfall than our weather record contains; were we to do so we should be deluged.

**SCALDED LEAVES:** *H. H.* Your *Allamanda* was scalded by the sun shining on the wet foliage.

**SECRETARY OF HORTICULTURAL SOCIETY:** *D.* A secretary should not vote; he is present rather to record the proceedings. At the same time you have no rule to preclude him from doing so, and he should be as impartial as possible.

**VERONICA:** *B.* Of the three possible ways of pronouncing this word we should say *Vero-ni-ca* is the most usual, *Vero-nica* the most pedantic, and *Vero-nicka* the most correct—that is, if the Continental method of pronouncing Latin names (which is admitted by scholars to be more correct than our own) be adopted, as it will probably be.

**VINE GROWTH:** *A. F.* The growth is due to an overgrowth of the cellular and vascular tissue of the Vine, the vessels in particular being greatly increased. It is probably the result of the puncture of an insect, but we do not know this for certain.

**FUNGUS-LIKE GROWTH ON CAMELIAS:** *B. of B.* These outgrowths of woody formation are peculiar to the genus, and also to others, and are often found on old trees which have snags from pruned-off branches, and decayed portions of stem in specimens that have been at any time in old age headed back. It will sometimes be seen in the stem when split by the wind.

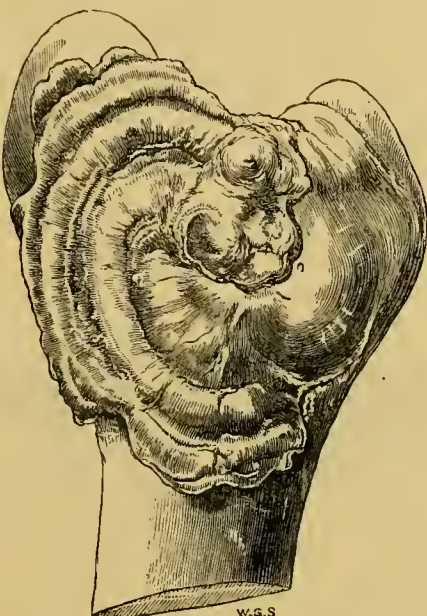


FIG. 24.—WOOLLY EXCRESCENCE ON CAMELIAS.

twisting the head round. It is not in itself injurious although being usually a sign of declining vigour, and therefore is seldom seen in young bushes of the Camellia. It may be cut clean out, and the wound filled in with grafting-wax, "L'Homme Lefort," or plaster of Paris. Painting with gas-tar will also arrest its formation.

**VIVISECTION:** *B.* No doubt it is not right to do a little evil even for a vast good, but the question arises—What is evil under such circumstances? Is it evil to extract a tooth, or dose an unwilling child with castor oil? These things in themselves are evil, but they are not done with evil motive—quite the reverse; and so, we suppose, they will continue to be done in spite of abstract morality.

**WHITE CINERARIA:** *J. C. P.* It is not uncommon.

**FOREIGN SUBSCRIBERS** sending Post-Office Orders are requested to send them to the Publisher of this journal, 41, Wellington Street, Covent Garden, and to make them payable to William Richards, at the Post-Office, Drury Lane, London, W.C.

**INTELLIGENT READERS, PLEASE NOTE.**—*Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and NOT to the Editor.*

## CATALOGUES RECEIVED.

**FISHER, SON & SIBRAY,** Sheffield and Rotherham—Descriptive List of Kitchen Garden and Flower Seeds, and Horticultural Requisites.

**DOBIE & MASON,** 66, Dean Street, and 22, Oak Street, Manchester—Descriptive List of Reliable Seeds, &c., for the Garden and Farm.

**HOGG & WOOD,** Coldstream—Garden Seeds and Novelties.

**T. MCKENZIE & SONS,** 34, Dawson Street, Dublin—Garden Seeds.

**JAMES COCKER,** Aberdeen—Perennials, Alpine, Bulbous, Tuberos-rooted.

**W. J. EPPS,** Ringwood, Hants—Vegetable and Flower Seeds.

**W. RUMSEY,** Waltham Cross—Select Seeds for Garden and Farm, and Seed Potatoes.

**CLARK BROTHERS & CO.,** Carlisle—Garden Seeds.

**W. W. JOHNSON & SONS,** Boston, Lincolnshire—List of Vegetable, Flower, and Farm Seeds.

**W. BAYLOR HARTLAND,** Cork—Year-Book of Seeds.

**G. COOLING & SON,** Bath—Vegetable and Flower Seeds, &c.

**W. INGLIS, Kelso, N.B.**—Vegetable and Flower Seeds.

**JOHN GREEN,** Thorpe, Norwich—Illustrated List of Plants.

**JOHN PERKINS & SONS,** Northampton—Garden Seeds.

**T. SIBBALD,** Bishop Auckland—Kitchen Garden and Flower Seeds.

**JACOB WRENCH & SONS,** London Bridge, London—Wholesale List of Agricultural, Garden, and Flower Seeds.

**BRUANT,** à Poitiers, Vienne, France—Special List of Novelties, and Special Collections of Plants.

**SMITH & SIMONS,** 36 and 38, Howard Street, Glasgow—Cultural Guide.

**G. BRUCE,** 36, Market Street, Aberdeen—Spring Catalogue of Seeds and Amateurs' Guide.

**PETER J. PERRY,** Banbury—Vegetable and Flower Seeds.

**WILLIAM BULL,** Chelsea, London—Select Flower and Vegetable Seeds.

**KENT & BRYDON,** Darlington—Seed Guide.

**THE WESTERHAM NURSERY AND SEED COMPANY—**Descriptive List of Vegetable, Flower, and Agricultural Seeds.

**W. PIERCY,** 89, West Road, Forest Hill, London, S.E.—Early or Summer Flowering Chrysanthemums and October blooming kinds.

**R. & G. NEALE,** Wandsworth Common—Flower, Vegetable, and Agricultural Seeds, &c.

**COMMUNICATIONS RECEIVED.**—*H. Longford* (shortly).—*W. B. S.* (next week).—*W. Baxter.*—*W. Hurleston.*—*H. J. Smith.*—*O. O.*—*J. D.*—*J. C.*—*J. Frewitt.*—*A. G.*—*G. W. R.*—*J. S.*—*J. McL.*—*W. W.*—*J. O. W.*—*H. L.*—*J. M.*—*J. R.*—*G. D.*—*A. E.*—*R. M.*—*C. E.*—*W. B.*—*J. R.*—*Caroline B.*—*W. S.*—*E. S. D.*—*B. D. J.*—*W. A.*—*Lucien Linden.*—*J. H. M.*—*Godefroy.*—*Dr. Heidman.*—*C. V. Riley.*—*J. J. W.*—*W. E. G.*

**BIRTH.**—On the 15th inst., at The Priory Park, Kew, the wife of J. SHIRLEY HUBBERD of a daughter.

## Markets.

COVENT GARDEN, January 22.

No recovery in business this week, prices remaining without alteration, with the exception of Grapes, which have steadily advanced, and good samples will now begin to realise their value. *James Webber, Wholesale Apple Market.*

## FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1 6	4 0	Lemons, per case	12 0	18 0
— Nova Scotia and			Pine-apples Eng. lb.	1 0	2 0
— Cana. lan, barrel	10 0	18 0	— St. Michael, each	5 0	10 0
Cobs per 100 lb.	60 0	0 0	Pears, French, doz.	3 0	9 0
Grapes, per lb.	2 0	5 0			

## VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Globe,			Lettuces, Cab., doz.	1 6	0 0
per doz.	4 0	6 0	Mint, green, bunch.	1 6	0 0
A-paragus, English,			Mushrooms, p. basket	0 6	2 0
per bundle	12 0	14 0	Onions, per bushel	4 0	0 0
— French, bundle	20 0	30 0	— Spring, per bu.	0 6	0 0
Peas, Eng., per 100 lb.	3 0	0 0	Parsley, per bunch.	0 4	0 0
Beet, per doz.	1 0	0 0	Peas, per lb.	1 0	0 0
Cabbages, per doz.	1 6	2 0	Potatoes, new, per lb.	0 6	0 0
Carrots, per bu.	0 6	0 0	Radishes, per doz.	1 0	0 0
Cauliflowers, Eng.			Rhubarb, bundle	0 6	0 0
lb., dozen	2 0	4 0	Salsify, per bund.	1 0	0 0
Celeriac, per root	0 4	0 0	Seakale, per punnet	2 0	2 6
Celery, per bundle	1 6	2 0	Small salad, per		
Cucumbers, each	1 0	2 6	punnet	0 4	0 0
Endive, Eng., dozen	1 0	0 0	Spinach, per bushel	4 0	0 0
Garlic, per lb.	0 6	0 0	Tomatoes, per lb.	1 0	1 6
Herbs, per bunch	0 2	0 4	Turnips, bun.	0 5	0 0
Horse Radish, bun.	3 0	4 0			

**POTATOES.**—*Magnum Bonum*, 4s. to 70s.; *Regents*, 70s. to 90s.; *Champions*, 45s. to 60s. per ton. Markets have a downward tendency.

## CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilon, 12 bunches	2 0	4 0	Marguerites, 12 bun.	6 0	9 0
Arum Lilies, 12 blms.	6 0	9 0	Mignonne, 12 bun.	6 0	9 0
Azaela, 12 sprays	1 0	1 6	Narcissus, Paper-		
Bouvardias, per bun.	1 0	1 6	white, 12 sprays	2 6	3 0
Camelias, per doz.	3 0	8 0	— French, 12 bun.	6 0	12 0
Carrations, 12 blms.	1 0	3 0	Pelargoniums, per 12		
Chrysanth., 12 bun.	12 0	24 0	sprays	1 0	2 0
— large, 12 blooms	2 0	4 0	— scarlet, 12 sprays	0 9	1 0
Cinerarias, per bun.	1 0	1 6	Poinsettia, 12 blooms	3 0	9 0
Cyclamen, 12 blooms	0 3	0 9	Primula, double, bun.	1 0	1 6
Epiphyllum, 12 blms.	4 0	6 0	— siensis, 12 bu.	4 0	6 0
Eucharis, per doz.	6 0	9 0	Roses (indoor), doz.	2 0	6 0
Euphorbia jacquini-			— French, per doz.	1 0	3 0
flora, 12 sprays	3 0	6 0	St. Kesia, 12 blooms	1 0	0 0
Gardenias, 12 blms.	18 0	30 0	Tropæolum, 12 bu.	2 0	4 0
Heliotropes, 12 sp.	0 6	1 0	Tuberose, per doz.	2 0	4 0
Hyacinths, Roman,			Tulips, 12 blooms	1 0	1 6
12 sprays	1 0	1 6	Violets, 12 bun.	1 6	2 0
Lapageria, white, 12			— French, bunch.	2 6	3 0
blooms	2 0	3 0	— Parma, French,		
red, 12			per bunch	7 0	9 0
blooms	2 0	3 0	Wal flower, 12 bun.	4 0	6 0
Lily-of-Val., 12 sprays	1 0	2 0	White Jasmine, bun.	0 6	1 9



## PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-24 0	Ferns, in variety, per dozen .. 4 0-18 0
Arbor-vitæ (goldeo), per dozen .. 6 0-18 0	Ficus elastica, each 1 6-7 0
(common), dozen 6 0-12 0	Foliage Plants, various, each .. 2 0-10 0
Arum Lilies, dozen 9 0-15 0	Hyacinths, per doz. 8 0-10 0
Azaleas, per dozen .. 18 0-42 0	— Roman, per pot 1 0-1 3
Begonias, per doz. .. 6 0-12 0	Marguerite Daisy, per dozen .. 8 0-15 0
Bouvardia, dozen .. 9 0-18 0	Myrtles, per doz. .. 6 0-12 0
Cinerarias, per doz. .. 9 0-12 0	Palms in variety, each .. 2 6-36 0
Cyclamens, per doz. 9 0-24 0	Pelargoniums, scarlet, per dozen .. 4 0-6 0
Cyperus, per dozen 4 0-12 0	Poinsettia, per doz. 9 0-15 0
Dracæna terminalis, per dozen .. 30 0-60 0	Primula sinensis, per dozen .. 4 0-6 0
— viridis, per doz. 12 0-24 0	Solanums, dozen .. 9 0-12 0
Epiphyllum, doz. .. 18 0-24 0	Tulips, dozen pots .. 8 0-10 0
Erica, various, doz. 9 0-18 0	
Euonymus, various, per dozen .. 6 0-18 0	
Evergreens, in var., per dozen .. 6 0-24 0	

## SEEDS.

LONDON: Jan. 21.—An increasing activity is now observable in the trade for farm seeds. More inquiries come to hand from the country, and a greater disposition is shown to purchase Clover seeds. No change, however, as regards values can be noted. American quotations come very firm. In spring Tares the tendency is in holder's favour. For Canary and Hemp seed the sale is not brisk; values unaltered. There is a better trade for blue boiling Peas and Haricot Beans. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

## CORN.

At Mark Lane on Monday trade was decidedly flat for English and foreign Wheats. Both were offered at 6d. less money, and met very few buyers. Flour also was very dull, and country marks were obtainable on easier terms. Barley, with diminished supplies offering, hardened in value. Grinding descriptions must be written 6d., and desirable malting qualities 6d. to 1s. dearer on the week. There was no quotable change in the value of Beans or Peas. Lentils ruled 1s. over the previous Monday's rates. Round Maize was very scarce at dearer rates, but flat corn was cheaper at 2½s. Oats were firmly held, last Friday's advance of 3d. from the previous Monday being maintained.—On Wednesday Wheat was very flat, and to sell even in moderate quantity lower rates must have been accepted. Flour ruled dull, with a drooping tendency. Barley met a steady inquiry, and Monday's advance was well maintained on both malting and grinding descriptions. Beans and Peas were in moderate request, at steady value. Oats in some cases showed rather dearer rates. Round Maize continued firm, but flat corn was easier. Average prices of corn for the week ending Jan. 17:—Wheat, 34s. 2d.; Barley, 32s. 3d.; Oats, 20s. 1d. For the corresponding period last year:—Wheat, 38s. 9d.; Barley, 32s. 3d.; Oats, 19s. 3d.

## CATTLE.

At Copenhagen Fields on Monday, with a smaller supply of cattle, and especially the primer kinds, a few lots sold in the early trade at rather better prices, but the improvement was not general. Quotations were, however, more evenly supported. With full supplies, the sheep trade was slow, and our top quotation was rather exceptional, 5s. 10d. being a more general top figure. Very few prime calves were on offer, and rates in some measure nominal. Quotations:—Beasts, 4s. to 5s. 2d., and 5s. 4d. to 5s. 8d.; calves, 3s. 8d. to 5s. 8d.; sheep, 4s. 6d. to 5s., and 5s. 4d. to 6s.; pigs, 3s. 8d. to 4s. 4d.—Thursday's cattle trade was quiet. Beasts were in short supply, and sold slowly at barely Monday's rates. Sheep were dull of sale at the rates recorded above; and calves and pigs were quiet.

## HAY.

Tuesday's Whitechapel Market report states that there were large supplies, with an exceedingly dull trade, at a reduction of 1s. on the top price of hay. Quotations:—Clover, prime, 50s. to 107s.; inferior, 46s. to 73s.; prime second cut, 90s. to 107s.; hay, prime, 80s. to 94s.; inferior, 60s. to 65s.; and straw, 22s. to 36s. per load.—On Thursday there was a large supply. Trade was very dull, and hay sold for less money.—Cumberland Market quotations:—Clover, best, 90s. to 105s.; inferior, 60s. to 84s.; meadow hay, best, 84s. to 92s.; inferior, 60s. to 80s.; and straw, 26s. to 34s. per load.

## POTATOS.

The report from the Borough market states that the supply was good, and the demand quiet with prices steady. Quotations:—Kent Regents, 70s. to 80s.; Scotch ditto, 80s. to 100s.; Victorias, 70s. to 90s.; Magnum Bonums, 50s. to 80s.; Champions, 50s. to 60s.; French, 40s. to 50s. per ton.

## COALS.

The following are the prices current at market during the week:—Broomhill West Hartley, 14s. 6d.; Bebside West Hartley, 14s. 9d.; East Wylam, 15s. 6d.; Walls End—Tyne (unscreened), 11s. 3d.; Lambton, 18s. 6d.; Hetton, 19s.; Hetton Lyons, 17s.; Wear, 17s.; Hulham, 17s. 3d.; East Hartlepool, 18s. 3d.; South Hartlepool, 17s. 3d.; Tees, 19s. 3d.

**Government Stock.**—Consols closed on Monday and Tuesday at 99½ to 99½ for delivery, and 99½ to 99½ for the account. Wednesday's figures were 99½ to 99½ for delivery, and 99½ to 100 for the account. Thursday's closing figures were 99½ to 100 for delivery, and 99½ to 100½ for the account.

**50 Bushels**  
**BRANKNEY MARROW PEAS.**—The best Late Green Marrow Pea extant. Price 65s. per quarter. Sample on application.  
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4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.  
**LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack;** 5 sacks, 25s.; sacks, 4d. each.  
**BLACK FIBROUS PEAT, 5s. per sack;** 5 sacks, 25s.; sacks, 4d. each.  
**COARSE SILVER SAND, 1s. 9d. per bushel;** 15s. per half ton, 26s. per ton, in 2-bushel bags, 4d. each.  
**YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.**  
**SPHAGNUM MOSS, 3s. 6d. per sack.**  
**MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c.** Write for Free Price LIST.—**H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.**



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**COCOA-NUT FIBRE REFUSE,** newly made, same as supplied to the Royal Horticultural Society of England. Sacks, 1s. each; 15 sacks, 13s.; 20 sacks, 17s.; 30 sacks, 25s.; 40 sacks, 30s.; sacks included; truckload of 2 tons, loose, 23s. All goods free on rail. Cash with all orders. Will oblige.—**J. STEVENS and CO., "Greyhound" Yard, and 153, High Street, Battersea, S.W.**—Established 1872.

**GARDEN REQUISITES as supplied to the Royal Gardens.**—Best Quality. Cocoa-Nut Fibre Refuse, 1s. per sack; 30 for 25s.—bags included. Trucks (containing 2 Tons) 25s., free on Rail. Best Brown Fibrous Kent Peat, 5s. per sack; 5 for 22s. 6d.; 10 for 35s. Black Fibrous Peat, 4s. 6d. per sack; 10 for 30s. Coarse Bedford Sand, 1s. 3d. per bushel; 12s. per ½ ton; 22s. per ton. Loam, Leaf-Mould, and Peat Mould, 1s. per bushel. Guano, Crushed Bones, &c. Finest Tobacco Cloth, 8d. per lb.; 28 lb. for 18s. Spécialité Tobacco Paper, 10d. per lb.; 28 lb. for 21s.; 70s. per cwt. Second quality, 7d. per lb.; 28 lb. for 16s. Archangel and Petersburg Mats. Price LIST sent free. Special quotations to the Trade for cash. **W. HERBERT and CO.,**  
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**Quality, THE BEST in the Market.** (All sacks included).  
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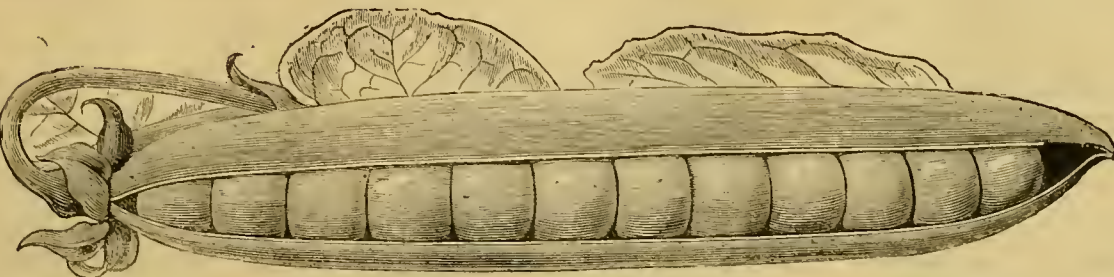
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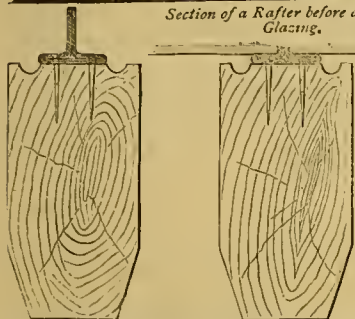
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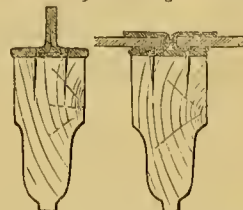
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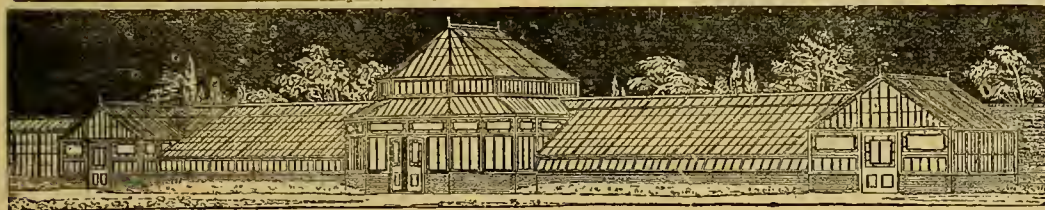
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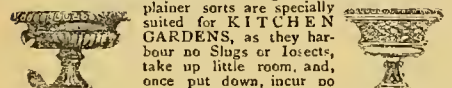
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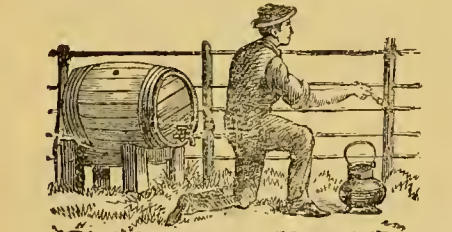
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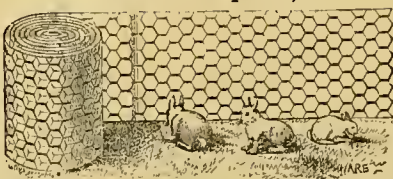
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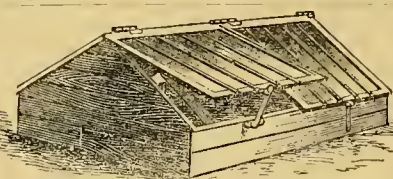
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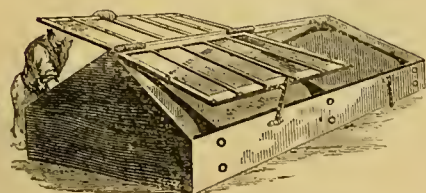
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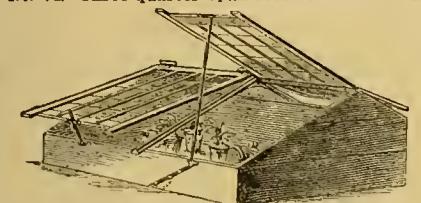


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Height in front, 11 inches, back 22 inches, centre 32 inches.  
Lights made to turn over. Set-ops for ventilating.

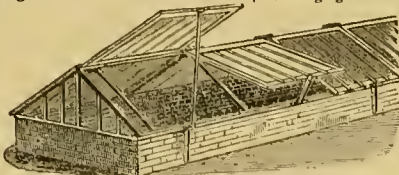
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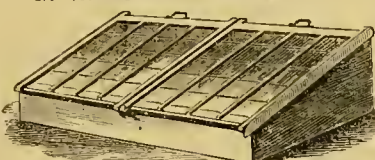
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24 " ..	5 " ..	9 2 6 ..	7 6
30 " ..	5 " ..	11 2 6 ..	9 0
12 " ..	6 " ..	6 10 0 ..	5 0
18 " ..	6 " ..	9 0 0 ..	6 6
24 " ..	6 " ..	11 10 0 ..	8 0
30 " ..	6 " ..	14 0 0 ..	9 6

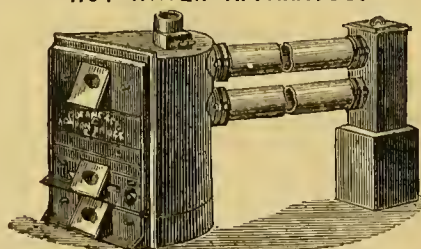
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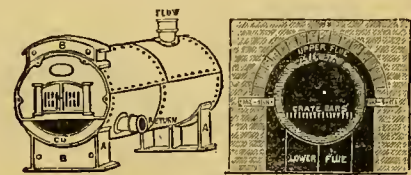
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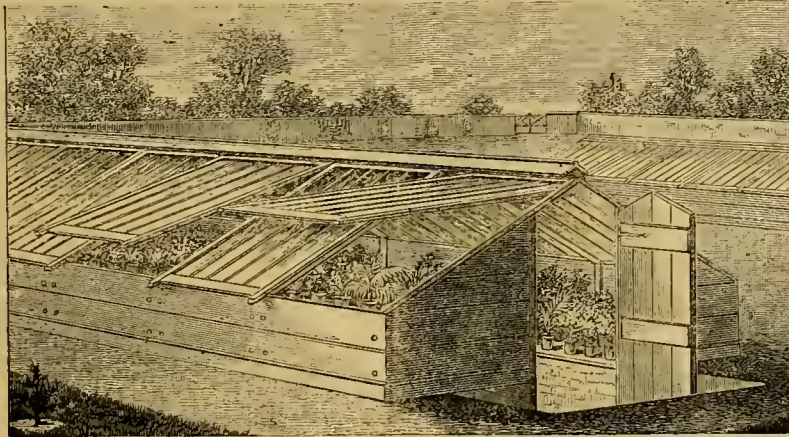
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POOL HORTICULTURAL CO. (John Cowan) Limited, The  
Vineyard, Garston.

**WANTED, a PROPAGATOR and FORE-**  
MAN, for the Houses. Must be a good Propagator  
and Grower of Roses and Cut Flowers.—The CRANSTON  
NURSERY and SEED CO., King's Acre, Hereford.

**WANTED, a good PROPAGATOR of**  
Tea Roses, Clematises, Conifers, and Hard and Soft  
Wooded Plants.—Apply, with references, to HALSTEAD  
AND SHAND, Penny Street, Lancaster.

**WANTED, as JOURNEYMAN, in the**  
Houses, a thoroughly steady young man who under-  
stands his work and not afraid of it; age about 21. Wages 16s.  
per week, bothy, &c.—T. LOCKIE, Oakley Court, near  
Windsor, Berks.

Nursery Hands.—Constant Work.

**WANTED, IMMEDIATELY, TWO or**  
THREE active, steady young MEN, thoroughly  
accustomed to transplanting Quicks and general Hard  
Nursery Stuff, either by piecework or otherwise.—Apply to the  
FOREMAN, W. W. Johnson & Son, Nurserymen, Boston,  
Lincolnshire.

**WANTED, a young MAN, chiefly for the**  
Houses. Must be quick at Potting and General Market  
Work. One who would not object to a little Outside Work  
occasionally preferred.—References and wages required to  
JOHN HAYWARD, The Nurseries, Cheadle, near Manchester.

**WANTED, a situation by a respectable**  
youth in the Houses, or partly.—Age 18. Total ab-  
stainer. Four years' experience.—H. J. P., Mr. Stent,  
Byfield, Bickley, Kent.

**WANTED, an IMPROVER, part in the**  
Houses and part Outside. Only those with good  
character and are active and willing need apply. Wages to  
commence at 12s. per week, with bothy, milk, and vegetables.—  
G. KING, The Gardens, Wolsey Grange, Esher.

**WANTED, a Gentleman to take the entire**  
CHARGE of the COUNTING HOUSE of a leading  
Nursery Establishment. Preference given to one who could  
invest in the business a considerable amount of cash, with a view  
to present or ultimate purchase.  
Apply to Messrs. PROTHEROE AND MORRIS, 67 and 68,  
Cheapside, E.C.

**WANTED, a JUNIOR CLERK; one**  
accustomed to the Nursery and Seed Trade preferred.  
Must be a competent book-keeper, a good quick writer and  
correspondent.—Address, stating age, experience, salary, and  
references (which must be unexceptionable) to W. W. JOHN-  
SON, AND SON, Nurserymen and Seed Merchants, Boston,  
Lincolnshire.

Bouquetist.

**WANTED, a young LADY, who thoroughly**  
understands making Bouquets, Buttonholes, Crosses,  
&c., to wait on Customers and live in the house.—Apply, by  
letter, in own handwriting, stating wages required, references,  
&c., to W. MEADMORE, Market Place, Romford.

## WANT PLACES.

**B. S. WILLIAMS** begs to intimate that he  
has at present in the Nursery and upon his Register  
some excellent Men, competent either to fill the situation of  
HEAD GARDENER, BAILIFF, FOREMAN, or  
JOURNEYMAN. Ladies and Gentlemen requiring any of the  
above will please send full particulars, when the best selections  
for the different capacities will be made.—Holloway, N.

**SCOTCH GARDENERS.**  
—JOHN DOWNIE, Seedsman, 744, Princes Street, Edin-  
burgh, has at present on his list a number of SCOTCH  
GARDENERS, waiting re-engagements, at wages ranging  
from £50 to £100 per annum, and he will be pleased to supply  
full particulars to any Nobleman or Gentleman requiring a trust-  
worthy and competent Gardener.

**RICHARD SMITH AND CO.**  
beg to announce that they are constantly receiving  
applications from Gardeners seeking situations, and that  
they will be able to supply any Lady or Gentleman with  
particulars, &c.—St. John's Nurseries, Worcester.

**ORCHID GROWER and GARDENER.**  
—WILLIAM KIDD, Orchid Grower to Dr. Paterson, Fero-  
hill, Bridge of Allan, will be happy to engage to any Lady or  
Gentleman requiring the services of a practical Orchid Grower  
and Gardener. First-rate Plantsman, well up in all branches of  
the trade. Sixteen years' experience in leading places. Highest  
references from present and past employers. Strictly sober.—  
Address as above.

**THE LIVERPOOL HORTICULTURAL**  
CO. (John Cowan), Limited, The Vineyard and Nur-  
series, Garston, can recommend a first-class GARDENER to  
any Nobleman or Gentleman requiring the services of such.

**GARDENER (HEAD).—NEIL SINCLAIR,**  
Gardener to the Marchioness of Downshire, will be  
pleased to recommend his Foreman (H. Howell) to any Lady  
or Gentleman requiring the services of a thorough practical  
man in all branches of the profession. Total abstainer.

**GARDENER (HEAD), to any Lady or**  
Gentleman.—Mr. HENDERSON, Gardener to J. Deacon,  
Esq., Mableton Park, Tonbridge, can with confidence recom-  
mend his Foreman, Wm. Couzens, as above. Good practical  
experience in all branches of Gardening. Abstainer.

**GARDENER (HEAD); age 30.—Mr.**  
FLETCHER, Holywell Park, Wrotham, Kent, wishes to  
highly recommend his Head Gardener, A. Stevens. Thoroughly  
competent to Manage any place. Has been with her six years.  
Leaving through no fault.

**GARDENER (HEAD); age 29.—Mr. GILMAN,**  
Gardener to the Earl of Shrewsbury and Talbot, Ingestre,  
Stafford, can with confidence recommend his principal Foreman,  
E. Gregg, to any Lady, Nobleman, or Gentleman requiring a  
good practical Gardener.—Address as above.

**GARDENER (HEAD); Land and Woods if**  
required.—Age 34, married; upwards of twenty years'  
sound practical experience in some of the leading establish-  
ments of the country.—HAROLD, Mr. Myatt, Hamber Lane, Preston,  
Wellington, Salop.

**GARDENER (HEAD), where three or four**  
are kept.—Age 35, married, one child; twenty years'  
practical experience in all branches of the profession; six years  
with present employer.—L. TAYLOR, Gardener, Putney Park,  
Surrey, S.W.

**GARDENER (HEAD); age 31.—E. SIMPSON,**  
Head Gardener to Lord Wrottesley, Wrottesley, Wolver-  
hampton, can with confidence recommend his General Foreman,  
W. Holdcroft, to any Lady, Nobleman, or Gentleman, as a  
competent, trustworthy man, in the general routine of Gardening.  
Three years in present situation.

**GARDENER (HEAD).—Messrs. VEITCH**  
& SON would be pleased to recommend to any Lady,  
Nobleman, or Gentleman, a thorough good practical man in all  
branches of the profession and the Management of large  
Gardens.—Messrs. VEITCH AND SON, Exotic Nurseries,  
Exeter.

**GARDENER (HEAD).—Married; thoroughly**  
experienced in Early and Late Forcing, Stove  
and Greenhouse Plants, Flower and Kitchen Gardening. Successful  
Grower and Exhibitor of Orchids. Twenty-eight years' ex-  
perience, 12 years in present situation. Excellent character.—  
A. B., Mr. B. Findlay, Royal Botanic Gardens, Manchester.

**GARDENER (HEAD).—Age 32, married;**  
thoroughly experienced in the Management of Glass-  
houses, also in Flower and Kitchen Gardening. Has been a  
successful exhibitor. Eight years in present situation; leaving  
on account of death of late employer.—Mr. G. FISHER,  
Gardener, Glanbrydaw Park, Manordeillo, Carmarthenshire.

**GARDENER (HEAD).—Baron WM.**  
SCHRÖDER desires to recommend his Head Gardener to  
any Nobleman or Gentleman requiring a thorough practical  
man; age 39, Scotch, married, one son. Seventeen years'  
highest testimonials.—GEORGE STARK, Rookery Gardens,  
Nantwich, Cheshire.

**GARDENER (HEAD).—Mr. HARDWICK, of**  
Holland, Tonbridge, wishes to highly recommend his  
Head Gardener (G. Goldsmith), who has lived with him eight  
years, and six years with previous proprietor. Leaving on  
account of family moving to town.—For particulars apply to  
P. C. HARDWICK, Esq., address as above.

**GARDENER (HEAD); age 28. — Mr.**  
BOODEY, Gardener to the Right Hon. Viscount Boyne,  
Burwarth Hall, Bridgnorth, will be pleased to recommend his  
Foreman (J. Lees) to any Lady or Gentleman requiring the  
services of a thoroughly competent and trustworthy man. Four-  
teen years' experience in good establishments.—Address as  
above.

**GARDENER (HEAD); age 28. — GEORGE**  
CHANNING, Gardener to Colonel Loyd, Lillesden,  
Hawthurst, Kent, would be pleased to recommend to any Lady  
or Gentleman a thoroughly trustworthy man. Has been  
principal Foreman in the Gardens here two years. Can also  
be highly recommended by Mr. NORMAN, Gardener, Hatfield  
House, Herts. Has had experience in some of the principal  
Gardens in England.—Address as above.



**GARDENER (HEAD).**—Age 32, married; experienced in Stove and Greenhouse Plants, Forcing, Fruits, Flowers, and Vegetables, Kitchen and Flower Gardening.—JAS. HOWELL, Lodge, Thurocroft Hall, Rotherham.

**GARDENER (HEAD);** age 35.—H. EBBAGE, for the past five years with J. S. Bockett, Esq., is now disengaged in consequence of the decease of that gentleman, and is at liberty to engage with any Nobleman or Gentleman who requires a practical man well up to Orchids and General Routine of Gardening, having had extensive practice in some of the best establishments in the country. Good references.—H. EBBAGE, 3, Stanforth Cottage, Upper Clapton, E.

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**GARDENER (HEAD WORKING).**—Age 34, married; thoroughly experienced in all branches. Highly recommended.—E. L., J. Portland Place, Northern Road, West Kensington, London, W.

**GARDENER (HEAD WORKING).**—Married, no family. Twenty-four years' experience in good places.—McHARDY, 8, The Limes, Moffat Road, New Thorntown Heath, S.E.

**GARDENER (HEAD WORKING).**—Age 26, married, no family; twelve years' experience in all branches. Excellent testimonials from previous employers.—H. D., 25, Versailles Road, Anerley, S.E.

**GARDENER (HEAD WORKING),** where others are kept.—Age 40, no incumbency. Wife can take Dairy, Plain Cooking, or General Housework. Good references.—J. S., Mr. T. Foster, Clarendon Nursery, Esher, Surrey.

**GARDENER (HEAD WORKING).**—Age 31; thoroughly understands Vines, Melons, Cucumbers, Stove and Greenhouse Plants, Flower and Kitchen Gardening. Eight years in present situation.—W. S., Pleasant Cottages, Sutton, Surrey.

**GARDENER (HEAD WORKING),** where more are kept.—Thoroughly experienced in Vines, Cucumbers, Stove and Greenhouse Plants, Flower and Kitchen Gardening, Land and Stock. Excellent testimonials.—A. B., 13, Camden Street, Colebrooke Row, Islington, London, N.

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**GARDENER (HEAD WORKING).**—Married; thoroughly understands Orchids, Stove and Greenhouse Plants, Pines, Vines, Peaches, Early and Late Forcing, Flower and Kitchen Gardening. Good character.—W. W., 64, St. James Street, Trafford Road, Trafford, Manchester.

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**GARDENER (HEAD WORKING).**—Age 32, married; understands Early and Late Forcing, also Stove and Greenhouse Plants, Flower and Kitchen Gardening. Eight years' good character.—S. R., 89, Stoke Newington Road, N.

**GARDENER (HEAD WORKING),** where more are kept.—Thoroughly experienced in Early and Late Forcing of Fruit, Cut Flowers, Stove and Greenhouse Plants, Flower and Kitchen Gardening, Land and Stock.—Y., 23, Salisbury Road, Upper Holloway, London, N.

**GARDENER (HEAD WORKING),** where two or more are kept.—Age 34, married; thoroughly experienced in Vines, Orchids, Stove and Greenhouse Plants, Pines, and Flower and Kitchen Gardening. Twenty years' experience; over six years in last situation. Good character.—X. Y., Mrs. Mirbas, Handsworth, Sheffield.

**GARDENER (HEAD WORKING).**—Middle-aged, married, no family; thoroughly understands Stove, Greenhouse, Cucumbers, Melons, Vines, Peaches, Flower and Kitchen Gardening. Good character and references. Can be recommended.—GARDENER, 152, Cloudesty Road, Islington, London, N.

**GARDENER (HEAD WORKING, SINGLE-HANDED, or otherwise).**—Age 25; understands Vines, Peaches, Cucumbers, Melons, Stove and Greenhouse Plants, Flower and Kitchen Gardening. Good character from last and previous employer.—C. W. S., The Gardens, Moor Hall, Stourport, Worcestershire.

**GARDENER (HEAD WORKING);** married, no incumbency.—H. HUNT, late Head Gardener to Sir G. R. Prescott, Bart., seeks a situation as above. Twenty-four years' good practical experience in all branches, Early and Late Forcing, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Excellent references.—H. HUNT, New Road, Earlswood, Redhill, Surrey.

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**GARDENER and BAILIFF,** to any Lady or Gentleman; age 32.—W. KENDALL, who is leaving the Right Honourable Sir W. B. Brett, desires to fill a similar place. Character from the above and experience will bear the strictest enquiry.—Heath Farm, Watford, Herts.

**GARDENER (SINGLE-HANDED).**—Age 28, married, no family; well up in general routine of Gardening. Can be well recommended.—E. POSNETT, Dane Street, Bishop Stortford.

**GARDENER (SINGLE-HANDED).**—Age 26; understands Vines, Peaches, Cucumbers, Flower and Kitchen Gardening. Good character and references.—T. STRANN, 2, Church Road, Buckhurst Hill, Essex.

**GARDENER (SINGLE-HANDED).**—Age 40, married; understands Cucumbers, Vines, Greenhouse, Flower and Kitchen Gardening, &c. Eight years' good character.—S. D., Geduey & Marriage, Fern Nursery, Lower Edmonton.

**GARDENER (SINGLE-HANDED), or LAWN FOREMAN.**—Age 28, married, two children; good experience in all branches. Four and a half years' good character.—T. FINALL, 16, Dunford Place, Kentish Town, N.W.

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**GARDENER (THIRD, or IMPROVER);** age 20.—J. LILLYWHITE, Florist, &c., Kingston-on-Thames, can strongly recommend a steady, energetic man as above. Good knowledge. Bothy preferred.

**GARDENER (UNDER).**—Young; with fair knowledge of In and Outdoor Work. Two years in last place.—W. K., Wood Green Park, Chesham, N.

**GARDENER (UNDER).**—Willing to make himself useful, can milk if required.—J. G., 39, Howley House, Howley Place, Maid Hill, Paddington, W.

**GARDENER (UNDER),** in a Gentleman's place.—Miss MACALPINE LENVY, Speldhurst Rectory, Tunbridge Wells, wishes to recommend a young man (age 19½) who has been in her employ for three years, and who wishes to better himself. For recommendation and character, address as above.

**FOREMAN, in a good establishment.**—Has had long experience in first-class establishments; understands Early and Late Forcing, and General Routine of a Large Garden. Highly recommended from present and previous places.—J. TOY, Enville, near Stourbridge, Staffordshire.

**To Nurserymen, &c.**  
**FOREMAN (WORKING).**—Eleven years' experience as Propagator, Grower, &c., for Market. Good Budder, Grafters, Plant-man, &c. Good Salesman. Highest testimonials.—W. W., Broomy Hills, Belmont, near Hereford.

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**FOREMAN (INDOOR).**—Thoroughly practical man, skilful Propagator, and successful Grower of first-class Nursery Stock to large quantities. Unexceptionable references from leading London, Provincial and Scotch firms.—JOHN GODFREY, Messrs. Ireland & Thomson, Golden Acre Nurseries, Edinburgh.

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**PROPAGATOR and GROWER.**—Young man; well up in all kinds of Stove and Greenhouse Plants and General Indoor Work.—W. J. C., 3, Corpus Street, Cheltenham.

**PROPAGATOR and GROWER.**—Age 26; twelve years' experience in In and Outdoors, Forcing and Cut Flowers line.—T. S., 11, Heath Terrace, Twickenham, Middlesex.

**To Nurserymen.**  
**PROPAGATOR and GROWER.**—Age 26, single; eleven years' experience. Well up in Propagating and Growing all kinds of Stove and Greenhouse Plants. Can be well recommended.—L. H., 144, Manor Street, Clapham, S.W.

**JOURNEYMAN, in the Houses, in a good establishment.**—Age 23; highly recommended. Bothy preferred.—A. Z., Ashton, near Oundle, Northamptonshire.

**JOURNEYMAN, in a good establishment.**—Age 23; seven years' experience. Good reference.—E. BUTT, Almer Rectory, near Blandford, Dorset.

**JOURNEYMAN, in the Houses; age 22.**—WILLIAM MAYBURY, The Rookery Gardens, Dorking, will be pleased to recommend to any Gardener, a steady industrious young man as above. Two years in present situation.

**JOURNEYMAN, in the Houses.**—Age 21; six years' experience, two and a half years in present situation. Bothy preferred.—A. L. CARTER, Chiswick House, Chiswick, Middlesex.

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The most valuable of the old *employes* still remain, and are largely interested in the concern. Undivided attention will henceforth be devoted to the Seed Department, therefore Customers may depend upon all Orders being executed in the best possible manner, whether in regard to Price, Quality, or Prompt Despatch.

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**DAVID SYME, Manager.**

N.B.—Prospectuses of Peter Lawson & Son, Limited, may be had at the Registered Office of the Company, 1, George IV. Bridge; or of Messrs. T. AND W. J. McLAREN, W.S., the Company's Solicitors, 51, Frederick Street, Edinburgh; and SAMUEL McDOWALL, Esq., 31, Nicholas Lane, Lombard Street, London, E.C.—*Edinburgh, January, 1885.*

*With reference to the above Advertisement of "PETER LAWSON & SON, LIMITED," we respectfully thank our many Friends and Customers for the large amount of confidence reposed in us during past years, and inform them that, having disposed of the Seed Business to the New Company, we shall continue to carry on the Nurseries at Bangholm and Warriston, as heretofore, devoting, if possible, more strict personal attention to this department. The Stock was never in finer condition, and will be disposed of on moderate terms.*

*We have authorised "PETER LAWSON & SON, LIMITED," to collect all accounts due to us, also to dispose of our Nursery Produce, and all orders entrusted to them shall be carefully attended to. CATALOGUES and Special Offers may be had at 1, George IV. Bridge, or at the Nurseries.*

**THE LAWSON SEED & NURSERY COMPANY, Limited.**

*Edinburgh, January 23, 1885.*

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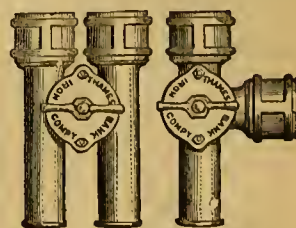
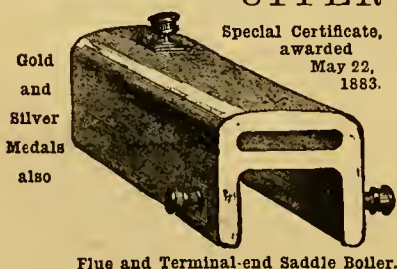
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# THE GARDENERS' CHRONICLE.

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**THE GARDENERS' CHRONICLE,**  
Volume XXII., JULY to DECEMBER, 1884.  
W. RICHARDS, 41, Wellington Street, Strand, W.C.

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Descriptive LIST free on application.  
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T. JACKSON and SON, Nurseries, Kingston-on-Thames.

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offer the above, splendid white flowering bulb, at 50s. per 1000.

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of all sorts.  
JAPANESE MAPLES, JAPANESE LILIES, choice  
Seeds of our own saving; choice New Zealand Seeds; NEW  
MAGNOLIAS, ZAMIAS from the Cape, North American  
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fect condition for removal, at extraordinarily low prices.  
Special LIST, just published, on application.  
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Planes (Platanus occidentalis).  
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dozen, 100 or 1000, from 6 to 12 feet. Prices on  
application.  
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years stuff. Samples and prices on application to  
THOMAS S. WARE, Hale Farm Nurseries, Tottenham,  
London.

**ASPARAGUS ROOTS (Harwood's Giant).**  
Very strong and fit for abundant produce the first season:  
per 100, 7s. 6d.; extra, immense roots, per 100, 10s. 6d.  
HOOPER and CO., Covent Garden, London, W.C.

To the Trade.  
**CUCUMBER SEEDS.**—Rollisson's Tele-  
graph, Veitch's Tender and True, carefully selected  
stock, which may be relied on. Price on application.  
GEO. COOLING and SON, Seedsmen, &c., Bath.

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**THE LIVERPOOL HORTICULTURAL**  
CO. (John Cowan), Limited, have this season a grand  
stock of Grape Vines, suitable for Fruiting in Pots and Planting  
in Vineries. CATALOGUES free on application. The Trade  
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The Vineyard and Nurseries, Garston, Liverpool.

To the Trade.  
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STRONG PLANTING CANES, 3s. each.  
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Well ripened and short-jointed.  
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**RHUBARB SETS,** of a Selected  
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MAY'S NORTAW PRIZE, the variety that has been  
successfully exhibited by him and admired. Seed direct from the  
grower, 1s. 6d. per packet. Cheaper to the Trade.  
J. MAY, The Gardens, Northaw, Barnet, Herts.

**SEAKALE.**—Fine Forcing and Planting.  
ASPARAGUS, very fine, 3 years.  
THE ROYAL NORFOLK NURSERIES COMPANY  
(late EWINGS), Eaton, Norwich.



## SALES BY AUCTION.

## Tuesday Next.

New White Type of *LÆLIA ANCEPS SANDERIANA*. Most beautiful novelty, discovered and sent home by Mr. Arnold, who came across a batch in full bloom, and every plant found is offered. This magnificent *Lælia* has the lip similar to Dawsoni, it being pure white, with two crimson-purple blotches divided by a white line. The petals are very broad, and pure white, and the flower altogether of large size; as many as six were seen on spikes. The importation is in grand order—enormous masses among them, some with upwards of 300 bulbs, and to feet and more in circumference. The dried flowers will convey an idea of the beauty of the species.

**MESSRS. PROTHEROE AND MORRIS** have received instructions from Mr. F. Sander to sell the above splendid novelty at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, February 3. On view morning of Sale, and Catalogues.

Tuesday Next.—*Odontoglossum Alexandræ*.

**MESSRS. PROTHEROE AND MORRIS** will include in their Sale at the Central Auction Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, February 3, by order of Mr. F. Sander, a grand lot of *ODONTOGLOSSUM ALEXANDRÆ*. The Collector writes:—"These are the finest varieties ever sent home. They are from a new locality, flowers very large and round. Many deeply blotched and spotted forms will be among them."

On view morning of Sale, and Catalogues had.

## Tuesday Next.

## The FALLOWFIELD COLLECTION OF ORCHIDS.

**MESSRS. PROTHEROE AND MORRIS** are favoured with instructions to **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, February 3, at half-past 12 o'clock precisely, the final portion of this important **COLLECTION OF ESTABLISHED ORCHIDS**, including, amongst other fine species—

<i>Masdevallia ignea</i> Massangeana	<i>Aërides odoratum nobilis</i>
" " <i>ana</i>	" " <i>purpurascens</i>
" " <i>Wioniana</i>	" " <i>malesumum</i> , true and rare
" " <i>Roezlii</i>	<i>Odontoglossum Alexandræ</i> , superb variety, in flower
" " and many others	" " <i>mulus</i>
<i>Cypripedium meirax</i> , fine hybrid	" " <i>asperum</i>
" " <i>curyandum</i> , splendid plant	" " <i>citrosomum roseum</i>
" " <i>Crossianum</i>	<i>Cattleya Sanderianum</i>
" " <i>Ashburnianum</i>	" " <i>calumnata</i> , fine hybrid

On view morning of Sale, and Catalogues had.

## Wednesday Next.

## LILIAM AURATUM.—TO THE TRADE.

**MESSRS. PROTHEROE AND MORRIS** will **SELL BY AUCTION**, at the Central Sale Rooms, on **WEDNESDAY NEXT**, 10,000 exceedingly fine **BULBS** of *LILIAM AURATUM*, including 1000 gigantic roots measuring 10 to 13 inches in circumference, and a consignment of **CONIFER SEEDS** from California.

On view morning of Sale, and Catalogues had.

## Wednesday Next.

## LILIAM AURATUM, ROSES, and BULBS.

**MESSRS. PROTHEROE AND MORRIS** will **SELL BY AUCTION**, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT**, February 4, at half-past 12 o'clock precisely, 10,000 unusually fine **Bulbs** of *LILIAM AURATUM* (including 1000 gigantic roots), just received from Japan in splendid condition; 2000 double African *TUBEROSES*, 2000 Berlin crowns *LILY* of the *VALLEY*, an assortment of hardy English-grown *LILIES*, including extraordinary *Bulbs* of *L. giganteum*, *L. superbum*, *L. Humboldtii*; 400 Standard *ROSES* of the best named sorts from an English nursery; *CARNATIONS*, *CHRISTMAS ROSES*, a variety of *BULBS* for the garden and greenhouse, and a consignment of *CONIFER SEEDS* from California.

On view morning of Sale, and Catalogues had.

## Friday Next.

## VERY VALUABLE IMPORTATIONS.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. F. Sander to **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, February 6, at half-past 12 o'clock precisely, a very grand importation of the beautiful golden-yellow flowered *ANGLOA CLOWESII*, and a large importation of *ODONTOGLOSSUM PESCATORII*, *O. HASLILABUM*, *ADA AURANTIACA*, *STANHOPEA Eburnea*, and the magnificent *MAXILLARIA SANDERIANA*, also many *CATLEYAS* and *ODONTOGLOSSUMS*.

On view morning of Sale, and Catalogues had.

## Deal, Kent.

By order of the Executors of the late Mr. W. H. Newing.

**MESSRS. PROTHEROE AND MORRIS** are instructed to **SELL BY AUCTION**, on the Premises, The Nurseries, Deal, on **WEDNESDAY** and **THURSDAY**, February 18 and 19, the whole of the valuable **NURSERY STOCK**, further particulars of which will duly appear. The **FREEHOLD NURSERIES** are **FOR SALE**, and particulars may be had of the Auctioneers.

## Apsley Guise, Beds.

## UNRESERVED CLEARANCE SALE.

**MESSRS. PROTHEROE AND MORRIS** will **SELL BY AUCTION**, on the Premises, the Mount Pleasant Nursery, Apsley Guise, on **WEDNESDAY**, February 25, the whole of the valuable and well grown **NURSERY STOCK**.

## Warminster.

## PRELIMINARY.—CLEARANCE SALE.

Re J. Wheeler.

**MESSRS. PROTHEROE AND MORRIS** are instructed to **SELL BY AUCTION**, on the Premises, the several Nurseries at Warminster, on **TUESDAY**, March 3, and following days, the whole of the well-grown **NURSERY STOCK**, extending over nearly 40 Acres.

The **FREEHOLD PORTION** of the **NURSERY**, with the **DWELLING-HOUSE**, all the **GREENHOUSES**, and **SEED SHOP**, will be offered on the first day. Detailed Advertisements will shortly appear.

## Monday Next.—(Sale No. 6833.)

5000 *LILIAM AURATUM* and **OTHER BULBS** in variety. **MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY NEXT**, February 2, at half-past 12 o'clock precisely, 5000 *LILIAM AURATUM*, just received from Japan in the finest possible condition; 3000 *PEARL TUBEROSES* from America, 5000 South African ditto, 7000 Berlin *LILY* of the *VALLEY* Crowns, 1000 *ALLIUM NEAPOLITANUM*, 500 *BEGONIAS* and *GLOXINIAS* from Ghent, and several thousand first-class Miscellaneous *BULBS*, a few choice *BORDER PLANTS*, &c.

On view morning of Sale, and Catalogues had.

## Wednesday Next.—(Sale No. 6835.)

## HARDY PLANTS and BULBS.

**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT**, February 4, at half-past 12 o'clock precisely, First-class Standard and Dwarf *ROSES*, Pyramid and Dwarf-trained *FRUIT TREES*, Ornamental *CONIFERS*, *SHRUBS*, *BORDER PLANTS*, and Miscellaneous *BULBS* and *ROOTS*.

On view morning of Sale, and Catalogues had.

## Wednesday Next.—(Sale No. 6836.)

## WHITE LÆLIA ANCEPS, in magnificent masses.

**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, Shuttleworth, Carder & Co., on **WEDNESDAY NEXT**, February 4, at half-past 12 o'clock precisely, a grand importation of the beautiful and rare white *LÆLIA ANCEPS*, including magnificent masses with several hundred *Bulbs*, in splendid condition. The finest importation ever introduced. See dried flowers. Also *ODONTOGLOSSUM CRISPUM* (*Alexandræ*), the finest type possible to collect; grand masses, and in splendid condition. *CATTLEYA TRIANÆ*, from a new district; *LÆLIA AUTUMNALIS* (received as *atrobensis*), *L. ACUMINATA*, and *ONCIDIUM KRAMERIANUM*.

On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6837.)

## VERY VALUABLE IMPORTATIONS.

**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on **THURSDAY NEXT**, February 5, at half-past 12 o'clock precisely, a splendid lot of the beautiful pure white *SOBRALIA VIRGINALIS*, large masses of *EPIDENDRUM MACROCHILUM*, *WARSCWICZELLA WENDLANDI*, a superb lot of *ODONTOGLOSSUM TRIUMPHANS*, *RODRIGUEZIA SECUNDA*, *ACINETA HUMBERTI*, *ONCIDIUM TIGRINUM*, *MORMODES LUXATUM*, *EBURNEUM*, *ODONTOGLOSSUM CITROSOMUM*, *MORMODES*, *CATLEYAS*, &c., all in first-rate order.

On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6837.)

## LÆLIA ANCEPS, New White Type.

**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on **THURSDAY NEXT**, February 5, at half-past 12 o'clock precisely, a truly grand importation of a magnificent *LÆLIA ANCEPS*, white type. The flowers are very large and fine, petals very broad and pure white, and the flowers are nearly 5 inches across, lip pure white, the throat dark crimson, veined and blotched, the colouring being most vivid. A large quantity of dried flowers on view will convey an adequate idea of the great beauty and value of this species. The plants were collected by Mr. Arnold, and are in grand order, great masses being among them.

At the same time will be sold a fine light coloured form of *LÆLIA ANCEPS*. Mr. Bartholomæus, who collected this lot in a new locality, writes that the flowers are large, sepals and petals rose, lip very light coloured, in some varieties almost white, throat crimson veined.

On view morning of Sale, and Catalogues had.

## To Market Gardeners, Fruit and Flower Growers.

**MR. H. J. E. BRAKE** will **SELL BY AUCTION**, on **MONDAY**, February 9, at the "Royal Swan" Hotel, Blackwater, Hants, at 4 for 5 o'clock, several Plots of **LAND** at Crowthorne, Berks, and near to the Wellington College and Station, suitable for Market Gardening and Horticultural purposes, in plots from a Quarter of an Acre to 12 Acres. May be paid for by Instalments.

Plans, Particulars, and Conditions on application, or by Post, of the Auctioneer, Farnborough, Hants.

## To Gardeners, Florists, and Nurserymen.

200 Lots of Rare *ORCHIDS*, *HOthouse PLANTS*, and valuable *GARDEN EFFECTS*.

**MESSRS. LIDSTONE** will **SELL** the above by **AUCTION**, at Meyerton House, Polegate, Sussex, 1½ mile from Hailsham and Polegate Stations on the L.B. & S.C.R., on **FRIDAY**, February 7, at 12 o'clock precisely. Catalogues of the Auctioneers, 110, Cannon Street, London, E.C.

## To Nurserymen, Florists, Gardeners, and Others.

## FLORIST'S BUSINESS.

**FOR SALE**, by Private Treaty, as a going concern, all that well known and remunerative **FREEHOLD BUSINESS PREMISES**, called Guildford Street Nurseries, within two minutes' walk of the Barton Railway Station, Hereford, the property of Uriah Hain, Florist, who is relinquishing business on account of declining years. The Property comprises a modern and substantially brick-built Residence, called Bleenheim House, with several Perches of Freehold Garden Ground, a number of Span-roof and Lean-to Glass Houses, with Hot-water and other Heating Apparatus, Hot and Cold Pits, and Potting Sheds; together with the Stock-in-Trade, consisting of a well-grown and healthy lot of Bedding, miscellaneous assortment of useful Greenhouse and Hardy Outdoor Plants, in popular demand; small collection of useful Nursery Stock, Horticultural Requisites, Tools, and absolute Goodwill. A splendid opportunity of entering your man or gentleman's gardener with small capital desirous of retiring from service. One-half or so of purchase money can remain on mortgage, if required. For further particulars, apply to **GEO. H. BARLOW**, Estate and Property Agent, Hereford.

## A Well-established Nursery Business.

**TO BE DISPOSED OF**, in consequence of Proprietor's ill-health, about 6 ACRES of **LAND**, with several Glass Erection, well situated in a fast improving neighbourhood, 10 miles south of Covent Garden. Small premium. Stock at valuation, about £1000. Arrangements as to future payment of part might be made. Apply, in first instance, to **MESSRS. HURST AND SON**, 152, Houndsditch, E.

**TO BE DISPOSED OF, a WHOLESALE** and **RETAIL SEED BUSINESS**. A splendid going concern. One of the finest in existence, doing a large and profitable trade. An unusual opportunity. Apply (by letter only) to **MESSRS. PROTHEROE AND MORRIS**, 67 and 68, Cheapside, London, E.C.

## Important to Florists, Nurserymen, Market GROWERS, and OTHERS.

**TO BE LET, on LEASE, or SOLD** with possession, the valuable **FREEHOLD ESTATE** known as Osborn's Nursery, Sunbury, Middlesex, comprising 17 Acres of excellent Land with Dwelling-house, Stabling, Sheds, and all the extensive range of modern and recently-erected Greenhouses. The Estate having a frontage of 1100 feet to the high road, possesses a great prospective value for Building purposes. Full particulars may be obtained of **MESSRS. PROTHEROE AND MORRIS**, Auctioneers, 67 and 68, Cheapside, E.C.

**PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS**, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

**T. MILLINGTON AND CO., ENGLISH and FOREIGN SHEET and PLATE GLASS, WHITE LEAD, MILLED LEAD, OILS, and COLOUR MERCHANTS**, 43, Commercial Street, E.

**JOHN KENNARD'S HORTICULTURAL** Sundries, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

## THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

At a **GENERAL MEETING** of the **MEMBERS** of this Institution, held on January 14, 1885, for the Election of **EIGHT PENSIONERS**, the following was the result of the Ballot:—

## CANONICATES.

Votes.	Name.	Age.
1910	WILLIAM BIRKETT .. .. .	76
1333	RICHARD HAWKINS .. .. .	69
511	WILLIAM ARCHER .. .. .	79
576	THOMAS BEST .. .. .	69
596	ROBERT PRYOR .. .. .	74
2308	MARTHA SWANBOROUGH .. .. .	87
1597	GEORGE URQUHART .. .. .	69
412	SOPHIA WARE .. .. .	68
1371	ANNA MARIA ALLAN .. .. .	76
1108	ELIZABETH FOULIS .. .. .	83
707	WILLIAM HARMAN .. .. .	59
1305	ELIZABETH PARK .. .. .	73
1515	MARY RABBITT .. .. .	64

The Meeting declared Martha Swansborough, William Birkett, George Urquhart, Mary Rabbitt, Anna Maria Allan, Richard Hawkins, Elizabeth Parr, and Elizabeth Foulis, as having the greatest number of votes, duly elected Pensioners from the 25th December last.

**EDWARD R. CUTLER**, Secretary.

14, Tavistock Row, London, W.C., January 20, 1885.

## NATIONAL AURICULA and NATIONAL CARNATION and PICOTEE SOCIETIES (SOUTHERN SECTION).

WRIGHT & DODWELL.

"Stanley Road, Oxford,

"January 27, 1885.

"To Mr. J. WRIGHT,  
"Of the *Journal of Horticulture*,  
"171, Fleet Street, E.C.

"I sincerely regret that through ignorance of the facts I characterised your having voted at the meetings of the National Auricula and National Carnation and Picotee Societies on December 9, 1884, as a fraud in the printed circular which I wrote and issued to the members of these two Societies; and I now beg to apologise to you for the error I have thus committed, and I hereby withdraw any imputation upon your action on that occasion. I also agree to bear the expense of inserting this apology in three leading gardening papers, and to pay your solicitor's charges relating to this matter."

"E. S. DODWELL."

## LILIAM AURATUM.—Special Offer.—

Another large consignment just to hand. Splendid firm sound *Bulbs*, 6 to 8 and 8 to 10 inches in circumference, 28s. and 35s. per 100, 4s. and 6s. per dozen. Cheapest for quality ever offered. Samples two stamps. Please order quickly.

**MESSRS. MORLE AND CO.**, 1 and 2, and 162A, Fenchurch Street, E.C.

**SEED POTATOS.**—Special Offer.—Old Ashleaf, 7s.; Myatt's and Rivers' ditto, 5s.; White Elephant, 6s.; Early Rose, 5s.; Magnum Bonum, 4s.; Beauty of Hebron, 6s.; Reading Hero, 5s. per bushel. Less quantities 3d. per peck more; 1 bags 3d. each. All true and free on Rail. **MORLE AND CO.**, Child's Hill Farm, N.W.; small quantities at, and letters to be addressed, 1 and 2, Fenchurch Street, E.C.

**GLADIOLI.**—The best in cultivation, cheap. From the grand collection of varieties which gained the First Prize at Crystal Palace, Dundee International, and other principal Flower Shows. Intending purchasers should send for **CATALOGUE** to **ALEX. E. CAMPBELL**, Cove Gardens, Gourrock, N.B.

**HENDER'S BALSAMS.**—We save only from finest double *Camellia*-like flowers, and we are confident our strain is far superior to any other offered. Colours rich, beautifully mottled and striped. Eight varieties, separate, 2s. 6d. **HENDER'S PETUNIA GRANDIFLORA**, well known to be the finest strain; flowers beautifully mottled and striped. Single, 2s. per packet.

**HENDER AND SONS**, Nursery, Plymouth.

## To the Trade.

## SEED POTATOS.

**H. AND F. SHARPE'S** Wholesale Priced **LIST** of **SEED POTATOS** is now ready, and can be had on application. It comprises the best kinds in cultivation, and the prices are very reasonable. Seed Growing Establishment, Wisbech.



**W. H. ROGERS, Red Lodge Nursery,** Southampton, has a fine stock of the following articles, which he can offer at low prices:—  
RHODODENDRONS, Standard and Dwarf, named, all the best sorts, mostly with blooming buds.

AZALEA PONTICA, MOLLIS, and AMENA.  
PERNETTIA MUCRONATA, several sizes.  
ERICAS, Hardy, including CODONOIDES.  
GAILTHERIA SHALLOON, strong clumps.  
SKIMMIA JAPONICA, OBTUSA, and FRAGRANS.  
GRISLINIA LITTORALIS, in pots, 1 foot.  
EUNYMUS AUREA MARGINATA, in pots, 1 foot.

RADICANS VARIEGATA, nice bushy plants.  
MENZIESIA POLIFOLIA ALBA and RUBRA.  
ANDROMEDA FORMOSA, 1 to 3 feet.  
LIGUSTRUM OVALIFOLIUM, 2 feet.

JAPONICUM, in pots, 1 to 2½ feet.  
EURYA LATIFOLIA VARIEGATA, in pots, 1 to 2 feet.  
ELEAGNUS REFLERA VARIEGATA, 1 to 3 feet.  
COTONEASTER MICROPHYLLA and SIMONSH.  
ESCALONIA MACRANTHA, in pots, strong, 1 foot.  
OLEARIA HAASII, 1 to 2 feet, in pots.

OSMANTHUS ILICIFOLIUS and VARIEGATUS.  
BUDELEIA GLOBOSA, 2 feet.  
AUCUBA, of sorts, very fine, 1 to 2 feet.  
MESPILUS CANADENSIS, 4 to 6 feet.

THORN, Single and Double Scarlet.  
CHERRIES, Double Blossom.  
FURZE, Spanish and Double, in pots.  
BERBERIS DARWINII, 1 to 2½ feet, bushy, fine.

LAURELS and LAURUSTINUS.  
COB NUTS, wonderful fine-bearing sorts.  
APPLES and PEARS, Espalier and Pyramidal.  
CUPRESSUS MACROCARPA, 2 to 4 feet, well-rooted.

LAWSONIANA, 2 to 4 feet.  
DENSE, 1 to 2 feet, fine.  
PYRAMIDALIS, 2 to 4 feet.

ERECTA VIRIDIS, 1 to 3 feet.  
RETINOSPORA PLUMOSA AUREA, 1 to 4 feet.  
ARGENTEA, 1 to 3 feet.

ALBA, 1 to 2 feet.  
LEPTOCLEADA and ERICOIDES, 1 to 2 feet.  
THUIOPSIS BOREALIS, 1 to 3 feet.

DOLABRATA, 1 to 3 feet, fine.  
CEDRUS DEODARA, 3 to 5 feet, well-rooted.  
PINUS INSIGNIS, 2 feet, transplanted last spring.

CRYPTOMERIA ELEGANS, 2 to 4 feet.  
THUIA LOBBII, 2 to 4 feet.  
DACYRDIUM FRANKLINII, 3 to 5 feet.

FITZROYA PATAGONICA, 3 to 6 feet.  
HARDY CLIMBING PLANTS of all sorts, in pots.  
ROSES, Standard and Dwarf, all the best sorts.

Prices of any of the above and CATALOGUES of General NURSERY STOCK, extending over 60 acres, will be forwarded on application to  
W. H. ROGERS, Red Lodge Nursery, Southampton.

**PYRAMID PEARS.**  
Extra fine, well furnished, fruiting trees, 5 to 7 feet high, with splendid roots, viz.—America, Comte de Lamy, Beurré Diel, Beurré Rance, Brown Beurré, Autumn Colmar, Conseiller de la Cour, Citron des Carmes, Doyenné du Comice, Easter Beurré, Glou Morceau, Huyshe's Bergamot, Louise Bonne, Napoleon, Strian or Keele Hall Beurré, and other sterling varieties. Price very moderate. For further particulars apply to  
R. P. KER AND SONS, Aigburth Nursery, Grassendale, Liverpool.

**TO THE TRADE.**  
Excellent quality.  
APPLES, Dwarf Maidens, 6s. per dozen, 35s. per 100.  
APRICOTS, ditto, 7s. per dozen, 45s. per 100.

CHERRIES, ditto, 7s. per dozen, 40s. per 100.  
PEACHES and NECTARINES, ditto, 8s. p. doz, 55s. p. 100.  
PEARS, ditto, 5s. per dozen, 30s. per 100.

PLUMS, ditto, 4s. per dozen, 25s. per 100.  
PEACHES and NECTARINES, established in pots, 3s. 6d. each, 36s. per dozen.

VINES, fruiting Canes, 4s. each, 48s. per dozen.  
planting Canes, 2s. each, 21s. per dozen.  
SEAKALE for planting, 4s. per 100, 35s. per 1000.

BRUSSELS STOCKS, transplanted for quartering, 5s. per 100, 45s. per 1000.  
Terms monthly. LIST of varieties on application.  
WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

**Garden and Flower Seeds.**  
**JOHN DOWIE, SEEDSMAN, 144, Princes Street, Edinburgh,** begs to intimate that he is now sending out the finest stock of the above that money can buy, and as J. D. is now in business solely on his own account, the most of the Flower Seeds have been saved under his own supervision, and may be thoroughly relied upon.

**New, Choice, and Rare Seeds.**  
**W. THOMPSON, SEEDSMAN, 34, Tavern Street, Ipswich,** begs to inform his numerous Patrons and Amateur Horticulturists in general, that the Thirtieth Edition of CATALOGUE of Flower Seeds is now ready, and will be sent to any intending purchaser, post-free. It includes many seeds not to be had elsewhere.

**Forcing Asparagus.**  
**R. AND G. NEAL** beg to offer the above planted by the hundred or thousand (own growth, and transplanted last spring). Samples with Price on application. Also beg to call the attention of Nurserymen, Builders, and others to their exceptionally fine stock of FRUIT, FOREST, and ORNAMENTAL TREES and SHRUBS.

The Nurseries, Wandsworth Common, S.W.

**RASPBERRY CANES.**  
An immense quantity of the choicest Carters' Prolific and Fastoff for disposal.

The Advertiser being the most extensive cultivator of Raspberries in England, special care will be taken to select Canes most suitable for a vigorous growth and an early fruiting. Lowest cash terms on application to  
R. BATH, Crayford, Kent.

**HENDER'S STRAIN OF NEW FRINGED PETUNIAS.**—After great care and attention we have obtained beautifully fringed flowers of our strain of Petunias. The Double Seed will turn out a good percentage of fine double fringed flowers, often far superior to named varieties. The Singles (now offered for the first time) are magnificent, flowers large and finely fringed. Colours very rich and varied in markings. Double, 3s. 6d. per packet; singles, 2s. 6d. per packet. HENDER'S BALSAMS, double, eight vars., 2s. 6d. per packet. HENDER'S PETUNIA GRANDIFLORA, singles, 2s. per packet.

HENDER AND SONS, Nursery, Plymouth.

## EXPIRATION OF LEASE.

Several Acres of Nursery, containing a valuable Stock, continue to be offered at a nominal price; the lease cannot be renewed.

	Ordinary Price.	Reduced to
RHODODENDRONS, Standard, 4000 to select from, of finest-named kinds, perfect specimens, from 1½ to 5 feet through the head ..	105/-	10/6
.. Bush, do., 5, 6, 7, and 8 feet high ..	42/-	21/-
.. Dwarf and Sweet-scented, 1 to 2½ feet high, consisting of K. fragrans, Wilsoni, Govenianum, &c. ..	2/6	1/6
ANDROMEDA FLORIBUNDA; fine plants, well set with bloom, 1 to 3 feet high ..	10/6	2/6
AZALEAS, 1 to 3 feet high ..	2/6	1/6
A fine lot of P. NORDMANNIANA, T. LOBBII, WELLINGTONIA, CUPRESSUS, RETINOSPORA, THUIOPSIS DOLABRATA, and many others in fine condition for removal ..	10/6	5/-
ORNAMENTAL TREES.—Fine specimens of Limes, Laburnums in various sizes, Horse Chestnut, Scarlet Chestnut, Sorbus, Thorns of sorts, Maples, Fraxinus aucubifolia, Scarlet Oak; also Weeping Birch, Elm, Ash, and Poplar, 6 to 15 feet high ..	10/6	3/6
LIGUSTRUM OVALIFOLIUM, 2 to 4 feet, per 100 ..	2c/-	10/-
.. common, 1 to 2½ feet ..		
LAUREL, common, 1 to 3 feet ..		
.. caucasica, 1 to 2½ feet ..		
.. Portugal, 1½ to 3 feet ..		
MAHONIA AQUIFOLIA ..		
BROOM, White ..		
YEW, Irish ..		
ROSES, Dwarf, Moss, Teas, and Climbers ..		
CLEMATIS, fine stuff, in great variety; Virginia Creepers, Ampelopsis Veitchii ..		
ILEX SHEPHERDI, a fine lot of perfect specimens, 6 to 9 feet; smaller, 1 to 3 feet, ..		
THUIA LOBBII, 3 to 4 feet ..		
RETINOSPORA AUREA, 6 to 15 inches ..		
CUPRESSUS ERECTA VIRIDIS, 1 to 3 feet ..		
WELLINGTONIA GIGANTEA, 3 to 5 feet ..		
MAHONIA AQUIFOLIA, 12 to 18 inches ..		
COB NUT, Webb's, 3 to 6 feet ..		25s. per 100

Collections of SHRUBS and TREES for general planting, 2 to 6 feet high, 25s. to 75s. per 100.

Extra large Fruiting APPLES, PEARS, and CHERRIES, to clear, 1s. each.

SPINEA PALMATA, fine forcing clumps. The largest stock in Europe, 15s. and 10s. 6d. per 100.

ERICAS in variety, 20s. per 100.  
LAVENDER, fine bushy stuff, 3s. per dozen, 15s. per 100.  
PERIWINKLE, 10s. per 100.

Thousands of other things too numerous for an advertisement are on offer, and inquiries or a visit will be found very advantageous.

**CHARLES NOBLE, Bagshot.**

**THE ROYAL SEED NORFOLK ESTABLISHMENT**

**NEW EARLY PEAS for 1885.**  
The Earliest and Best in Cultivation.

**DANIELS' GEM OF THE SEASON**  
SHOULD BE SOWN NOW.

From Mr. A. ARTHUR, Orwell Gardens, Cambridge.  
"I sowed your Gem of the Season Pea March 20, and gathered them June 13, and sowed Laxton's Earliest of All March 15, and did not gather till June 20. This new Pea has proved what its name implies for earliness, productiveness, and flavour."

From Mr. T. NOTLEY, The Gardens, Stoke Hall, Stoke Holy Cross.  
"The Pea, Gem of the Season, has proved itself a good one. I planted it at the same time and by the side of Day's Early Sunrise. I gathered from Gem of the Season two days earlier, the pods were also full, averaging from seven to nine good sized Peas in each."

Height 2 feet, and very prolific.  
Price, 3s. 6d. per quart, 2s. per pint, 1s. 3d. per half-pint.  
Free by Parcels Post to any address.

**DANIELS' MIDSUMMER MARROW PEA.**  
The Earliest Blue Wrinkled Marrow in Cultivation.  
Height 1½ to 2 feet. Splendid cropper and quality.  
Should be sown now.  
Price, 3s. 6d. per quart, 2s. per pint, 1s. 3d. per half-pint.  
Free by Parcels Post to any address.

**Daniels Proo**

Seedsmen to H.R.H. the Prince of Wales, NORWICH.

**ABIES DOUGLASII**, 1½ to 2 feet, 25s. per 100; 2 to 2½ feet, 35s. per 100; 3 to 4 feet, 60s. per 100; by the thousand, finely finished and rooted. ARAUCARIA IMBRICATA, 18 to 20 inches, 24s. per dozen; 2 to 2½ feet, 42s. per dozen; 3 feet, extra, 60s. per dozen; each size by the thousand. CEDRUS DEODARA, 4 to 5 feet, 30s. per dozen. CRYPTOMERIA ELEGANS, 2 to 2½ feet, 60s. per 100. CUPRESSUS LAWSONII, 2½ to 3 feet, 60s. per 100; C. GRACILIS, distinct, 1½ foot, 12s. per dozen; C. STRICTA, 2 to 2½ feet, the finest upright, 12s. per dozen; C. FUNE-BRIS, scarce, 1½ foot, 15s. per dozen. PICEA NOBILIS, 3 to 4 feet, 60s. per dozen; P. NORDMANNIANA, 1 foot, fine, 50s. per 100; 1½ to 2 feet, 15s. per dozen; 6 feet, extra, 84s. per dozen. PINUS EXCELSA, 2 feet, 8s. per dozen; P. INSIGNIS, 1 foot, 30s. per 100; 6 to 8 inches, 16s. per 100. THUIA LOBBII, 10 to 15 inches: special by the 1000, the best substitute for Larch. RHODODENDRON PONTICUM, 1 to 4 feet, each size in thousands.  
GARLIES MITCHELL, Nurseryman, Stranraer, N.B.

**PAUL AND SON, The "Old" Nurseries,** Cheshunt, hold very fine stocks of the undermentioned:—  
STANDARD TEA ROSES, best kinds.  
STANDARD HYBRID PERPETUAL ROSES, vigorous kinds.

DWARF TEA ROSES, on Brier only.  
STRONG CLIMBING ROSES, very large plants.  
STRONG CLIMBING ROSES, in pots, 8 to 9 feet high.  
STRONG DWARF ROSES for Hedges.  
STRONG DWARF ROSES for Beds.

POT ROSES of all sorts and sizes.  
STRONG STANDARD APPLES, 5 to 6 feet stems.  
STRONG STANDARD PEARS, extra fine heads.  
STRONG STANDARD PLUMS, including Victorias.  
EXTRA FINE HORIZONTAL TRAINED APPLES and PEARS.

EXTRA FINE FAN TRAINED PLUMS and CHERRIES.  
STRAWBERRIES, in large and small pots.  
GOOSEBERRIES, fine, on 1 foot stems.

CURRENTS, particularly fine Red and White.  
CONIFERS, EVERGREENS, and AVENUE PLANTS.  
HOLLIES, Green and Variegated, 10 acres at High Beach.  
CATALOGUES post-free.

**HEATHS A SPECIALTY.**—The finest Collection of HEATHS, AZALEAS, and HARD-WOODED STOVE and GREENHOUSE PLANTS generally in the country. An inspection solicited.  
T. JACKSON AND SON, Nurseries, Kingston-on-Thames.

**ASPARAGUS**, grand Roots for Forcing, 2s. per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d. per 100. SEAKALE, forcing, 2s. 6d. per dozen, 16s. per 100; planting, 2s. per dozen, 12s. 6d. per 100.  
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

**Wholesale List of Vegetable Seeds.**  
**H. AND F. SHARPE** will be pleased to forward their WHOLESALE LIST of Home Grown VEGETABLE SEEDS to those who have not yet received it. It comprises all the best varieties in cultivation, and the quality of the seeds is exceptionally good.  
Seed Growing Establishment, Wisbech.

**NEW CHRYSANTHEMUMS.**  
I offer 25 varieties, selected in China and Japan, which for size of flower, freedom of growth, and distinct colours, surpass for the older varieties. Four Certificates of Merit in New York, Dec. 2.  
Price 50s. the set. Usual terms to the Trade.  
LIST on application to  
H. WATERER, Importer of Plants and Bulbs, 3809, Pewlton Avenue, Philadelphia, U.S.A.

**NE PLUS ULTRA DWARF BEAN,**  
Per pint, 2s. 6d. post-free 2s. 9d.  
COOLING'S LEVIATHAN COS LETTUCE,  
Per packet, 1s. post-free.  
COOLING'S OMEGA BEET,  
Per packet, 1s. post-free.

Three of the finest vegetables in their respective classes in cultivation. Trade Price on application.  
GEO. COOLING AND SON, Seedsman, &c., Bath.

**ANDRE LEROY'S Nurseries**, at Angers, France, the largest and richest in Europe in Collections of FRUIT and ORNAMENTAL TREES, SHRUBS, CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT TREES, &c. CATALOGUES sent on application. Freight from Angers to London is very moderate. Medal of Honour at the Universal Exhibition at Paris in 1878.  
Orders must be addressed to Messrs. WATSON AND SCULL, 90, Lower Thames Street, London, E.C.

**To the Trade.**  
**BROAD BEANS.**  
**H. AND F. SHARPE** have fine samples of H. WINDSOR and LONGPOD BEANS to offer. Samples and Prices may be had on application.  
Seed Growing Establishment, Wisbech.

**THE LIVERPOOL HORTICULTURAL CO.** (John Cowan), Limited, have at present a grand stock of DENDROBIUMS, in variety, and other East Indian ORCHIDS, also CATTLEYAS and other valuable ORCHIDS from South America, and they are constantly receiving fresh importations. Price LISTS and full particulars on application.  
The MANAGER, The Vineyard and Nurseries, Garston, Liverpool.

**ASH**, common, 2 to 3 feet, clean, 17s. per 1000; 3 to 4 feet, 20s. per 1000. ELMS, 1½ to 2 feet, 14s. per 1000; 2 to 3 feet, 17s. per 1000; English, 3 feet, 25s. per 1000. CHESTNUT, Spanish, 2 to 3 feet, 22s. per 1000; 15 to 20 inches, 16s. per 1000. LARCH, 14 to 24 inches, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 4 feet, 18s. per 1000; 4 to 5 feet, 24s. per 1000. SPRUCE FIR, 1 to 1½ foot, 12s. per 1000; 1½ to 2 feet, 14s. per 1000; 2 to 2½ feet, bushy, 16s. per 1000. SCOTCH FIR, 1-yr., 2-yrs. transplanted, 12s. per 1000; 2 to 2½ feet, 18s. per 1000. SILVER FIR, 4-yrs. transplanted, 22s. per 1000. HAZEL, 2 to 3 feet, 20s. per 1000. OAKS, 18 to 20 inches, 16s. per 1000; 2 feet, 20s. per 1000. PRIVET, Evergreen, 2 feet, 15s. per 1000; 1 to 1½ foot, 12s. per 1000; OVALIFOLIUM, 2 to 2½ feet, 30s. per 1000; Oval, 1 foot, 20s. per 1000. SYCAMORE, 1½ to 2 feet, 14s. per 1000. THORN, 1½ to 2 feet, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 3½ feet, 18s. per 1000.  
CATALOGUES on application to  
GARLIES MITCHELL, Nurseryman, Stranraer, N.B.



**The R.H.S. FIRST PRIZE TOMATO**  
 All Packets **CARTERS' PERFECTION.** Post free. 2/6  
 Quite distinct from, and superior to, any other variety called "Perfection."  
**CARTERS' Seedsmen by Royal Warrant**  
 To H.R.H. The Prince of Wales,  
 237 & 238, HIGH HOLBORN, LONDON.

**B.S. WILLIAMS' ARE THE BEST**  
**FOR PRICES AND DESCRIPTIONS SEE ILLUSTRATED CATALOGUE POST FREE.**  
**VICTORIA & PARADISE NURSERIES**  
**UPPER HOLLOWAY LONDON**  
**FLORISTS FLOWER SEEDS**

**SEED POTATOS.**

**C. FIDLER'S** New Annual CATALOGUE of SEED POTATOS should be read by every one who has a Garden. In addition to a complete Priced List of all the best kinds grown, it treats with Exhibition Varieties as a specialty, giving Lists and particulars of the most useful sorts found in Collections grown for Exhibition.

The prices will be found to be considerably lower than most Houses in the Trade.

Free on application to

**C. FIDLER, Potato Grower, &c., Reading.**

 **PURE NEW SEEDS.**  
**Vegetable & Flower Seeds.**

All of the Highest Class

Unsurpassed and Unsurpassable

Prices strictly moderate

**F. & A. Dickson & Sons**  
 The Queen's Seedsmen,  
**CHESTER**

Write for Catalogue—Post Free

Each Variety saved with special care from the most famous Strains in Cultivation.

SEASON 1885

**PURE NEW SEEDS.**

Catalogue 1885, Post Free.

**F. & A. Dickson & Sons**

THE QUEEN'S SEEDSMEN  
 (SPECIALLY APPOINTED)

**CHESTER**

**SPECIAL OFFER**

OF

**ORNAMENTAL TREES and SHRUBS, ROSES and FRUIT TREES of all kinds, FOREST TREES, &c.,**

All well transplanted and strong, at reduced prices (free on application).

**WALTER CHAS. SLOCOCK,**  
 Goldworth "Old" Nursery,  
 WOKING, SURREY.

**WRIGHT'S well-known CELERIES:**

the finest in cultivation:—

**GROVE RED, GROVE WHITE, GROVE PINK, and GIANT WHITE,** each per packet, 1s, the four 3s, post-free, or 4s. per 100 packets.

**WRIGHT'S PERFECTION BROCCOLI,** 1s. packets.

**EARLY MARKET CABBAGE,** finest early variety known, 1s. per packet.

**CUCUMBERS—TELEGRAPH,** good true stock, packet 1s; 100 seeds, 4s.; per nuncie, 13s. **PARAGON,** good, packet, 1s; 100 seeds, 4s.; per ounce, 12s. **PRINCE of WALES,** fine show variety, packets, 1s; 100 seeds, 4s.; per nuncie, 14s.

All my own careful saving, and strongly recommended. Cash from unknown correspondents.

**WILLIAM WRIGHT, Seedsmen, Retford, Notts.**

**AUTUMN, 1884.**

**W. B. ROWE & CO., Limited,**

(Established upwards of a Century.)

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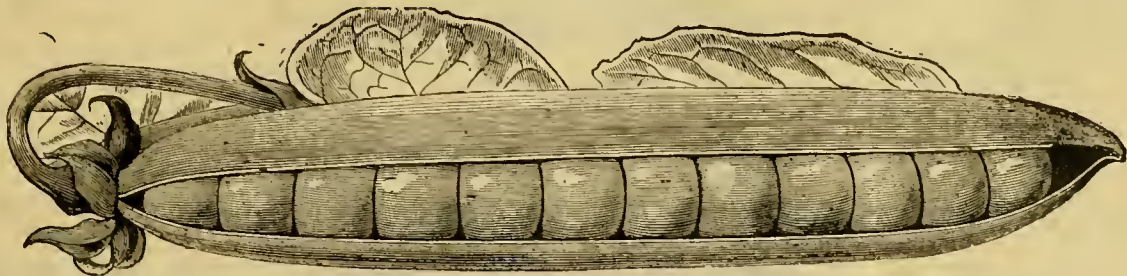
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**LÆLIA ANCEPS SANDERIANA.**

Most beautiful novelty, discovered and sent home by Mr. Arnold, who came across a batch in full bloom, and every plant found is offered. This magnificent *Lælia* has the lip similar to Dawsoni, it being pure white with two crimson-purple blotches divided by a white line. The petals are very broad and pure white, and the flower altogether of large size: as many as six were seen on spikes. The importation is in grand order, enormous masses among them, some with upwards of 300 bulbs, and 10 feet and more in circumference. The dried flowers will convey an idea of the beauty of the species.

**MESSRS. PROTHEROE AND MORRIS** have received instructions from Mr. F. Sander to **SELL** the above splendid novelty at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, February 3.

*On view morning of Sale and Catalogues had.*

**WEDNESDAY NEXT.—(Sale No. 6836.)**

**WHITE LÆLIA ANCEPS**  
*IN MAGNIFICENT MASSES.*

**MR. J. C. STEVENS** will **SELL** by **AUCTION**, at his Great Rooms, King Street, Covent Garden, W.C., by order of Messrs. SHUTTLEWORTH, CARDER & CO., on **WEDNESDAY NEXT**, February 4, at half-past 12 o'clock precisely, a grand importation of the beautiful and rare **WHITE LÆLIA ANCEPS**, including magnificent masses with several hundred bulbs, in splendid condition. The finest importation ever introduced. (See dried flowers.)

Also **ODONTOGLOSSUM CRISPUM (ALEXANDRÆ)** the finest type possible to collect, grand masses, and in splendid condition; **CATTLEYA TRIANÆ**, from a new district; **LÆLIA AUTUMNALIS** (received as **ATRO RUBENS**), **LÆLIA ACUMINATA**, and **ONCIDIUM KRAMERIANUM**.

*On view morning of Sale, and Catalogues had.*

**THURSDAY NEXT.—(Sale No. 6837.)**

**LÆLIA ANCEPS—NEW WHITE TYPE.**

**MR. J. C. STEVENS** will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. SANDER, on **THURSDAY NEXT**, February 5, at half-past 12 o'clock precisely, a truly grand importation of a magnificent **LÆLIA ANCEPS**—white type. The flowers are very large and fine, petals very broad and pure white, and the flowers are nearly 5 inches across, lip pure white, the throat dark crimson veined and blotched, the colouring being most vivid. A large quantity of dried flowers on view will convey an adequate idea of the great beauty and value of this species. The plants were collected by Mr. Arnold, and are in grand order, great masses being among them.

At the same time will be sold a fine light-coloured form of **LÆLIA ANCEPS**. Mr. Bartholomæus, who collected this lot in a new locality, writes that the flowers are large, sepals and petals rose, lip very light-coloured, in some varieties almost white, throat crimson veined.

*On view morning of Sale, and Catalogues had.*

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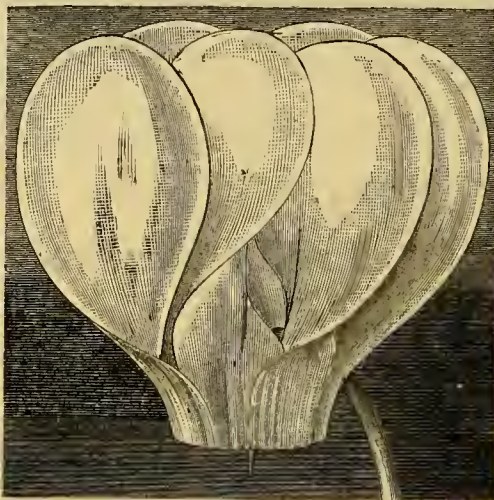
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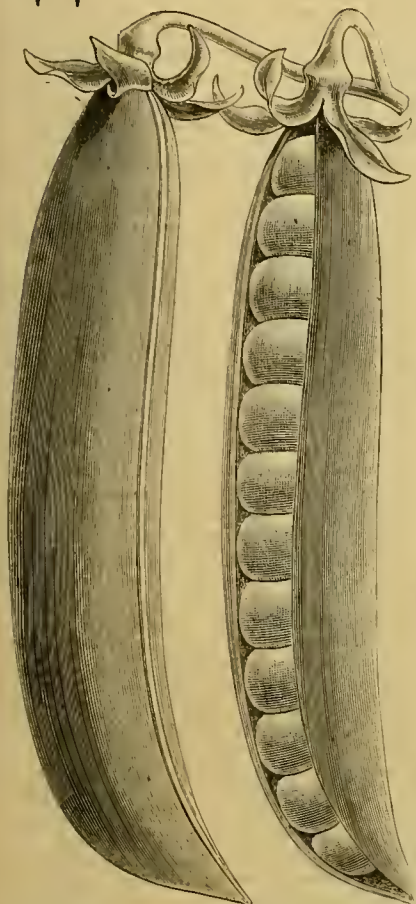
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THE

## Gardeners' Chronicle.

SATURDAY, JANUARY 31, 1885.

## THE KENTISH RIVIERA.

NO one approaching the grey shores of Albion from the "other side," and witnessing the low cliffs of Ramsgate or the barren sea wall between Dover and Folkestone, would imagine that westward of the latter town, between that rising port and the long low flats of Romney Marsh, there was a district which may fairly bear the title we have given it. Geologists and naturalists know that the Warren on the east is a place to revel in, but few of them would choose it as a winter residence, or think that within a mile or two westward there is an undercliff which from the mildness of its climate and the luxuriance of its vegetation might fairly vie, save in extent, with the better known district in the Isle of Wight; yet within a mile or two of Folkestone, at the base of the Greensand cliffs, is a district where Camellias grow into large bushes, covered in the season with thousands of blooms, which would do no discredit to a conservatory; where the Blue Gum, *Eucalyptus globulus*, rears its head regardless of frost (in ordinary winters); where the Hawthorn-scented *Aponogeton* clothes the pools with its singular white flowers; and where *Hydrangeas* luxuriate as they might in some corner of Devonshire: one measured some 45 feet round, by 5 feet in height. Yet all these may be seen at Enbrooke and at Encombe, both gardens at the back of the long straggling town of Sandgate, facing due south to the sea, and backed up on the north by cliffs of sand and clay—treacherous because filled with water, which percolates through the sand to the clay, and renders the latter slippery to a degree, that houses crack and have to be rebuilt on safer sites.

At Enbrooke, the seat of Lord Pelham, are the Camellias we spoke of. There, too, is a fine *Araucaria*, covered with male catkins; there is a massive Pine of the *Tæda* section, with groups of evergreen Oaks, Hollies, and Irish Yews. *Arbutus* thrives, and *Cupressus macrocarpa*, where not exposed to wind, forms a dense green shelter that recalls the glorious belts of the fine Conifers around the Laureate's residence at Freshwater. The Pinaster grows, it is true, to large size, but its gaunt trunks and scraggy branches, even though laden with cones, are not attractive. The mansion stands back on rising ground with a full view of the sea and backed by plantations nestling under the bare hills known to military men as Shorncliff. It is a house of many gables overlooking a terrace-garden with radiating flower-beds, glowing with colour even in November—*Vesuvius*, *Tom Thumb*, and *Beauty of Calderdale* *Pelargonium*, and the purple velvet *Spitfire* *Petunia* lending colour even so late in the season. *Erica arborea* forms bushes that once more recall the Genoese hills, and along one side of the property runs a ravine clad with *Rhododendrons* and *Ferns*, and ablaze in spring with *Narcissus*, *Hoop Petticoats*, and other bulbs which thrive as if to the manor born. The glass



is not of great extent, but here Mr. Wright, the gardener, had a good show of Chrysanthemums, and a crop of Trophy Tomatos to make one's mouth water.

A little further west is Encombe, an amphitheatre of wooded banks facing south, where Escallonia macrantha, big Myrtles, and a fine Eucalyptus testify to the mildness of the climate, but where the house about to be pulled down reveals cracks which remind one that it is not only earthquakes that have to be reckoned with. Magnificent Bay trees, Hydrangeas, Abutilons, Bouvardias all stand out-of-doors unburnt save in exceptional seasons; and here Richardia æthiopica (the so-called Arum Lily) and Aponogeton make the pools gay. The great enemy here is the south-west wind, which sometimes blows like a hurricane, covering the foliage with salt deposit. But for this, almost anything will thrive, the common Cherry Laurel being one of the exceptions. Eonymus japonicus, Ligustrum latifolium and L. ovalifolium form admirable seaside shrubs. Pittosporum Tobira forms no bad substitute for Orange blossom, and close to the sea the Tamarisk waves its elegant plummy branches and pink flower-spikes as if salt spray and rude winds did not exist. Encombe has lately changed proprietorship, but the gardener, Mr. Brown, takes a pride in showing what can be grown in a district where the ordinary observer confined to the dusty highroads or stony beach would imagine nothing but the hardest of hardy things would grow.

The Folkestone lower road, to the east, runs at the base of a Greensand cliff, also richly clad with wild flowers and permeated by winding paths with here and there groups of Austrian Pines. Much might be done here by judicious planting. Clematises and hosts of showy wild plants might be introduced, but we dread to make the suggestion lest the wildness of the spot, already marred by trenches, earthworks, and paths, that suggest military roads rather than walks for civilian visitors, should be still further "improved." With such resources as Folkestone has in its undercliff, the greatest judgment should be exercised to develop its natural beauties, or at least to prevent their destruction, by well-meaning but incompetent improvement committees.

## New Garden Plants.

*LÆLIA ANCEPS SANDERIANA*, n. var.

BOTANICALLY this might be regarded as the same as *Lælia* a. Dawsoni; as matters stand actually, it would be more than risky to put this grand plant into the trade under the above-quoted name; for there is a difference, and the difference is a well-marked one, recognisable by every one. In the elder variety there is an entire transverse purple zone on the anterior part of the mid-lacinia. In the fresh variety at hand there are two delightful purple eye-blotches at the same place, divided by a white area. The plant may fitly bear Mr. F. Sander's name. The sepals and petals are described as ivory-white. The markings of the disc are as vivid as in Dawsoni, the yellow would appear to be darker. *H. G. Rehb. f.*

*BARKERIA ELEGANS* AND *CYCLOTELLA*.

The writer of those lines in the last issue, p. 115, should look to *Gardeners' Chronicle*, xiii., not only to p. 72, but to p. 112, also in the very centre of the page. There it is stated that the woodcut represents probably *Barkeria elegans*, although the description is of *Barkeria cyclotella*, sent first by Mr. Bull, then in a most admirable state by Mr. Day. After all such venerable orchidic patriarchs as Messrs. B. S. Williams and Dominy could be trusted for knowledge than to name old well-known *Barkeria elegans*. *H. G. Rehb. f.*

## A TRIP TO JEYPORE.

(Concluded from p. 108.)

In the parrot-cage I saw five parrots near each other on the ground; their colouring was grey on the wings and back, purple-pink on the chest and neck, and white on the head. I had before seen this kind of parrot as single specimens, but was never struck with its beauty till I saw these five together. It is evident that repetition of the same thing, whether bird or plant, or anything else, often adds to its beauty. I once saw something like 5000 pink pelicans on a lake—a sight never to be forgotten! A soldier in uniform, whatever this may be, walking alone through Oxford Street, looks very much like carnival; but make a regiment in line of such specimens, and see how much grandeur the whole assumes. It is the same with trees. A single specimen may be a fine thing, but a group of the same trees, or an avenue, acquires totally different characters from the single specimen. An avenue 100 miles long, however, is likely to bore the mind like a street organ always playing the same tune. These are the little things which have to be kept in mind in planning out extensive gardens. The charm consists in variety; in studying the effect of different shades of colour and form of foliage, and in putting before the eye, now and again, surprises in various ways, which the visitor does not see, and cannot see, till he turns round some corner, and beholds a novel picture—a *coup d'œil*—some grand specimen, or a blaze of colour. Mr. Dewes' scheme of book classification puts landscape gardening under the heading of "Fine Arts," and I think he is right. The ordinary artist, by combining imaginary scenes on canvas, often paints a pleasing picture. The landscape gardener, if everything be favourable—though his art, I think, is the more difficult of the two—should be able to make a real landscape by employing trees, shrubs, water, grass, buildings, &c., instead of paint. Flower beds are matters of detail which need not enter into the general scheme of a fine landscape.

I visited the old capital of the Jeyapore State—the city of Ambèr, now in ruins. It is in a small valley adjoining a small lake, and about 6 miles out of the modern capital. The palace and fort are on the top of an adjoining hill, and are interesting places. The surroundings are picturesque, but hardly deserve the eulogium Bishop Heber is said to have given the spot, viz., "that he never viewed a scene so striking, picturesque, and beautiful." In the valley of Ambèr, close to the lake, I saw a few Mango trees, which appeared to do well. I do not know which is the more interesting—Ambèr itself or the road to it, strewn, as it were, on both sides with the ruined mansions of the grandees of past generations.

On the way back I went to see the crocodiles, in an immense tank in the city. This is a curious and rather interesting sight. Some meat is taken for these animals. They are called by the keeper from the feeding point, which is a sort of balcony overlooking the tank. The call is a hideous and prolonged shout, I suppose in crocodile language. Anyhow, they understand it perfectly, as, soon after, they start from all directions of the distant banks, and a number of crocodiles' noses are seen approaching towards the feeding point, each cutting the surface of the water, and producing two small diverging waves. When they all congregate under the balcony, a piece of meat is tied to a rope, and the crocodiles are played with and tantalised by dangling the meat before them. The interior of their enormous jaws is of a pretty primrose colour. It is stated there are several hundreds of them in that tank. There are also eight fine tigers in the city, and a young one, ten months old, said to have been born in the place.

The country on to Ajmere is the same as before described, with distantly scattered villages, and limited patches of cultivation. Many parts of the country have "Babool" trees (*Acacia arabica*), though stunted in growth. There does not appear any reason why millions of this tree should not be grown, for its bark, gum, and firewood. In one of the tanneries at Cawnpore I was told that Babool bark is richer in tan than Oak bark, and is extensively used there.

Rajputana appears to be well suited for horse-breeding, if rain were always to be depended upon. This year (1884) there is in many places plenty of grass; the climate is dry, and water, I was told, is not more than 30 feet below the surface, so that wells do not appear a difficult thing to sink. I fancy the real difficulties are people and money. Of these

there appears to be a sufficiency to make a good beginning, if the different princes were not oriental. In the cities a large part of the population is non-productive, consisting of mere hangers-on of the palace so that the waste of money in display is enormous.

### AJMERE

is a very interesting city, full of archæological remains, with many buildings and tombs of the time of the Mahomedan dynasty. Many of the latter are about 400 years old. Near a shrine, on the top of a hill, called "Tara Gur," I saw a Jessamine tree (*Jasminum grandiflorum*), with a stem 12 inches in circumference. From various cross-examinations which I was able to make, I came to the conclusion that it must be a hundred years old, if not more. There is one of similar circumference near another Mahomedan shrine in the city. Both were flowering as if age were nothing to them. Near the latter shrine I saw an old *Mimusops Elengi* (Mulseri), a Tamarind tree, and a *Mimusops Kauki* (Khirmi), which were said to have been planted at the time the shrine was built, that is, about 400 years ago. I had not, however, any means of ascertaining the truth of this. The trees looked old but healthy, and appeared as if there were still a long life in them.

In Ajmere there is a nice little public garden which would admit of being vastly improved and made picturesque, owing to its being on a hill side. On the upper part of this garden there is a small lake, bordered by several marble halls of the Mahomedan period. These, by a species of vandalism, were built up and turned into houses and offices, and the marble columns whitewashed. One of them is now being restored, and it is hoped, for the sake of the British name, that all the others will be also restored.

About 6 miles from Ajmere is Pūshkar, the holiest of all holy places of all India. It is the only place in India where there is a temple dedicated to Brahma. I visited this place on a holy day, the great fair and bathing day of the year, on the occasion of a full moon. There was a crowd of about 50,000 people, all in their holiday dresses. They looked very picturesque. There is a small lake, surrounded by hills, and edged on one side by bathing steps, the town, and its temples. A crowd of that size, staying there several days, does not retire without leaving dirt of all sorts. This dirt is washed down annually into the lake, the water of which is considered very holy. The people bathe in it and wash their underclothing in it. Most of them do not depart without drinking some of this very holy water. It contains turtles and crocodiles, and is of the colour of brown soup.

I did not notice any trees of any consequence on the way. The sides of some of the hills are clothed with small stunted trees, and the forest officers, I was told, are employed reforesting others. There can hardly be any doubt that, in olden times, these hills were covered with forest, now most of them are as bare as one's hand.

On the top of "Tara Gur" are barracks, which are used as a sanatorium for invalid European soldiers. Here I noticed a very strange thing. Drinking water on the top of this hill is very precious, as there are no springs; and yet the annual rain water from the flat clean roofs of the barracks and other houses, is allowed to run off and down the hill, while numbers of water-men are employed with bullocks and skins to fetch bad drinking water from the bottom of the valley, or from Ajmere, 1000 feet or more below the barracks! The water from the surface of the hill is caught in tanks, but is only fit for washing; while the best and cleanest drinking water (rain water) from the roofs of the houses and barracks is thrown away, or allowed to mix with the general drainage water! Yet every one you meet tells you the water of Ajmere is very bad!

Ajmere is the headquarters of the Rajputana-Malwa railway, and will probably one day become the Oxford of Rajputana. The Mayo College in marble is all but finished. This, with the boarding houses of the different states, each built in stone, and in a different style of oriental architecture form an interesting group of modern buildings. With so much engineering talent and learning looming in the future, Ajmere ought before long to be provided, not only with good water, but with many things that a civilised life may wish for.

### AGRA.

I never pass through Agra without staying to have a look at the Taj and its garden. The monument affords a repose to the mind which no other form of architecture appears to give; and the garden is still largely preserved in the old Mohammedan style, with



wide stone walks at right angles to each other, and shaded by old tall trees, many of which are common Mangos. Many of these trees, however, are now decrepid, and only fit for firewood. An attempt is being made to raise young trees, so as not to leave the walks bare when the old trees are cut down; but

Third, they can make little growth, as the roots of the old trees rob their soil of its water and its nourishment. A few years of open air and open soil would have made finer specimens of these young Mahogany trees than they are now ever likely to make. *E. Bonavia, M.D., Etawah.*

albumen and fibrin, and hence the explanation of its peculiar properties.

Papain has even been used successfully to soften and loosen the membranous outgrowth from the skin of the throat, which is attended with such fatal results in cases of diphtheria. Fig



FIG. 25.—PAPAW TREE : *CARICA PAPAYA*.

the operation is an instance of what bad gardening can do. Under some old Mango and other trees near the monument, an attempt is made to grow a row of young Mahogany trees. First, the lower branches of these young trees are removed, so that the stem and upper branches are imperfectly nourished, the main stem being thin and crooked. Second, the shade of the big trees is injuring the young ones beneath, so that what growth they make is weak and imperfect,

### THE PAPAW.

To those accustomed only to see small plants in hothouses, our illustration (fig. 25), showing the size to which the plant attains in Mexico, may come as a surprise. The Papaws are permeated by a milky juice, which has the singular property of rendering tough meat tender; in fact, the active principle, Papain, has been proved to have a soluble effect on

leaves, according to M. van Volxem, have similar properties.

In our stoves the Papaws are handsome shrubs or trees, with bold palmately-lobed leaves, and clusters of small cream-coloured bell-shaped flowers, containing, some stamens, others pistils. Sometimes the sexes are on different trees, sometimes on the same, and we have more than once met with flowers which bore stamens and pistils within the same flower. The



matter is of some importance because, of course, if a purely male plant be cultivated no fruit is obtained, and the fruit, though of little value as an article of diet in this country, is ornamental and striking in appearance. In the tropics it is used in a cooked condition, in curries, pickles, &c. There are several species, the best known is *C. papaya*; *C. cundinamarcaensis*, so-called from Cundinamarca, a State in New Granada, is of smaller stature; *C. erythrocarpa* has crimson fruit. *M. van Volxem* has raised various hybrids interesting for the beauty of their fruits, and of some of which we have given illustrations on a former occasion, vol. xix., 1883, p. 445.

### SUDDEN APPEARANCE OF BRITISH PLANTS.

AFTER the completion of a narrow-gauge railway on the Penryn Castle estate, I was not a little surprised to see in what an almost incredibly short space of time many plants appeared on the cuttings. First to attract attention was a goodly number of the Great Mullein (*Verbascum Thapsus*), which sprang up the following season on a rocky cutting near Port Penryn, and in a situation where I was not before aware of its existence although I had occasion, almost weekly, to pass the place previous to the formation of the railway. Other plants which appeared in quantity were the Foxglove (*Digitalis purpurea*), the trailing Hypericum (*H. humifusum*), and the wall Veronica (*V. arvensis*). The most remarkable appearance was, however, that of the Butterfly Orchis (*Habenaria bifolia*) which sprang up and flowered the following season after the completion of the railway. The cutting in which it appeared was in some places upwards of 20 feet in depth, and the plants came up at distances below the former level of the ground of from 6 to 10 feet. As this Orchid cannot flower from seed in a single season, it is apparent that the tubers must have remained dormant in the ground for a very long period, and until placed in a suitable medium for their development, for I certainly collected large well-formed spikes of bloom the following season, after the cutting was formed. The probability that the tubers may have been introduced with any surface-dressing is not consistent with facts, apart from the well-known difficulty that is always experienced in getting the plant established in a new habitat. A somewhat similar case to the above came under my notice a few years ago, in which the same Orchis appeared in great quantity in a newly-thinned plantation, and where I am fully convinced no plants had been seen for a number of years previously. *A. D. Webster.*

### NOTES ON THE CULTIVATED ASTERS.—VIII.

(Continued from p. 48.)

**SUBGENUS III, BIOTIA.**—Differs from *Euaster* by its unflattened achenes and shorter leafy points of the bracts of its multiserial involucre. Connects the genus *Aster* with *Olearia* (*Eurybia*) of Australia and New Zealand. Only two species, confined to North America.

39. *A. corymbosus*, Ait. *A. divaricatus*, Linn. Herb. *Eurybia corymbosa*, Cass. *Biotia corymbosa*, DC.—Stem, 1½–2 feet long, slender, flexuose, hairy upwards. Leaves cordate-ovate, all except the uttermost distinctly petioled, acuminate, thin in texture, sharply serrated, slightly hairy on both surfaces; upper leaves ovate-lanceolate, sessile. Heads many, arranged in a lax corymbose panicle. Involucre campanulate, ¼ inch in diameter, well imbricated; bracts all with short semi-orbicular erect green tips. Ligules 6–10, linear, whitish, ½ inch long. Achene cylindrical, glabrous; pappus pale red, ½ inch long.

Canada to Georgia, in woods and thickets.

40. *A. macrophyllus*, Linn. *Eurybia macrophylla*, glomerata, and Schreberi, Nees. *Biotia Schreberi*, latifolia, glomerata, and *macrophylla*, DC.—Stems stouter than in the last, 2–3 feet long, slightly hairy only towards the top. Leaves cordate-ovate, all except the uppermost distinctly petioled, acute, shortly serrated, firmer in texture than in the last; the lowest sometimes 5–6 inches long and broad, with a petiole longer than the blade; upper leaves sessile. Heads many, arranged in an ample panicle with corymbose branches. Involucre campanulate, ¼–½ inch diameter; bracts in several rows, all with semi-orbicular erect green leafy tips. Ligules

10–15, whitish or pale lilac, ½-inch long. Achene cylindrical, glabrous, ½-inch long; pappus pale red, moderately firm in texture, flexuose, a little longer than the achene.

Common in woodlands in damp or rich soil, from Canada eastward to Manitoba and southward to Georgia. As will be seen from the synonymy this is very variable, the name as interpreted by Dr. Gray covering four species as defined in De Candolle's *Prodromus*.

**SUBGENUS IV, ORTHOMERIS.**—Bracts of the involucre dry and uniform in texture throughout, with erect tips, generally well imbricated. Ray-flowers fertile; achenes rather flattened. Pappus moderately firm in texture. Next to *Euaster* this is the largest of the nineteen subgenera, but as adapted for gardening purposes it does not deserve a very high character. It contains altogether about forty species, five of which belong to the Eastern and sixteen to the Western United States, six to the Himalayas, one (*Aster Willkommii* of Schultz) to Europe, and the remainder to Siberia, China, and Japan, where it is the dominant type. I shall notice only the six species we possess at Kew at the present time in a living state.

41. *A. altaicus*, Willd. *A. angustifolius*, Lindl. *A. spartioides*, Clarke. *Calimeris altaica* and *canescens*, Nees. *Galatella juncea*, Lindl.—Stems many, from a woody rootstock, erect, varying from a few inches to 1½–2 feet in length, sometimes much branched. Leaves oblanceolate, obtuse, sessile, entire, scabrous, the lower not more than 1–2 inches long. Heads solitary or few, in a corymb at the end of the branches. Involucre campanulate, ¼ inch in diameter; bracts few, lanceolate, nearly equal in length. Ligules about twenty, whitish, under ½ inch long. Achene densely silky; pappus pale red, flexuose, nearly ½ inch long.

A characteristic Central Asian type, extending from Afghanistan and the temperate region of the Western Himalayas through Siberia to China.

42. *A. glaucus*, Torrey and Gray.—Stems 1–2 feet long, much branched, quite glabrous up to the very summit. Leaves lanceolate, entire, sessile, glaucous, glabrous, acute or subobtus, the lower 2–3 inches long. Heads numerous, forming a lax ample panicle with corymbose branches. Involucre campanulate, ¼ inch in diameter, well imbricated; inner bracts lanceolate; outer oblong. Ligules 12–15, bright lilac, linear, ¾–½ inch long. Achene hairy, ½ inch long; pappus pale red, flexuose, ¼ inch long, much protruded from the involucre.

Rocky Mountains, Wyoming, to Utah and Colorado. A very distinct type, introduced into cultivation from seeds collected by Dr. Parry.

43. *A. ptarmicoides*, Torrey and Gray. *Diplopappus albus*, Hook. *Heleastrum albus*, DC. *Doellingeria ptarmicoides*, Nees. *Eucephalus albus*, Nutt.—Stems tufted, erect, much branched, hairy upwards, 1–2 feet long. Leaves crowded, ascending, lanceolate, entire, acute, firm in texture, the lower petioled, 3–4 inches long, the upper sessile. Heads many, arranged in a lax corymbose panicle. Involucre broadly campanulate, multiserial, ½ inch in diameter; bracts green, but rigid. Ligules 20 or more, pure white, ¼ inch long. Achene glabrous, hardly at all flattened; pappus white, ½ inch long, its bristles very numerous, unequal, the largest thickened towards the tip, strongly ciliated.

A very distinct and widely spread species, extending from New England to Georgia, Colorado, Illinois, and the Saskatchewan.

44. *A. tenuifolius*, Linn. *A. flexuosus*, Nutt. *A. sparsiflorus*, Pursh. *A. Tripolium*, Walters, non Linn.—Stem weak, slender, erect, glabrous, 1–2 feet long, more or less branched. Leaves few, distant, linear, entire, the lower 3–4 inches long. Heads solitary, or few in a lax corymb at the end of the branches, involucre obconic, multiserial, ½ inch diameter; bracts lanceolate-acute; ligules bright lilac, lanceolate, ½ inch long. Achene hairy, ½ inch long; pappus soft, fragile, dirty white, rather longer than the achene.

Salt-marshes of the coast from New England southward to Florida. *A. Chapmanni* of Torrey and Gray is a rare nearly allied Floridan species. Both of them resemble in habit our European *Aster Tripolium*. The plant called *Chapmanni* in English gardens is totally different, and is a variety of *turbinellus*.

45. *A. nemoralis*, Ait. *A. uniflorus*, Michx. *A. ledifolius*, Pursh. *Galatella nemoralis*, Nees.—Stems slender, erect, densely leafy, pubescent, simple, 1–2 feet long. Leaves crowded, lanceolate, all small, sessile, and entire, the lowest only 1–1½ inch long. Heads few,

in a lax simple corymb, sometimes solitary. Involucre broadly campanulate, well imbricated, ½ inch diameter; bracts lanceolate, green, acute. Ligules 10–20, bright lilac, ½ inch long. Achene hairy, rugulose compressed; pappus copious, flexuose, pale red, ¼ inch long.

A boreal species, extending from Newfoundland and the shores of Hudson's Bay southward through Canada to New Jersey.

46. *A. acuminatus*, Michx. *A. divaricatus*, Lam. non Linn. *Diplostephium acuminatum*, DC.—Stems simple, erect, pubescent, flexuose, 1½–2 feet long. Leaves large, thin, obovate-oblong, acute, sessile, sharply serrated, the central ones 3–4 inches long, 1½–1 inch broad, narrowed gradually from the middle to the base. Heads numerous, arranged in a lax panicle with corymbose branches. Involucre broadly campanulate, ½ inch diameter; bracts few, pale green, lanceolate, acute. Ligules 10–12, linear, white or pale lilac, under ½ inch long. Achene slender, ½ inch long; pappus copious, flexuose, whitish, twice as long as the achene.

Damp, cool woods, Labrador to Pennsylvania, and along the mountains southward to Georgia. *J. G. Baker.*

(To be continued.)

### THE CULTIVATION OF PLUMS UNDER GLASS.

FROM a commercial point of view this mode may be deemed inexpedient, because whenever our crop of Plums fails out-of-doors, we get an abundant supply of others for our markets from other places. This is unquestionably the case with respect to culinary kinds if not with the choicer kinds; but apart from these considerations, and looking at the subject from a purely horticultural point of view, it is an inexpensive method that is full of interest, and, therefore, should be recognised and encouraged, and the crop secured, whatever conditions of weather may prevail outside. The season of ripening is entirely under control, the fruit is free from the depredations of insects and other pests if proper precautions against them are taken, and, above all, there is the pleasure and satisfaction of producing fruit when it fails out-of-doors, or otherwise is of an inferior description. Plum-houses are already established in some gardens, and form an interesting feature and a very attractive one when the trees are in blossom or laden with fruit. I consider that grand old variety, *Coe's Golden Drop*, to be worth a house almost everywhere in this country, and particularly in northern and cold districts where it only ripens properly in most favourable seasons, and then rarely assumes that beautiful golden appearance which is essential to get it to perfection.

Plum trees require a well ventilated structure, with plenty of light; in form a lean-to or span will answer. This should be furnished with about two 4-inch bot-water pipes all round, so that a temperature of about 40° at night and 50° in the daytime can be maintained under any circumstances. The border should be made of good calcareous loam, about 3 feet in depth, and should be drained properly. The trees may comprise those in cordon form, and be run up at about 18 inches beneath the rafters or bars of the house, at about 4 feet apart, or the trees can be trained on trellises, similar to Peaches, at the aforementioned distance from the glass. The following may be selected as being good kinds for the purpose, viz., *Rivers' Prolific*, *Green Gage*, *Jefferson's*, *Kirke's*, *Denyer's Victoria*, *Reine Claude de Bayay*, and *Coe's Golden Drop*; the latter kind should be plentifully planted, by reason of its keeping properties, as well as being the best Plum in cultivation.

Owing to the vigorous habit of these trees, it will be necessary to check growth in some degree; therefore, when the trees are fairly established in the border, the roots will need to be curtailed by cutting them back somewhat, or partially lifting them, in order to make the trees fruitful and keep them in a bearing state. Water should be given copiously throughout the growing season, and the borders should never be permitted to become very dry.

#### TREATMENT.

As Plum trees are very impatient of fire-heat, especially during the early stages of growth, particular care should be exercised in this matter. Use no artificial heat at night if the house will stand at 40°, and 50° by it will be ample in the daytime until such time as natural means will provide what more is required. It should be given at all times except when very severe weather prevails, and as liberally as the



surrounding circumstances will admit—scarcely too much of it can be admitted at favourable times. Ordinary attention to syringing, training the shoots, and stopping them, will of course be necessary, and after the cleaning of established trees is finished it is advisable, before the flowering time comes, to well fumigate the house, or else syringe the trees over with quassia or tobacco water to free them from any insects which may abound and subsequently prove very troublesome and detrimental to the well-doing of the trees. *G. T. Miles, Wycombe Abbey.*

## PALMS.

THE following notes refer to some of the larger Palms now growing in the Palm-stove of the Royal Botanic Garden, Edinburgh, and were originally laid before the Botanic Society of Edinburgh:—

On the completion of the new Palm-house at the Royal Botanic Garden in 1858 the late Professor Balfour read to the Society a paper giving a detailed account of this fine structure, including a description of some of the larger Palms then growing, and mentioning their respective heights. The late Mr. MacNab also communicated to the Society from time to time much information regarding them. The object at present is to record the progress that has been made during the last twenty-seven years by those plants which still exist, and also to give some information regarding younger plants, several of which give indications of ere long outstripping the older ones. Of the old Palms the largest is a fine specimen of *Livistona chinensis*. The height of this tree in 1858 was 42 feet; in 1875, 45 feet; and it is now 49 feet high, showing an increase of 7 feet in twenty-seven years. The circumference of the stem at the base was 6 feet in 1875; it is now 6 feet 3 inches. It has a clear upright stem, 33 feet in height up to where the lowermost leaf is given off, and is in vigorous health for so old a plant. Of *Scaevola elegans* there are two plants, now nearly equal in every respect. In 1858 the taller one measured 26 feet in height; both plants are now 47 feet 6 inches in height (an increase of 21 feet 6 inches in twenty-seven years). They have clear stems 30 feet high, and their circumference at the base is 3 feet 3 inches. For the latter measurements there exist no data for comparison. There are eleven fully developed leaves on each plant, averaging 14 feet in length. These two fine trees are in vigorous health, and are likely to go on improving for years to come. *Corypha australis* in 1858 measured 23 feet in height; it is now 41 feet. It has a clear stem of 20 feet 4 inches, and measures 3 feet 3 inches at the base. *Phoenix silvestris* in 1858 was 20 feet high; it is now 30 feet 4 inches, with a clear stem of 14 feet, the circumference at the base being 1 foot 7 inches. The leaves are 11 feet 6 inches in length, mostly curved downwards, and forming a fine canopy of foliage. The most remarkable of the older Palms is the well-known example of *Sabal umbraculifera*, the Bull Palm of the West Indies. This grand tree was 30 feet high in 1858, and it is now 36 feet 4 inches. In 1858 the circumference of the stem at the base was said to be 5 feet 6 inches; ten years later 5 feet 4 inches is given; it is now 5 feet 3 inches; it seems difficult to explain how this has happened. In 1874 it had a clear stem of 14 feet, and the circumference below where the lowermost leaf is given off was 3 feet. It has now 17 feet 4 inches of a clear stem, and the circumference at the top is 3 feet 1 inch. The greatest difference occurs in the length of the leaves, which was, then 16 feet, the leafstalk being 10 feet, and the blade 6 feet long by 5 feet 6 inches broad; now the leaves measure 12 feet 6 inches, viz., 7 feet of leafstalk, and 5 feet 6 inches of blade; there is an increase, however, in the breadth, which is now 6 feet 8 inches. The smaller size of the leaves made may probably be an indication of diminishing vigour, owing to the great age of the tree; otherwise it appears to be perfectly healthy, and is developing numerous young leaves and abundance of flowers and fruit. The latter is produced in such quantity that it requires to be cut off occasionally to prevent the tree from exhausting itself too much. Since its removal ten years ago to its present position in the centre of what was formerly the old Palm-house, it was grown until last spring in a wooden box 7 feet 10 inches square by 5 feet deep, and rested on the floor of the house, which formed the bottom. Owing to the heat and moisture the box had become very much decayed,

showing the roots of the plant protruding in several places; it therefore required to be furnished with a new box. As the tree was resting on the floor, and in the best possible position, in the centre of the house, where it gets the light all round, no advantage was to be gained by moving it. Instead of the usual wooden tub, it was thought advisable to have a permanent structure built round it. When the square boards were removed to allow of this being done, a dense mass of roots was disclosed. The corners were carefully forked out, and any old soil that could be got at taken away. The whole ball was then covered with mats, and soaked with water. A stone tub or wall 34 feet 6 inches in circumference, 18 inches thick at bottom, tapering off to 12 inches at top, and 5 feet deep, was then built round it; openings were left at the bottom for drainage, and spaces round the sides for Ferns and other plants to grow in when the building was finished, additional drainage material and fresh soil were inserted; Ferns, *Ficus stipularis* and other plants, were planted round the sides and margin so as to cover the stonework. Being circular it takes up less room than it did formerly, and has also a much better appearance. Regarding the age of this tree, the late Mr. MacNab gave some interesting facts in a communication to this Society in 1874. He says: "This tree cannot be less than sixty years old. It was removed from the stove of the old Botanic Garden at Leith Walk, in 1822, and was kept in a lean-to house in the present garden for thirteen years. This house being only 18 feet high at back and 7 feet in front, it was greatly hampered." Assuming the Palm to have been only 16 feet high when removed from this lean-to house in 1835, it has thus made 20 feet 4 inches in fifty years, to attain its present height of 36 feet 4 inches. This is equal to an increase of nearly 5 inches per annum. If the same ratio be applied to the 16 feet formed previous to 1835, that would give the age of our tree as being over eighty-eight years. We know, however, that during its infancy this species of *Sabal* makes very slow progress. For the first eight or ten years it produces long, simple, undivided leaves, after which it assumes the more or less divided palmate leaves characteristic of the adult plant. The seeds are consequently not in demand by nurserymen and others who require plants that will have a good appearance quickly. Many species of Palms, *Livistona*, *Scaevola*, *Chamaedorea*, and others, assume their characteristic adult foliage, though in miniature, in from three to four years from the time of sowing the seed, and then make useful plants for decorative purposes, whereas *Sabal umbraculifera* requires from sixteen to twenty years to become in any way effective.

A seedling from our Bull Palm, raised certainly not less than eighteen years ago, is now 6 feet high, measured to the tip of the leaf, and has 7 inches of stem. This is the largest of our young plants, and has thus increased at the rate of 4 inches per annum. Assuming that the old plant increased at the same rate while forming its first 6 feet of growth, and allowing the remaining 10 feet to have increased at the same rate which the plant has made during the last fifty years, viz., 5 inches per annum, this would give ninety-two years as the lowest approximate age of our tree.

Regarding some of the younger Palms which have not been measured hitherto, the largest is a fine plant of *Euterpe edulis*. It is now 47 feet 6 inches in height. It has a clear stem of 34 feet 9 inches, and the circumference at the base is 1 foot 10½ inches. This plant has made very rapid progress. It was removed from the east range of houses fifteen years ago, and was from 12 to 13 feet high at that time. It was then growing in an earthenware pot 16 inches wide, and is now in a tub 5 feet wide, by 3 feet 10 inches deep.

*Cocos plumosa* is 44 feet 9 inches high, and has 30 feet of a clear stem. The circumference at the base is 4 feet 8 inches, and it is about thirty years of age.

*Caryota excelsa* measures 37 feet 7 inches in height. It has a clear stem of 18 feet, and the circumference at the base is 3 feet 1 inch.

A young vigorous plant of *Cocos Romanzoffiana* is 34 feet 4 inches high, and it has a clear stem of 22 feet 8 inches, the circumference at the base being 3 feet 10 inches. This plant was received from the nurseries of Louis van Houtte, at Ghent, in 1865, and is now about twenty-six years old. These large Palms, with the exception of *Sabal umbraculifera*,

already mentioned, are all growing in round wooden tubs, made of Oak, and placed on rollers. The principal advantage of this system of having the plants in tubs instead of their being planted out in the ground of the house is the comparative ease by which they may be removed to other parts of the house, when they become crowded. It is just five years since most of the larger plants were retubbed and arranged. Several of them have already become so crowded that considerable rearrangement will be again necessary. Another important advantage is, that we are thus enabled, by occasionally turning the plants round, to assist them materially in keeping their stems upright. In certain portions of the house, when they remain too long in one situation, the leaves become drawn to the position of most light, which ultimately causes the stem to become bent. *W. Lindsay.*

## HISTORY OF ORCHIDS AT KEW.

ON considering the great number of exotic Orchideæ, now introduced and cultivated in this country, and the high prices they realise at public sales, it occurred to me that a brief history of the early introduced species, and their gradual increase, might be interesting to your readers. In the last edition of *Miller's Gardeners' Dictionary*, published in 1768, about thirty species of *Epidendrum* are noticed, of which he says "But as the plants cannot, by any art yet known, be cultivated in the ground, it would be to little purpose to enumerate them; though could the plants be brought to thrive, many of them produce very fine flowers of uncommon forms." He further says, that he had "Three species sent from America, which he planted with care in pots, and placed them in a stove where they showed their flowers, but the plants soon after perished."

In Aiton's first edition of *Hortus Kewensis* two species of *Epidendrum* are described, namely *E. cochleatum* and *E. fragrans*, as growing in the gardens in 1789, and Dr. (afterwards Sir J. E.) Smith says:—"We have scarcely seen any one species of this genus, except in a dry state, before the year 1787, when *E. cochleatum* flowered at Kew; nor was it till October, 1788, that *E. fragrans* of Swartz exhibited its fragrant and elegant bloom in the same rich collection. At present, several species are to be seen flowering in the spring and autumn. The following were in a thriving state in the Royal Gardens, Kew, in 1794:—*Epidendrum coccineum*, *E. secundum*, *E. lineare*, *E. ciliare*, *E. cucullatum*, *E. ensifolium*, *E. ophioglossoides*, *E. ruscifolium*, *E. fuscum*, *E. tripterum*, *E. Barringtoniæ sessile*, *E. altissimum sanguineum*, *E. natans*, and *E. glaucum*. They are all cultivated in the stove, with very great heat; being mostly parasitical they flourish best with fragments of half-rotten bark at their roots. They may be increased by parting their roots, or what is commonly called offsets, of which they generally have plenty." In the second edition of *Hortus Kewensis* (published in 1813) 115 species are enumerated, of which thirty-one are British and eighty-four exotics, the greater number being epiphytal and natives of the West Indies, a few of the East Indies, Cape of Good Hope, and New South Wales.

In the early part of the present century Dr. Roxburgh sent from India *Cymbidium aloifolium*, *C. præmorsum*, *Aërides odoratum*, *Geodorum purpureum*, *G. citrinum*, *G. dilatatum*, which, with the two recently introduced species of *Dendrobium*, *D. cucullatum* and *D. Pierardi*, and the West Indian epiphytal species, were in 1822 growing in pots on a back shelf of a low-roofed house, then called the propagation-house. In the spring of 1823 a collection was forwarded from New South Wales by Allan Cunningham, consisting of *Dendrobium speciosum*, *D. æmulum*, *D. linguæfolium*, *D. rigidum*, *D. pygmaum*, *Cymbidium reflexum*, and others.

### SPECIAL HOUSE FOR ORCHIDS.

It having become evident that the mode of cultivating these epiphytal Orchids was not successful, a portion of the end of the propagation-house was set aside for them, and a bed was formed, consisting of loose turfy soil interspersed with small portions of stems of trees, on which the plants were placed, where many of them grew freely, most of them rooting into the soil, and clinging to pieces of wood. He also between the years 1823 and 1828 forwarded about forty tuberous rooted species; they were planted in a bed of peat soil, mixed with chopped sphagnum and kept moist, contiguous to the preceding, where



they remained for several years, producing their curious flowers, all of which are figured in the *Botanical Magazine*. Between the years 1823 and 1825 a considerable number of species were received from Trinidad, forwarded by Mr. David Lockhart, the superintendent of the garden, amongst which were the first plants of *Stanhoea insignis*, *Oncidium Papilio*, *Lockhartia elegans*, *Catasetum tridecatum*, *Ionopsis pallidiflora*, and others, all of which were epiphytal, and many of them being sent growing on portions of branches as cut from the trees, which, being accompanied by instructions from Mr. Lockhart as to how they should be treated, led to the successful cultivation of epiphytal Orchids. A few species were also received from the Cape of Good Hope, one being the curious plant of *Bonatea speciosa*, and from Java and Australia *Calanthe veratrifolia*. On the removal of the house in 1836 they had to be transferred to another in which they did not thrive, and very few of these plants have since been imported.

Up to about 1830 Orchids were looked upon merely as curiosities in botanic gardens, and by a few amateur plant lovers, the only trade collection being that of Messrs. Loddiges, of the once celebrated Hackney nursery, who had early become interested in the cultivation of Orchids. Their list published in 1825 enumerates eighty-four species under thirty-one genera, but the flowering of *Stanhoea insignis* at Kew, and the splendid *Cattleya labiata*, *Mossiae*, and *crispa*, *Aérides odoratum* and *Saccolabium guttatum*, brought Orchids (then known by the general name of *Epidendrums*) into special favour with a few amateurs, one of the first and most enthusiastic being Mr. James Bateman, of Knypersly Hall, Cheshire. Their cultivation was taken up by the Horticultural Society at their gardens at Chiswick, where a house was set apart for their special cultivation, and led to houses being specially set aside for them elsewhere. They rapidly became popular and favourites at horticultural shows.

But to return to the progress of the Kew collection after 1826. New species were successively added, and in 1836 a low-roofed small house was altered and appropriated to their cultivation, in which they flourished for several years, growing and flowering freely. Shortly after the appointment of Sir W. Hooker as Director, in 1841, one of his first desires was to have the Orchid collection increased, and for that purpose a collection of 200 species of the commoner kind was purchased of Messrs. Loddiges. With this, importations, and presentations, the collection in 1848 amounted to 755; and in 1850 to 830 species and varieties.

By this time a large and spacious house was erected for their cultivation, but on account of its interior being fitted up with smooth stone and slate shelves, and its roof glazed with large squares of thick sheet glass, it was soon found that an atmosphere was generated ungenial to Orchids, and they had to be removed. Although placed under the management of three successive foremen recommended to the Director as adepts in the cultivation of Orchids, the collection greatly deteriorated under their management both in health and loss of species.

In 1862 the collection again revived, and lost species were restored; and in 1864, the time of my retirement, the collection amounted to 638, being 192 less than in 1850. *J. Smith, Ex-Curator, Royal Gardens, Kew.*

## CORYANTHES.

[IN our number for May 6, 1882, we gave a full description and illustrations of the extraordinary flowers of *Coryanthes elegantissima* (by mistake called *C. macrantha*). The article is too long for reproduction here, but we are glad to have the opportunity of adding the notes on the microscopical structure of an allied species, forwarded by Dr. Herdmann, which form a fitting complement to what has been before said. ED.]

On the surface of the column next the "pitcher," or lip, just above the entrance to the spout-like passage, the epidermal cells are prolonged into tooth-like projections or scales. These are arranged with considerable regularity in an imbricating manner, and all have their points directed downwards, i.e., towards the top of the column where the stigmatic surface is. Figure 26 shows the arrangement of these scales:—

A is a surface view, B is a small part of A more highly magnified, while C gives a profile view as seen in a section. This structure looks as if it was intended to prevent bees from climbing up the column instead of creeping through the passage.

The inside of the bucket-like lip itself is, so far as I examined it, perfectly smooth, being lined by epidermal cells with flat surfaces.

The "horn," H, fig. 28, which produces the slightly sweet fluid is somewhat difficult to sectionise on account of its softness and stickiness. First, I examined it fresh and made some sections, then I put the remainder in absolute alcohol for a week, and afterwards made a further examination of it, and took another series of sections. The superficial layer of cells all over is formed of moderately thick-walled, very protoplasmic cells, with distinct nuclei (fig. 29, A). They are nearly cubical, or in some cases elongated vertically. Fig. 29, C, shows a surface view of these cells. Underneath this layer lies ordinary thin-walled parenchymatous tissue (fig. 29, A). In the sections made from the fresh "horn," the protoplasm of the superficial cells contained a great many spherical clear bodies of various sizes, and these in many cases contained two or three smaller rounded bodies (see fig. 29, B, which is a highly magnified representation). These were not starch grains; they stain yellow with iodine. They were probably not oil globules, since they were apparently unaffected by the addition of ether and alcohol. The surface of the "horn" when fresh was covered by the slightly sticky secretion, and this showed under the microscope the same rounded clear bodies which were present in the sur-

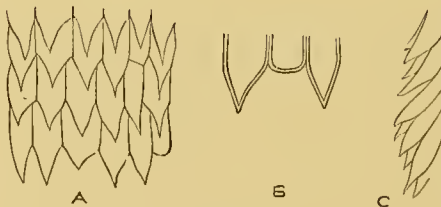


FIG. 26.—CELLS FROM THE COLUMN OF CORYANTHES. (SEE TEXT.)

face cells. The rest of the secretion seemed a watery or slightly viscid fluid which took on a uniform stain with aniline blue or eosine, and showed no structure under a high power of the microscope. In the sections made from the pieces of the "horn" which had been kept for a week in alcohol, the clear rounded bodies were almost entirely absent. This seems to show that they are soluble under the prolonged action of alcohol. The plate or rounded projection from the base of the labellum is placed above the pitcher in the natural position of the flower. The upper surface, upon which bees would alight, is very decidedly convex. This structure is almost entirely formed of thin walled parenchymatous cells, and as the first series of sections which I made showed nothing else, I was unable to understand why the bees should eat this part of the flower,\* and was inclined to think that it might be the sweetest secretion from the "horns," which after all attracted them to the plant. Some other sections which I have made since, show, however, that one part of the plate (which part I am unable to say for want of material—the last sections were made from small fragments of the structure) has the surface layer of cells filled with granular protoplasm (fig. 27, A), and in some cases prolonged upwards into long finger-like projections (fig. 27, B). All intermediate conditions between A and B can be found, and in some places the projections are even longer than those shown in B. Fig. 27, C, represents a surface view of A. In all cases these cells are distinctly nucleated, and I have no doubt this is the tissue the bees feed upon, if, as Crüger says, it is the plate-like projection that they eat. *W. A. Herdmann, Zoological Laboratory, University College, Liverpool.*

THE VALUE OF ORCHIDS. — At Messrs. Protheroe & Morris' Sale Rooms, Cheapside, on the 23d inst., a very fine variety of *Laelia anceps*, with pure white sepals and petals, was knocked down to an eminent firm of nurserymen for 90 guineas (£94 10s.). Imported and unflowered pieces of white *Laelia anceps* realised 31 guineas, 17 guineas, and 13 guineas respectively; and an established plant of *Laelia elegans* in flower sold for 25 guineas.

\* See Darwin's *Origin of Species*, 6th ed., p. 154.

## FROM A BUCKINGHAMSHIRE GARDEN.

JAN. 10, 1885.—Fifteen moons of change and chance have waxed and waned above this little spot of garden ground—this green oasis in the wide fertile desert of Buckinghamshire cornlands—since last the pleasures and the pains of it crystallised into written words.

Drearly grey and bleak, the level fields lie all around us. So bleak, so limitless, when, as at this time, the horizon is shrouded in cold mists and fog, are they, that they have been compared to the Steppes of Tartary! Our oasis has enlarged itself during these long months. "The Bocage" has been created. From out of the forest gloom of the Fantaisie suddenly the path leads into the bright surprise of a broad band of flowers. If I shut my eyes for a moment I can recall it in all its summer bloom. Nearest to the wood-side a Beech, and a Silver Birch, and a deep green Portugal Laurel, grow together. Underneath among the stones, spreading out over them their glossy leaves, are large white-flowered Periwinkles from the Olive valley of Rocca-bruna. (Since this has been their home, however, the flowers have lost their first purity of whiteness.) Then, quite beyond the shadow of the wood, shines out a long perspective of brilliant colour, flowers in clumps, and lines, and patches quite filling up the whole length and sunny breadth of flower border. There was nothing in it rich or rare, but every sort of sweet-smelling old-fashioned flower seed was sown there, and most of them thrived to perfection in the newly trenched ground. There was Lady's Pincushion of all shades of velvet-brown and purple stuck full of the whitest pins, and smelling deliciously. Sweet Sultan (or the Sultan's flower, *Cyanus floridus turcicus*, Parkinson) lilac, yellow and white. The name is accounted for by the old herbalist because "the great Turk, as we call him, saw it abroad, liked it, and wore it." We had the Sultan's flower in lilac, white, and yellow, and the yellow is worth all three, though it is the least easy to grow. Somewhere it must do well, for the London flower-shops are full of it in its season. But something went contrary with yellow Sweet Sultan here. Then there was Marvel of Peru—old-fashionedly Mervale of the World—a West Indian plant, whose seed was long ago sent into Europe, and dispersed in almost every garden of note. It is "Bella Notte" in Italy, under the influences of whose sunshine it is said to be most fragrant when the sun goes down. We had some Italian seed also, but though coloured the same as ours—red, white and yellow, and striped—the flowers had no scent. Then there were whole beds of Mignonette (somewhere I have seen Mignonette translated "Old Man's Darling"), and Clove Carnations, and sad-coloured Night Stocks, and honey-scented Alyssum, beloved of honey-bees, and Sweet Peas, and Ten-weeks Stocks, and a hundred things that I forget; and later on came a deep glow of bronze-leaved *Lobelia cardinalis*, and auratum Lilies towered in perfumed splendour above the slighter annuals, and white stars of *Nicotiana glauca* shone in the dark evenings, and there was quite a thicket of *Dianthus superbus*; and behind all, along the back of the border, and against the line of young Alder hedge, grew great pillars of single Dahlias. So luxuriantly they grew in the new-made soil, so strong and rich in flower and foliage, that their tall, topmost flowers grew almost out of reach. The great hushes of red Juarez, alternate between the white, were a wonderful sight, when at last their slow-blooming buds had opened out all over them; but in a single night, with the first frost, their glory departed, and hanging their disrowned heads, they stood in black and shrivelled ranks. Along the walk between the flower border and "The Park" we planted a line of scarlet and pink Thorns, and made the first start with a Holly hedge. The young Hollies would do well but for Kitty, the domestic donkey! She is a handsome, wayward donkey, with well marked zebra legs, and whenever she sees me near she gallops up, and poking her nose between the bars of the iron rails nibbles off a young Holly shoot. It is done, of course, to tease me, for she cannot mistake them for Thistles. At the end the walk turns and skirts a broad space of seedling *Rhododendrons*. On the left a narrow turf walk leads off, winding through the thickest part of the Bocage. This turf walk is my pride. The plan of it may not be fault-



less; some of my friends say it is most like a wriggling snake. But when the underwood grows thicker, and the Firs and evergreens are larger, its course will be concealed at every bend, till suddenly and unexpectedly you come upon an open round of green grass, enclosed by a hedge of Juniper. This green space, in the midst of the closer grove, is named "Glorietta," after some delightful garden I have heard of under the blue sky of Spain. Through all the months of summer the Junipers were lit up with long garlands of a certain fiery-orange flowered Nasturtium with bluish leaves, that wandered all over them unforbid. The serpentine walk is planned to "wriggle" on beyond the Junipers into the older Fantaisie. A straight path passing under some

some single-flowering Camomile. Camomile loves to be trodden, and it is then, as you crush it under foot, that it gives up most freely its delicious aroma. The fresh delight of this rockery never failed during the whole summer long; it had been made in a way to give new pleasure every day. The stones, brought from a distance, are old and grey, dashed with warmer red, and they harmonise well with the colours of the rock garden. Every plant that we put into the many pockets of peat and leaf-mould looked content and happy, and every plant grew (except the Sundew, from a moor in Hampshire—it simply refused to live). There is nothing a plant loves so dearly for its home as a snug little pocket in a rockery, or, indeed, any kind of nook

of the Pyrenees, and which hates so heartily a garden bed or border—took at once to our rocks. Even through the snow to-day, little stars of it shine bluely here and there among the crevices; small delicate Irises crest the jagged upper edge or cornice. It is beautiful to look up at them, when the sun shines through the lilac or yellow of their petals. There are two vigorous Yuccas, and near them—just for a freak of dear remembrance of many a terraced Riviera wall—I put in a Globe Artichoke root. The grey leaves lean over Acanthus-like, and two or three Artichokes ripened slowly into bee-haunted, purple Thistle-crowns. Few plants, indeed, are more graceful in their growth than the common Artichoke, and I love it well, notwithstanding that dear old Parkinson in the *Garden of Pleasant Flowers* leaves out of his discourse "the Artichoke with all his kinds" and reserves them "for the kitchen garden, because (as all know) they are for the pleasures of the taste, and not of the smell or sight." Along the east side of the upper rock-walk, from August up to the latest hour that the Frost King gave them grace, flourished a fairy forest of Amaranthus or Love-lies-Bleeding. The knotted blooms of amaranthine velvet measure often 2 feet long, and the edges of the walk and down the other side streamed with purple. Children delighted in these long purples, and used to beg them for their "doll's feasts." Then amongst the true rock-dwellers there is *Geranium tuberosum*, lovely always, whether in its summer bloom, or when the leaves take on their autumnal red; *Sedums*—spirale corsicum, lydium, and *Sieboldii variegata*, *Saxifraga muscoides*, all over pink in spring, and in winter a cushion of emerald-green; *Saxifraga longifolia*, dentata, and ceratophylla. A root of *Polygonum nigrum* was put in, with small hope that it could ever live; but it has grown so large in one season, that it will have to be moved to another place. This quick-spreading creeper, with its little 'round' leaves, seems hardly so well known as it should be. Many a chance-sown seed of *Eschscholtzia*, with many another pretty old-world flower, has bloomed for our pleasure amongst the rocks: and a few green and violet-coloured Christmas Roses (from a garden in Cumberland) seem quite at home. They are difficult, and capriciously fanciful; but certainly they do not hate the stones, as they do our borders.

Just opposite the rockery and the Roman walk are some old Damask Roses, and the light shade cast when the afternoon sun was hot, seemed to comfort both the Roses and the rock plants. The great yellow tree Lupin once grew here, but it is dead, and in its place there came a Virgin's Thistle (Milk Thistle, Our Lady's Thistle, *Carduus Marianus*). It came of itself, as they always do, near where there have been monastic buildings—in whose gardens they used to be planted anciently—for the sake of the legend pertaining to them. This special plant is the finest of the kind I ever saw. Before the frost touched it, it seemed thoroughly to enjoy growing itself into a great clump of rich green, white-veined bands, 5 or 6 feet round! The Box edging was overwhelmed with the flood of leafage—leaves one dared scarce touch, they were so dangerously thorned. "Our Lady's Thistle" arises of her own sweet will in divers places all over the garden; but I cannot say she is always permitted to remain in the chosen spot. Thistles are not well everywhere. In some corner where nothing else is wanted to grow they are best. We have another kind which I wish to think may be the Blessed or Holy Thistle (*Carduus Benedictus*, of the gardens of former days, the same of whom Culpepper, in his *Herbal* (he was given to uncharitable remarks), says, "I suppose the name was put upon it by some who have little holiness in themselves. What a character that delightful old Culpepper was! He had faith in the doctrine of signatures, and he doctored with astrology as much as with medicine, declaring he could show "how and by what means, and also in what manner, the glorious host of Heaven doth act upon all terrene and terrestrial herbs, roots, plants, men and women and fishes," and the wonderful influence of the sun, moon, and stars upon everything. The Melancholy Thistle he esteems higher than *Benedictus*. "It is under Capricorn, and, therefore, under Saturn and Mars; one rides melancholy by sympathy, the other by antipathy. . . . The decoction of the Thistle in wine being drank, drives out superfluous melancholy, and makes a man as merry as a cricket." The Melancholy Thistle might be useful in these days when melancholy is said to increase upon the human race; but our chance of ever finding it seems small, for by the description it appears to be not much of a Thistle at all, as it "differeth from all other Thistles in its appearance."



FIG. 27.—CELLS FROM THE PLATE OF THE LIP OF CORYANTHES. (SEE TEXT.)

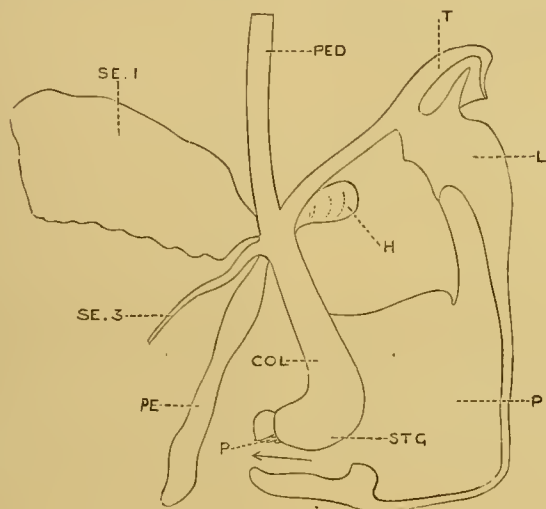


FIG. 28.—CORYANTHES MACULATA VAR.: SECTION THROUGH FLOWER.

PED., peduncle; SEP., 1, part of one of the lateral sepals; SEP., 3, section of median sepal; PE., one of the petals; COL., the column; STIG., the stigmatic surface; P., pollinia; T., tabular projection from base of L., the lip; PIT., pitcher-like enlargement of the labellum; H., horn. The direction of the arrow shows the course taken by the bees.

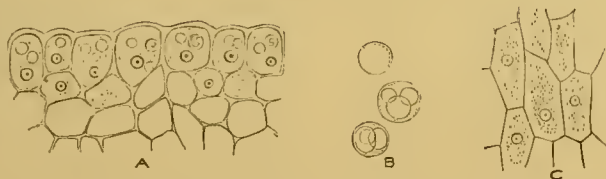


FIG. 29.—CELLS FROM THE "HORN" OF CORYANTHES. (SEE TEXT.)

great Elms unites "Glorietta" with the orchard and the "Allée Verte." It interested myself, perhaps, more than it would others, to find in an old gardening book, after my ill-designed turf walk was made, a plan as nearly as possible the same in detail, even including Glorietta! although the ancient Pleasance was on a grander scale.

To-day a heavy fall of snow, the first this winter, puts an end for the time to a great work begun on the south side of the garden. Here we built up last winter "the Roman walk"—a bank of limestone rocks (!), having a paved way on the top, reached by narrow rude stone steps at either end. We are now building up a sort of rampart at the southern end—a platform from whence the fields and a distant line of wooded hills may be surveyed. The air up here is finer, more invigorating than on the walk below. Upon the paved way between the stones we planted

under the shelter of a big stone, or a corner hemmed round with flints. If stone were as plentiful with us as bricks, I think there should not be a flat bed in the garden; the flowers should all be terraced up with stones. Our rockery I wanted to be dry and unheated. The aspect should be west, and it should be a little strip of garden, full of sweet and warm memories, without one spot of gloom or damp throughout its length of near 50 feet. So little many-coloured rock Roses with soft grey foliage crept down the heaped-up stones, overspreading them almost too quickly, and carrying their charm of rose and salmon-pink bloom far on in the year, unwilling, even when November came, to confess their long summer over. Portulacacs in scarlet and gold bloomed better than ever they did before in the open ground. The blue *Lithospermum*—which in April is found all over waste sandy places about Bayonne, and at the roots



## WALL COPINGS.

WHATEVER our climate may have been in former times, when it is said bountiful crops of Apricots and other choice fruits were grown with little difficulty, spring frosts have now become so disastrous that, except in very favoured situations, it is a rare occurrence that good crops of stone fruits can be obtained, even upon walls, without the aid of copings, or some other kind of protection; and so severe are frosts sometimes during the blossoming period (as was experienced last spring) that even any kind of ordinary protecting material is of little avail to insure a crop. Copings are, however, of service in most seasons, and should be generally made use of. They may be formed of various kinds of material, such as slate, wood, or glass; but those made of the latter, owing to their transparency, are the most desirable, and should be more or less in width, in accordance with the height of the wall upon which they are to be employed; the higher the wall the wider the coping should be.

For an ordinary wall from 12 to 16 feet in height, for instance, the coping should be 3 feet in width, and be made in a manner so as to be readily adjusted or removed. When they are of this width and substantially made, they become rather expensive items, if used for no other purpose than to protect trees when in blossom; but they can be so constructed as to be conveniently turned to many practical and profitable purposes, and thus be boons of considerable benefit, especially to those having limited accommodation. It is chiefly for the purpose of pointing out some of the uses for which they are applicable that I wish to draw attention to them, as after the experience of last spring some cultivators who have not already furnished their walls with them may now contemplate doing so, and those made in the usual manner are of comparatively little service further than for the one object. For the sake of utility they may be made in sections of 4 feet in length in the form of sashes, the framework being either of wood or iron; the latter is, of course, the most durable, and ours are made of it and are fixed to the walls by sockets and iron stays—a simple and secure method. Where not required for the trees, a time embracing the greater part of the year, sashes of this description can be made use of in forming the lights of span-frames, the frames being fixtures made of bricks and wood, or portable of wood, are valuable adjuncts to the garden. They form the best places in which to grow Primulas, Cyclamens, Carnations, Bouvardias, and kindred subjects. Cucumbers and Melons may likewise be produced in them during the summer months, and various bedding plants can be propagated in them. In the winter they are suitable for protecting Strawberries, Lettuce, Violets, *Helleborus niger*, Celery, and other plants. The sashes are also of use for covering outside Vine borders when the Vines are carrying crops of fruit in autumn and winter. *Thomas Coomber.*

## SEASONABLE REMARKS ON ORCHID CULTURE.

At p. 564, vol. xxii., I alluded to the treatment of Orchids in the early days of winter. Preparations must now be made for early spring. Work is not so very pressing as yet in many gardens, and it is a good plan to start now at one end of the house in which Orchids are grown, and examine every one of the plants carefully.

## CLEANING THE PLANTS AND SURFACING.

The first operation is to get some warm rain-water and dissolve in a gallon of it 2 oz. of soft-soap; with this and the aid of a soft sponge the plants are made thoroughly clean. At this time we surface-dress or repot the whole of them, beginning with those in the warmest house. Of course, many of them do not require repotting; they are in the middle of their growth, and disturbing the roots would injure them very much.

## POTTING.

In all Orchid growing establishments a potting-shed should be built, convenient to the houses, so that it will not be necessary to take the plants out-of-doors or into a lower temperature than that in which they have been growing. I have no such convenience, and rather than carry the plants out-of-doors and into a cold potting shed I pot them in the house where they are growing. The potting material in all cases is very much alike—good brown fibrous peat torn to

pieces by the hands, sphagnum moss well washed and freed from weeds and all extraneous matter, some clean potsherds and charcoal broken into small pieces—the broken charcoal must have the dust sifted from it. For the largest plants I mix the sphagnum and peat together in equal proportions. *Saccolabium*, which succeed best in this house, are potted in sphagnum only. There are a few handsome *Oncidium*s also grown in the East India-house, which should now be repotted.

## ONCIDIUM LANCEANUM.

The finest, perhaps, is *O. Lanceanum*. I bought a small plant of this twenty years ago, and it is now a large handsome specimen. When purchased it was growing in a pot, and succeeded fairly well for some years, but it was decided to place it in a Teak basket, where it has done much better; it is placed on the stage amongst other plants in summer, but during the winter season it is suspended from the roof in the warmest house, with the leaves almost touching the glass. It requires rebasketing once in three or four years.

Another *Oncid* not often seen doing well is *O. phymatocilium*. It requires the temperature and similar treatment to *O. Lanceanum*. It does well in pots if potted in the right way, that is, with the last formed pseudobulbs near the rim of the pot, so that the next formed bulb will be formed quite close to the rim, thus giving the roots an opportunity to grow mostly outside the pot; they prefer this, and form in considerable masses outside, where they remain in better condition than those formed inside.

## ODONTOGLOSSUM AMPLIATUM.

This is now throwing up its flower-spikes, and in a small state slugs or small snails are very partial to them. It is a plant that does best in a high temperature, but, unlike the other two, it does not form roots on the outside of the pot. This plant I have generally potted in the summer, and found that it succeeds well with that treatment.

## ODONTOGLOSSUM ROEZLII.

I find August or September a good time to repot *Odontoglossum Roezlii*. They grow very freely in this house, placed near the glass, and well supplied with water at the roots at all seasons. They are now in the middle of their growth, and should the pots be allowed to become dry, they would be sure to suffer. A rather moist atmosphere is quite necessary for many of the occupants of the *Odontoglossum*-house, including the *Angræcums*.

## CYPRIPEDIUMS.

Some of the *Cypripedium*s are now in a condition to be repotted. Of the heat-loving kinds *C. Spicerianum*, *C. Lowianum*, *C. Stonei*, *C. Lawrenceanum*, *C. lævigatum*, and *C. niveum* may be mentioned. I find the recently introduced *C. ciliolare* succeeds well in the Cattleya-house. *J. D.*

(To be continued.)

## The Arboretum.

## THE LARGE ARAUCARIAS AT BUSBRIDGE HALL.

I SEND you particulars and dimensions of an *Araucaria imbricata*, a male tree with catkins, the soil being a sandy loam; it is one of a double row of trees on either side of a walk, distance apart about 17 yards in line, the whole forming a short avenue of a novel and imposing appearance. They were transplanted about twenty years ago, then averaging about 6 feet in height. The one I wish particularly to mention is 34 feet high, girth at base 6 feet 3 inches, and at 6 feet from the ground 3 feet 6 inches, with a spreading diameter of branches of 20 feet. It is of very perfect form; its opposite neighbour is a female, bearing cones, but only one appears to have been fertilised by the catkins and is a very fine one, being some 7 or 8 inches in diameter, and of a reddish-brown colour. The position of the catkins on the tree is due south, and that of the cones south-west. They are about 30 feet apart—the latter 3 or 4 feet below the level of the former. In this instance the tree bearing cones is much coarser in growth, and quite as healthy looking as the male, though not nearly so compact and hand-

some in form, both having a few decaying sprays on the inner side near the trunks. Therefore, this would give the negative answer to the question raised by Mr. George Bushby on October 18, 1884. The decaying of the lower branches is met with in very small trees as well as the larger cone-bearing ones, and I am inclined to think it the result of some disease. This is the first time these trees have produced either catkins or cones. By-the-bye, Mr. Bushby does not give the diameter of his undoubtedly fine tree, so that one might gain an idea of its form, whilst the diameter mentioned by "R. McK." is somewhat remarkable, being nearly the same as the height of his tree, described in your issue of January 3, 1885, and which would, I should think, destroy its symmetry. *G. W. K.*

## PHOTINIA SERRULATA.

This handsome evergreen we have growing here (in Wales), on a south wall, its large handsome foliage always attracting attention, especially in winter, at which period the young growths assume a bronzy-red colour, and during which it never ceases to grow. I consider its foliage superior to a *Magnolia*, and to be a more rapid grower, although unfortunately it does not flower here. But for covering a wall with bold and bright foliage there are few plants to equal it, nor does the plant appear to be so generally known as it should be. It is a native of Japan and China, and yet no winter that we have had injures it, having withstood that of 1881 without suffering in the least, no protection whatever being given it. *W.*

## FERTILE CEDAR CONES.

My experience is at variance with that of your correspondent, "W. C., Inverness," concerning the fertility of Cedar cones ripened in these islands. Probably your correspondent's experience is, however, correct in regard to the northern district whence he writes, and where he probably resides. The idea as to the probability of these cones proving unfertile had never occurred to me before. Many years ago I noticed in a district very favourable to vegetation, in South Wales, that squirrels persisted in visiting certain Cedar trees in the park, and yearly plucked and tore to pieces the many beautiful cones with which the grand Cedar trees were laden. These mischievous rodents had, moreover, to traverse a wide piece of grassland to reach these trees—an additional proof that they found something more than empty cones to exert their jaws upon. More than this, for some months after all the cones had been destroyed I have seen these little animals hunting the ground beneath the branches of the trees, and occasionally finding some substance, which I imagined could be no other than stray Cedar seed, which had either dropped from the cones, or been buried by them there in the season of plenty in accordance with their instinct. Being curious as to the presence of seed or not, I procured some of the finest cones, and found from one to three perfect seeds within. Doubtless other readers can confirm my statement, that squirrels habitually do visit seed-bearing trees for the same purpose, and so set the matter at rest. But I have a more practical case than the above, which proves that the seeds are not only fertile in some cases, but that they possess strong germinative vitality. A lady living near Woburn, Bedfordshire, a few years since, sent me seeds from her Cedar growing upon the lawn near to her mansion. I sowed them in 60-sized pots, and had them placed upon a cool greenhouse shelf (at Valentines), and quite 60 per cent. germinated and grew, being subsequently potted off. The plants are probably in the above gardens still. *William Earley, Ilford.*

## POTATOS.

WHILST so much is just now being written about the Potato disease, permit me, in view of the fact that practically this fell disorder seems at present to be non-existent to try and forget all about a disagreeable subject, and revert to the Potato as an ordinary useful garden vegetable, popular and ever welcome, without having my thoughts of the favourite esculent clouded over, with nightmares of murrain, fungoid and sporadic monsters, with Messrs. Smith, Plowright, and other eminent scientists sitting up aloft as directors of the demoniacal array.

If Mr. Augustus Harris, of Drury Lane celebrity, wishes to attract the town with a great Christmas spectacular ghostly goblin horror, he should an-



nounce next winter the production of the great tentacular sporadic Fungoid Fury and the Fairy Potato, the whole of the scenery and characters reproduced for the occasion with scientific microscopic accuracy. Who should be the hero who would finally storm the stronghold of the Fungoid Fury and deliver the Fairy Potato from its horrid sporadic clutch I will not designate. Perhaps some others can supply the deficiency. But whilst all this scientific warfare is proceeding, the Potato seems to be calmly resting on its oars (I do not mean its resting-spores), healthy, robust, and full of vigour for another season's work and productiveness. The mildness of the early winter proved somewhat troublesome, as the ardour of the tubers to get to work was rather promoted than restrained; but now cold has come to the aid of growers, and the tubers, with becoming regard for the time of year, have quietly gone to rest.

As a rule Potatoes are very wide awake, and there is something truly singular in the association of the *genus homo* with large quantities of tubers, all with their eyes wide open, perhaps taking stock of the human being in their midst, and if endowed with intelligence, perhaps wondering whether he would be half as mealy as they are when cooked.

Just now, if the eyes of the tubers are open, they are not shooting. Those of the human race are often credited with shooting glances, sometimes tender, sometimes fateful; but the eyes of the Potato shoot something more tangible than these, for from them come growths fraught with all that is valuable in the tuber. These will shoot presently—all in good time; and if due care be exercised they will be strong, vigorous, and of a healthful purple or green hue.

Some one said the other day that it would be better to pull these shoots from off the early kinds than to plant early with them on, as they would be cut down with late frosts. How strange it should not have occurred to one who thinks himself to be a practical man that if these same tubers were kept out of the ground and planted a fortnight later the frost might be avoided, and all the value found in the strong shoots retained. There is at present every prospect of a good planting season, and should no excessive frost or rainfall intervene, planting of the later and more robust kinds may be started safely towards the end of February, for the tubers will not only lie cooler in the soil than out of it, but will also get a good root-hold of it ere they break up. Late kinds will not be through much the sooner if planted in February than those planted in April, but they come away very much the stronger, and the early planting materially forwards work. First early kinds that have been carefully wintered and have had head-shoots well pushed and hardened, if planted at the end of April will always be as forward as others planted in March, for with all early sorts the quicker the growth the better the crop.

If we are to have a comparatively dry winter we shall have little enough of moisture in the soil next summer, and therefore the early planting will prove of the greatest service in promoting tuberizing ere drought becomes master. As might have been anticipated, Potatoes are now securing better prices in the market, and those who have held stock over find an additional 20s. per ton to be worth waiting for. This slight rise will no doubt become greater in a month or so, and then, ere planting time sets in, we shall see such a fillip given to Potato trading as shall encourage growers again to plant largely, indeed the Potato breadths will no doubt be as great in the present year as in the past.

The comparative absence of disease during recent years has given growers so much encouragement that babbly they have come to regard Potatoes as one of the best of vegetable investments—an odd fact in the face of the jeremiad over the decline of the Potato which recently appeared in the *Times* newspaper. Just as there crop up now and then certain sensational matters, the which prove to be godsend to the papers in dull seasons for news, so do there seem to be in horticulture certain periods in which, for lack of more useful or interesting matter, it becomes the habit of some literary garden hacks to fall back upon the Potato, and to abuse those who claim to have made it a subject of special interest, right and left. Raisers are told they are fools and humbugs, and their new kinds impostors, and various other complements are flung about, the which it would be more proper if less polite to term abuse.

Happily, neither the Potato nor its admirers are the

worse for this outpouring. It is the product of a dull season. Last year was a fertile one in the production of new kinds. It so happens that some summers are more favourable than others for the production of pollen, and hence cross-fertilisation is rendered easy. Some five or six years later the products of those crosses come into commerce in the shape of new kinds of Potatoes, and certainly the majority sent out last year were first-rate novelties.

If the stereotyped abusers of new Potatoes had grown the sorts, and been disappointed, they might have some claim to consideration; but when they fall foul of these novelties, utterly ignorant of their various features and merits, it is just a trifle hard on the raisers. There will be more novelties put into commerce during the present year also—that is certain, and the Canutes of the ink-pen will not be able to stop the flow of the Potato current. The world has gained very much by the efforts of raisers of Potatoes, especially during the past ten years. It may well hope yet to gain much more; for, in spite of the fact that, for the past two years, Potatoes have been cheap and abundant beyond all precedent, the end has not yet come—indeed, is a long way off; and it looks as if we should continue to raise new kinds till the crack of doom. *A. D.*



## Orchid Notes and Cleanings.

### ORCHIDS AT MR. BULL'S, CHELSEA.

WE do not expect to see a great show of flowers in Orchid-houses at this season, but in the large nursery collections there is always something to be seen to please or to instruct the visitor. The cool-house easily bears away the palm for the number of the plants in flower. The weather had been very unfavourable previous to my visit, owing to the fogs that have prevailed, but there were still some beautiful spikes of *Odontoglossum crispum* and *O. Pescatorei* which were fine in variety, the colours of some being rich, while others were of snowy whiteness. The *Lælia albidula* made a fine show; the flowers of this species, when cut with long stems, may be made very useful for vases and the like. The varieties of it named *L. albidula bella* and *Marianæ* are richly tinted rose. *Sophranites grandiflora* made a nice group, the flowers being of very rich and varied shades of colour. *Cattleya marginata* was also in flower. *Ada aurantiaca* formed a glowing bit of colour. This, when grown into plants of large size, is one of the best exhibition plants, as it is often in flower during May. *Rodriguezia planifolia* is not worth cultivating except as a botanical species, but it is very interesting, and its small primrose-coloured flowers are sweetly scented. *Masdevallia tovarensis* was over, but *M. polysticta* was in full flower, while *M. ignea* was just coming into bloom. *Pleione humilis* seems to succeed best in the cool-house; its flowers, just opening, are very pretty. *Oncidium incurvum* is also in flower, while a very superior variety of it, named *O. incurvum albo-violaceum* has a pretty white lip, spotted with pale purple. Perhaps one of the richest coloured forms of *Odontoglossum Rossii* was in flower: it is named *splendens*. *Oncidium cheiroporum* is very sweet, its dense spikes of small deep yellow flowers being very pretty. *O. nubigenum roseum*, a white flower with a rose coloured centre, places it amongst the best of the elegant *Oncidiums*; it is very lovely. In a warmer house *Lycaste Skinneri* Vesta had large delicately rose-tinted flowers, while the variety *principis* had a rich crimson lip. A singular looking Orchid is *Microstylis metallica*, with dark shining bronzy-purple leaves and small brownish peculiarly formed flowers borne on erect spikes. *Cœlogyne Massangeana*, a recent species, was also in flower, so also was the North Australian *Dendrobium superbum*. A distinct form of *Oncidium Kramerii*, had a golden coloured lip, and the spotting was also very distinct from that of the normal form. What a richly coloured and beautiful Orchid too is *Barkeria Skinneri*; its neat and compact spikes of rosy-purple flowers add a charm to the most select collections. *J. D.*

### MASDEVALLIA TRIANGULARIS.

Although not remarkable for brilliancy of colour the flowers of this little *Masdevallia* have a prettiness of their own which, when seen in the mass, forms an attractive, albeit small picture. A plant in the Kew collection, growing in a 4-inch pot, shows well the good points of this *Masdevallia*, having a tuft of about thirty green leaves some 6 inches high, and peering just over the top of them more than fifty triangular flowers with a tail to each angle, the whole flower being tawny yellow thickly speckled with brown. Like most of the *Masdevallias* of which our gardens now possess scores, almost hundreds, of species, the above is as easy to grow as a *Primrose*, and requires treatment almost as cool, frost only being injurious to it. Some Orchid fanciers would refuse a place to *M. triangularis* because of its lack of brightness of flower-colour, and possibly because their idea of it has been formed from an indifferent specimen or poor variety. It would not require an effort on the part of any true gardener to see much beauty in this little Orchid when seen in such health and so gaily decked with flowers as the plant at Kew is. One could name a choice score of small *Masdevallias* that would grow in a little glass box placed in the window of a sitting-room, and from such a group much delight to the eye and intellect of a careful amateur would surely come. *W. A.*

### CATTLEYA WALKERIANA AND C. DOLOSA.

Many thanks for the history of *Cattleya Walkeriana*, syn. *bulbosa*, contained in your issue of December 20; but there still seems confusion in many minds as to *Cattleya dolosa*, the same plant having been bought under two different names, and some still think that the plants of *Cattleya Walkeriana* they bought as *C. dolosa* are the true variety. I have met with several such since your issue of December 20. What I wish to point out as misleading to some is the woodcut you have given us (fig. 133, vol. xxii.) as *Cattleya Walkeriana* var., whereas it is much nearer *C. dolosa* had the bulbs been made a little longer. *C. Walkeriana* rarely ever produces more than one leaf to the bulb, which is its special characteristic, whereas *C. dolosa* produces a pair of leaves on each successive bulb, and blooms from the fully developed bulb, from between the pair of leaves, similarly to the new *C. Schröderiana*, instead of the small flowering growth of *C. Walkeriana*, as described by Sir Charles Strickland (p. 83). Any one who has seen the two plants together would always recognise them as being perfectly distinct. *Henry James.*

### ANGRÆCUM EBURNEUM AT BIRDHILL, CLONMEL.

Looking over the Orchids at present in bloom in Mr. Gough's collection here, I am not sure that this is not the most elegant and chaste. The name is certainly suggestive, as it combines the soft massive velvety appearance of ivory with the tinge of greenish-white seen in the *Eucharis*. I had for comparison *Cattleyas*, *Dendrobies*, *Odontoglossa*, e.g., one evidently a distinct new sub-variety, *O. Alexandræ*, pure white sepals with crimson dots and blotch; *Lælias*, *Masdevallias*, *Calanthes*, *Cœlogyne*s, *Cypripedium*s, *Vandas*, &c., one or more varieties in bloom of each, yet I readily give this the preference. The plant is about ten years old, and has now in bloom a dozen blooms each on two massive spikes. *W. J. M.*

### XYLOBIUM ELONGATUM.

This is *Maxillaria elongata* of Lindley, but has been removed along with several other old *Maxillarias* to the above genus, of which sixteen species are enumerated, including *Maxillaria decolor*, *M. pallidiflora*, and *M. squalea*, which are still cultivated at Kew and in other gardens. *X. elongatum* is remarkable in having a long, cylindrical quill-like pseudobulb, 18 inches in length, and bearing at its apex two broadish leathery green leaves. From the bases of the pseudobulbs the flower-scape is produced, a short-stalked head of flowers, not more than 4 inches long, in this respect resembling *X. squalea*. There is also a similarity between the flowers of the latter and *X. elongatum* both in size, structure, and colour, so that although interesting because of its long, smooth pseudobulb, *X. elongatum* is not likely to find much favour as a flowering plant. Its nearest affinity is with *X. pallidiflora*, the pseudobulbs of which are thin and elongated, but which bears only a single leaf on each. *X. elongatum* has been introduced from Costa Rica. *W. A.*



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Feb. 2	Sale of 500 <i>Lilium auratum</i> , at Stevens' Rooms.
TUESDAY,	Feb. 3	Important Sale of Established and Imported Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY,	Feb. 4	Sale of Roses, Border Plants, and Fruit Trees, at Stevens' Rooms.
		Sale of Lilies, Roses, &c., at Protheroe & Morris' Rooms.
THURSDAY,	Feb. 5	Meeting of the Linnean Society of London, at 8 p.m.
		Sale of Valuable Imported Orchids from Mr. Sander, at Stevens' Rooms.
FRIDAY,	Feb. 6	Sale of Imported Orchids, at Protheroe & Morris' Rooms.

FROM causes which it is not our province to inquire into here, the number of NEW FRUITS brought under notice during the past year is much smaller than usual. We have not this season to record the introduction of any new Grapes, or Pines, or Peaches—the nobility, so to speak, amongst the fruit classes; and amongst the other classes the prevalence of spring frosts no doubt materially interfered.

Apples, having been so thoroughly overhauled and investigated during the preceding year could scarcely have been expected to yield much novelty. In this, however, we have one important and welcome addition in Lady Sudeley, which, however, may be an old sort lost to view. This fine early Apple hails from Petworth, and first appeared as Jacob's Strawberry. It may be described as resembling a very highly-coloured specimen of Duchess of Oldenburgh, and is fit for use in the same season. Another Apple that met with considerable attention and received high honours was Perkins' A 1. It is doubtful, however, if it be really distinct from that beautiful and excellent variety Lane's Prince Albert. High Canons, a seedling raised by Mr. THROWER, is a large and handsome culinary sort, of excellent quality late in spring. Several Belgian Apples have been reported on favourably, but these require testing in this country before recommendation.

Pears and Plums present no novelty this season that calls for special notice. Amongst Strawberries Mr. LAXTON's new seedlings, The Captain, and King of the Earlies, are welcome additions, on account of their great size and remarkable earliness. New Melons do not appear in such numbers as usual. Messrs. CARTER's Emerald and Captain Larks may be cited as good and excellent sorts.

The number of new names applied every year to the different varieties of VEGETABLES seems to be ever on the increase. It has become the fashion now, and almost every seed vendor seems to consider it right, to rename the commonest article. This is a small matter to those who do not care for novelty, but to those who are on the search after novelty and improved varieties this wholesale manufacture of new names is full of embarrassment and annoyance. Potatoes, however, the foremost and chief of the vegetable products that the gardener has to deal with, present us with genuine novelty. Those receiving certificates from the Royal Horticultural Society may be first noted, viz., Charter Oak, an American variety from Mr. BLISS, large round white, with bright pink eyes—very handsome; Notts Victor, large oblong, somewhat resembling Beauty of Hebron; The Doctor (PRITCHARD), in the way of Schoolmaster; and Ellingtonia, a long kidney-shaped variety, with pale salmon skin, flaked with dark purple—of rather singular appearance, and wonderful good quality. The following were certificated by the International Potato Society:—Miss Fowler (ROSS), a white kidney seedling from the Woodstock Kidney; Pride of Eydon, also a white kidney, a cross between Myatt's Prolific and Beauty of Hebron; M.P. (ROSS), seedling from Paterson's Victoria; London Hero, Chancellor, and Harvester, three of Mr. DEAN's seedlings, deserve special note as decided improvements, and the same remark applies to Suketra, of HOLMES, now in the hands of Messrs. CARTER & Co.

Amongst other vegetables special note must be made of Hawke's Champagne Rhubarb, which, although not new, only seemed to have had its high merits fully recognised during the past year. Amongst Celeries a new variety, named White Plume, comes to us from Newark, N.J. This is a variegated sport, which grows so white naturally that it is presentable at table without the tedious process of earthing-up. It is not, however, tender or of good quality. Amongst Cabbages Messrs. VILMORIN's Early Etampes may be noted as the earliest of all. Ellam's Dwarf Early is also a very true and good sort. Vilmorin's Dwarf Brussels Sprouts are of very superior merit, the plant dwarf but loaded with Sprouts, which are of nice size and very firm. A great proportion of the Brussels Sprouts now grown are far too large and coarse, and quite out of character. Gilbert's Universal Savoy proved to be of excellent quality, being devoid of that coarse, strong flavour so objectionable in Savoys. Amongst Lettuces there seemed to be no very decided advance. Waite's new Cabbage Lettuce may be mentioned as a good sort; and amongst Onions Wroxton Hero and Sandy Prize deserve mention as excellent selections of the White Spanish.

Tomatos again furnish considerable novelty. Golden Queen (WILLIAMS), is a very fine and distinct large orange-yellow; Hackwood Park Prolific, Lord Wolseley, and Sutton's Reading Perfection, are all fine large smooth-fruited red sorts, that cannot fail to give satisfaction. The most extraordinary Tomato of the season was, no doubt, Chiswick Red, which for cropping qualities has no equal.

Of Peas, some decided and improved varieties have recently been introduced. Some twenty years ago it was rare to find a pod with nine Peas, now pods with ten, eleven, and twelve Peas are becoming common. Of the last year's novelties Sharpe's Early Paragon, a large-podded white marrow, may be noted, and Magnificent of Eckford, a very large podded green marrow of fine appearance and excellent quality. Several very promising varieties from the great Pea hybridist, Mr. LAXTON, have been tried, and will, no doubt, when a little more selected, meet with the recognition their fine appearance seems to indicate.

— HAKEA LAURINA.—This is one of the most beautiful of the much neglected Proteaceous shrubs. Its general appearance is sufficiently well indicated in the accompanying illustration (fig. 30), which, however, can give no idea of the delicate rosy-lilac tint of the flowers, nor of the charming colour of the shoots, which bear some resemblance to those of *Arbutus Andrachne*. This genus is by no means difficult of cultivation, and it is a great pity we do not find them commonly grown where large houses exist. Some of the Banksias and Hakeas are strong and fast growers planted out, but when grown in tubs and pots they will not extend at any great rate, and become floriferous at an early stage. The soil they need would suit an *Azalea indica*, with a trifle of burnt earth and leaf-mould. The pots should not be much larger than the mass of roots, and the drainage good. To keep large-grown plants in check, shaving off the roots for an inch all round the ball may be done with advantage. Repotting is best done in March, and the plants should be carefully watered until root-growth has commenced. Syringing daily and free ventilation in mild weather will keep them healthy and free from insects. During July, August, and the early part of September plants of *Hakea*, like most of the Australian hard-wooded plants, are benefited by being placed in a sunny, open, but sheltered spot in the reserve garden, or may be used to form groups in the pleasure-grounds. In gravelly soils, and in positions where small pots get dry quickly, plunging in coarse sand or coal-ashes is of benefit. We are indebted to Messrs. DICKSON, of Covent Garden, for the specimen from which the figure we give was taken. On the left of the illustration is seen a section of a flower-bud, showing imbricated scales and unopened flower within, below are pollen grains typical of the genus *Grevillea*. Further to the right

two views of flowers are given, showing how the pistil flies away from the conjoined anthers covered with its pollen.

— THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We are informed that the legacy of £500, less duty, left by Mrs. JANE DODSON, of Blackburn, was paid to the Treasurer of the above Institution on Friday last. The Institution was brought to the notice of the late Mr. DODSON, at the Preston Horticultural Show, by the Secretary; he then became an annual subscriber, and promised that he would not forget the claims of the Institution.

— INTERNATIONAL POTATO EXHIBITION.—The trial culture of new seedling varieties entered for the International certificates will be carried out as in former years at Chiswick, by permission of the Royal Horticultural Society. Persons intending to enter seedlings for trial are requested to send not less than six tubers of each sort, with names and pedigrees, to the care of Mr. A. F. BARRON, Royal Horticultural Gardens, Chiswick, before March 31.

— ARGENTINE RURAL EXHIBITION.—At the end of April this year an exhibition will be held at Buenos Ayres, of agricultural products, machinery, implements, and live stock. In the classes for vegetable products are sections for cereals, grass seeds, roots, tubers, vegetables, fruits (fresh and dried), oil-seeds, textile fibres, flower seeds, hothouse plants, open-air plants, fruit trees, forest trees, medicinal plants, &c. The exhibition will be confined to products of the Argentine Republic, and will remain open about one month.

— "PLANT LORE, LEGENDS AND LYRICS."—Her Majesty the QUEEN has accepted a copy of Mr. FOLKARD's new work, *Plant Lore, Legends and Lyrics*, issued by SAMPSON LOW & Co.

— GRAFTING QUINCES.—EVELYN, *Pomona*, p. 355, asserts that the Quince, although it will serve as a stock for other fruit, yet that its own scions cannot be grafted on any other stock. He translates from PALLADIUS:—

"Though the Quince-stock admit all other Fruit,  
Its cyon with no other stock will suit,  
Scorning the Bark of Foreign trees, does know  
Such lovely fruit on no mean stem can grow;  
But the Quince graft, to the Quince Stock is joyned,  
Contented only to improve its kind."

Can any reader state whether these assertions still hold good?

— MARKET GARDENING IN THE PENZANCE DISTRICT.—The *West Briton* of January 22 contained the following note:—"Of late years the early Broccoli crop in this district has not proved very remunerative to the grower, and, consequently, the earliest kind has not been cultivated so extensively this year. Our gardeners have only sent a very small quantity to market, but the prices realised are better than they have been for several years. The good prices given for Broccoli have induced many growers in the Gulval district to prematurely cut their crops; in fact, a great number have been sent to market no larger than pigeons' eggs, a quart measure being capable of containing a dozen heads. As a natural result of this conduct the trade is injured, and if these growers are not more careful they will be liable to destroy the confidence which it is their best interest to preserve."

— CREWE HALL GARDENS.—In reference to this subject (see p. 75, Jan. 17), Mr. WHITAKER writes:—"The kitchen garden, with orchard attached, contains 5 acres, and the flower gardens and ornamental grounds about 45 acres. The quantity of glass is considerable, including large conservatory, Orchid-houses, stove, Camellia-house, Pine-stoves, several vineries and Peach-houses, pot vineries, Fig-house, Cucumber and Melon-pits, &c.; and the number of men employed is seventeen—six under gardeners and eleven labourers."

— LINNEAN SOCIETY.—At the meeting of this Society to be held on February 5, papers will be read on the following subjects:—"Morphology of Test in *Celopleurus* and *Arhacia*," by Professor DUNCAN and Mr. P. SLADDEN; on "Burmese *Desmidiæ*," by Mr. W. JOSHUA; and on "Generic Synonymy of Orthoptera to 1839," by Mr. W. F. KIRBY.





FIG. 30.—HAKEA LAURINA : A GREENHOUSE FLOWERING SHRUB : FLOWERS ROSY-LILAC. (SEE P. 148.)



— **POTATOS FROM DISEASED TUBERS.**—An Irish contemporary has received a report from Mr. JOHN CONWAY, agriculturist on the Rathdown Union Workhouse Farm, giving details of certain experiments conducted by him during the year 1883-84, with a view to determine the possibility of raising a sound Potato crop from diseased tubers. Mr. CONWAY says that in July he invited two of the guardians to inspect the plot planted with diseased tubers, and that they found it impossible to detect any difference between it and the adjoining plots either in foliage or vigour of growth. The following are the particulars of Mr. CONWAY'S experiment:—Extent of ground under experiment, 26 square yards. Date of planting, April 14. Date of digging out, October 12. Total produce of plot under experiment, 6 stones 7 lb. Quantity of sound tubers, 5 stones 4 lb.; of unsound tubers, 1 stone 3 lb. Estimated produce per Irish acre of sound tubers, 9 tons 19 cwt.; of unsound tubers, 2 tons 5 cwt.; total, 12 tons 4 cwt. Percentage of unsound to sound tubers, 18 per cent. Particulars of experiment with sound "sets."—Extent and quality of ground, mode of culture, time of planting and lifting, the same as in foregoing. Total produce of plot, 5 stones 5 lb. Quantity of sound tubers, 4 stones 8 lb.; of unsound tubers, 11 lb. Estimated produce per Irish acre of sound tubers, 8 tons 12 cwt.; of unsound tubers, 1 ton 9 cwt.; total, 10 tons 1 cwt. Percentage of unsound to sound tubers, 14 per cent. No manure was applied at time of planting, but the previous crop was well manured. The "sets" were planted whole or cut, with two eyes, in drills 3 feet apart, with 9 inches between the "sets."

— **SNOW MOUNTAINS OF EASTERN AFRICA.**—At the last meeting of the Royal Geographical Society Mr. H. H. JOHNSTON read a paper on an expedition to Mount Kilimanjaro and the Snow Mountains of Eastern Africa. Mr. JOHNSTON said that he went to the alpine district of Eastern Africa as head of an expedition planned by the British Association and the Royal Society. Leaving Mombasa towards the end of May last at the head of 120 men, of whom about a quarter deserted on the road, he reached Kilimanjaro at the beginning of June. The cultivated zone, he found, ended at a height of 5500 feet. At 10,000 feet the thermometer descended every night 1° or 2° below zero. While mentioning this fact he gave details showing that the land even up to that elevation is both beautiful and fertile. He reached a height of 16,315 feet on Mount Kilimanjaro—something like 2500 feet from the summit—where the fog prevented him from seeing anything but stones and snow. Notwithstanding the latter, his thermometer recorded a temperature 3° above freezing point. The lecturer went on to describe his attempt to ascend Kibô, the monarch of the range. Here he learned that the buffalo, the koodoo, and the elephant wander as high as 13,000 or 14,000 feet. He reached the snow region of Kibô, but not the summit, being compelled by bad weather and unwilling followers to return. The Rev. Archdeacon FARLER, as one familiar with the country visited by Mr. JOHNSTON, pointed out that the lower slopes of the Kilimanjaro Mountains were very suitable for European settlers.

— **BANKSIA ERICIFOLIA.**—The leaves of this species are so dissimilar to Banksias in general, and bear so remarkable a resemblance superficially to those of a Heath, that no one probably would guess as to its relationship except when in flower. They are slender, revolute at the margin, shortly two-pointed, and densely cover the twigs on all sides. Their characters, as well as that of the flowers, refer them to the section *Oncostylis* of the *Genera Plantarum*. The cone-like inflorescence is cylindrical and erect, several inches long, and rather conspicuous. A large plant in the Temperate-house, Kew, is well furnished with these cones in all stages of development, from those that are green to the fully expanded yellow ones that ultimately become a deep amber-yellow. This species is figured in an early volume of the *Botanical Magazine*, t. 738.

— **CHRYSANTHEMUM CULTURE.**—Mr. JOHN BRADNER, of Arley Hill Nursery, Bristol, gave a lecture in the Institute Hall, Veovil, on Friday evening, on "Chrysanthemums and their Culture." Local gardeners attended in good numbers, the lecturer's success as a prize winner having made

his name famous amongst growers of the queen of autumn flowers. The lecture was full of valuable information from beginning to end. As Mr. BRADNER has given up exhibiting he freely gave the results of his long and varied experience, and answered a host of questions after the lecture. At the request of those present he consented to publish the lecture in pamphlet form.

— **INTERNATIONAL FORESTRY AND HORTICULTURAL EXHIBITION.**—We are informed that the arrangement of the Exhibition to be held at the Alexandra Palace, has been entrusted to Messrs. DICK RADCLIFFE & Co. The general programme is as follows:—

#### Class I.—PRACTICAL FORESTRY.

- Section 1.—Implements and tools used in forestry; draining, enclosing and surveying instruments, chains, dendrometers, &c.  
 „ 2.—Models of foresters' huts, drying sheds, charcoal kilns, timber slips, sluices, bridges, locks and weirs.  
 „ 3.—Plans of river embankments, rafts and appliances for floating timber.  
 „ 4.—Machinery or models for transporting timber and transplanting trees.  
 „ 5.—Saw mills, wood-working machinery or cork-cutting machinery of every description, and pulping apparatus in motion or otherwise.  
 „ 6.—Fencing materials of all kinds, including gates and stiles.

#### Class II.—FOREST PRODUCE, RAW AND MANUFACTURED.

- Section 1.—Collections of timber specimens and ornamental woods:—A, indigenous or naturalised; B, exotic.  
 „ 2-26.—Various applications of wood to industrial and ornamental purposes.

#### Class III.—SCIENTIFIC FORESTRY.

- Section 1.—Botanical specimens of forest flora.  
 „ 2.—Microscopic sections of woods.  
 „ 3.—Parasites; fungi and lichens injurious to trees.  
 „ 4.—Edible fungi; in their natural state or preserved.  
 „ 5.—Forest fauna injurious to woods.  
 „ 6.—Forest entomology, useful and noxious insects, with specimens illustrative of the damage done by the latter.  
 „ 7.—Preservative processes applied to timber.  
 „ 8.—Specimens and diagrams illustrating the geological formations adapted to the growth of trees.  
 „ 9.—Fossil plants; collections illustrative of the trees of the coal measures, &c.  
 „ 10.—Trees found in bogs—Oak, Fir, &c.

#### Class IV.—ORNAMENTAL FORESTRY.

- Section 1.—Growing specimens of rare and ornamental trees and shrubs, in tubs or otherwise.  
 „ 2.—Rustic work; arbors, bridges, gates, seats, &c., in wood or virgin cork.  
 „ 3.—Dried specimens of ornamental objects, including foliage.  
 „ 4.—Plans and designs for landscape gardening, &c.

#### Class V.—ILLUSTRATIONS OF FORESTRY.

#### Class VI.—FOREST LITERATURE AND HISTORY.

#### Class VII.—ESSAYS AND REPORTS.

#### Class VIII.—LOAN COLLECTIONS.

#### Class IX.—ECONOMIC CONDITION OF FORESTERS AND WOODMEN.

#### Class X.—HORTICULTURE.

Spaces in the grounds will be allotted for collections and displays of trees, shrubs, and nursery stock and produce generally. Collections from private gardens, &c. Landscape gardening, plans, designs, garden literature, floral and other illustrations, &c.

#### Class XI.—SEEDS, AND GARDEN APPLIANCES OF ALL DESCRIPTIONS.

#### Class XII.—MICELLANEOUS.

Lawn-mower competition will be arranged. If possible, arrangements will be made also for boiler, glazing, fumigating, watering apparatus, and other similar competitions.

Applications for space should be made immediately to DICK RADCLIFFE, 129, High Holborn, W.C.

— **GUTTA-PERCHA SUBSTITUTES.**—Chemical substitutes for gutta-percha have recently been brought to notice in France and Germany. A patent has been taken out quite lately in Paris which consists

of boiling Birch bark, especially the outer layer, in water over an open fire and concentrating the extract by evaporation, after which there remains in the evaporation dish a black liquid mass, which on exposure to the air quickly becomes solid and very compact. This mass possesses all the properties of gutta-percha and may be applied to the same uses. It has further this advantage that it does not crack on exposure to the air, it is more solid, and its production is cheaper. It may also if desired be mixed with either gutta-percha, or indiarubber. Another substitute for gutta-percha for which a patent has been obtained in Germany consists of powdered opal, sublimed sulphur, oil of turpentine and petroleum. The mass is heated in a boiler provided with a stirring apparatus, to a temperature of 150° Centigrade. It is then allowed to cool to 38°, when it is mixed with a weak solution of eosine in ammonia-water, to which wood spirit has been added. It is then beaten to its former temperature and boiled with a solution of nut-gall. It is stated that this artificial gutta-percha cannot be detected from the real article, and that it wears equally well, while its price is much lower.

— **MOHWA SUGAR.**—A note on Mohwa sugar from *Bassia latifolia* was recently communicated to the Agricultural and Horticultural Society of India. In this communication the writer refers to the presence of sugar in the petals of the flowers, and says that this "indicates that the rising sap of the tree in spring, and just before the flower-buds swell, must be rich in saccharine matter, and if so tapping the Mohwa trees in the same manner that the Sugar Maple (*Acer saccharinum*) of North America is tapped may lead to the production of sweet sap, which on being boiled and concentrated would yield sugar." It is suggested that it would be well worth while tapping or bleeding the species of *Bassia* for their sap, and if this should be found to contain true sugar, the discovery would be one of considerable importance, for a large and very profitable trade would be called into existence in India.

— **LACHENALIA PENDULA.**—If a selection of half-a-dozen of the best kinds of this numerously represented genus of Cape bulbs were made this one should, by all means, be included. The robust growing erect scape attains a height of 12 or 15 inches. The bright green leaves are quite spotless, as are the flower-scapes—a rather unusual feature amongst the species usually cultivated in gardens. The flowers are amongst the largest in the genus, and orange-red or scarlet, with thickened points of a dull purple and green colour. It is figured in the *Botanical Cabinet*, 267, and is perfectly distinct from *L. quadricolor*, figured in the *Botanical Magazine*, t. 588, and by some authorities considered as a variety of *L. pendula*. The latter is flowering in the Cape-house at Kew.

— **POISONING BY RHODODENDRONS.**—A well authenticated case of the poisoning of ten sheep is reported from West Middlesex; these, with some 200 others, having broken down a fence in Whitton Park, near Hounslow, and eaten freely of the Rhododendron foliage, which was abundant in the shrubberies. A local veterinary surgeon, who examined the dead sheep, found the stomachs full of partly digested Rhododendron leafage, and gave as his opinion that this was the cause of death. Certainly no information is afforded as to the kind of Rhododendron consumed, but probably it was the common ponticum. Further, though the sheep were reported as poisoned, it is not clearly stated whether death was, in the estimation of the veterinary surgeon who examined them, caused by distension of the stomach, arising from excessive feeding, or whether the leafage did absolutely and clearly poison the animals. No doubt there are many cases in which the one thing is mistaken for the other, though vastly differing in character, but that death was due to the eating of the Rhododendron foliage there could be little doubt. It may be taken for granted that a case of this kind would be much less likely to occur in the season of the year when pasturage was abundant, and sheep, or, indeed, any cattle, found ample food in the herbage. But when hungry, animals will often feed upon vegetable matter that they would if well supplied with proper food disdain to touch. No doubt the clearing up of the point as to whether death arose from distension or poisoning would bring the owner of the sheep cold comfort, but at least it would be useful to have it so cleared in the interest of science. In any case, this should be a warning to all who have charge of sheep, that they



keep them secure, well fed, and safe from similar temptation to wander from the path of safety.

— COLUMBIA MARKET.—On Saturday last an important and interesting gathering took place at the Guildhall Tavern, to celebrate the anniversary of the reopening of Columbia Market. About sixty salesmen and gentlemen directly interested in the fruit, vegetable, and fish business, carried on at this centre were present. After referring to the building of the market, the idea of which originated with the Baroness BURDETT-COUTTS, Mr. BURDETT-COUTTS, who occupied the chair, went in detail into the causes of its previous failure, the chief of which was that it had never had the trade within it. And that was exactly where the event they now celebrated differed from those which had gone before, and the chief reason for confidence in the future. They, the salesmen, represented in their individual and corporate capacity the trade itself, bringing their own supplies and their own customers; they had moved voluntarily and in a body into the market, and were throughout determined to make it go.—Mr. WILDERSPIN, in proposing "The Columbia Market Salesmen's Association," said:—I would remind you that the necessity of associating together so as to act in a body was felt by the leaders of the salesmen to be of the utmost importance from our first coming to the market. We, I believe, are the first body of salesmen who have taken upon ourselves this plan of forming into one body instead of acting individually, and as we stand in this strong position to-day, I trust we shall continue so for many years to come.—Mr. SCOTT was able to say that in the first month, commencing on January 17 last year, the weight of business done in Columbia Market was 3520 tons, and in the last month—December—the weight was 4009 tons. This is an increase of only 500 tons in the month, and the reason is want of room; he knew from his own knowledge that the market authorities were almost daily refusing applications for room in the market. But every market man knew that besides open space ample warehouse-room was required, and this is proved by the fact that most of the salesmen who had to discontinue selling at the Bishopsgate depot have kept on their premises at considerable cost and inconvenience for warehouses.

— MARKET GARDEN FARMING.—At the meeting of the salesmen of Columbia Market above alluded to, Mr. GEORGE BROWN said that it seemed as if every one except the farmer knew how to farm. One great panacea for the depression was to advocate a duty on corn, but he for one was not of that way of thinking. He did not believe in running after a shadow, and he felt certain that a duty of five shillings on Wheat would not of itself advance the price to the grower half-a-crown. What would do more good would be for our legislators to repeal those bad old laws which had almost become obsolete, but which now appear to be restored and to be more arbitrary than ever. In proof of this he pointed to the fact that all the vegetables required by a million of people had to be brought to one spot, and so have a toll put on them at the will of a private individual, an obligation under which East London can never be properly supplied with vegetable food. Whilst such a state of things existed it would be like putting a rent of five shillings per acre on all land that has any pretension to grow vegetables. Bad as that is, it is trifling in comparison to the injury it will do to the consumer, for it is quite impossible to feed such a great number of people properly from one spot by small carts, from and to remote distances. The consequences is that the prices have to be put so high that the public does not get half enough. Only last year he had ploughed into the ground 40 acres of vegetables, which he should have brought to market if he could have realised nearly one farthing per pound, and at that very time the consumer was paying one penny per pound in London for precisely the same class of vegetables as he had to destroy. Much larger quantities of vegetables would be consumed if they could be properly conveyed to the consumer in sufficient quantities at reasonable prices, and the best way to increase and distribute such food would be to introduce railway communication direct into a market. It is not generally known that if green vegetables do not reach the consumer on the same day that they are brought to market, their value goes down from 50 to 100 per cent., so that in forty-eight hours they are worthless. It is monstrous that in this day our horses should be compelled to drag all vegetables six miles through London, and then other horses drag them back again, all in consequence of a foolish charter.

— GARDENING APPOINTMENT.—Mr. G. H. HARDING has been appointed Gardener to the Hon. W. LOWTHER, M.P., The High House, Campsea Ash, Wickham Market.



## The Flower Garden.

### PROTECTION OF BEDS.

THE last two or three weeks of snow and frost and north-easterly winds have stopped all progress in the winter and spring garden, and many of the early plants are damaged by wind and frost. Just before the frost set in many of the bulbs were showing above-ground, and such plants as Winter Aconites and Crocuses were even showing their blooms, but now everything shows the effect of the late change of the weather, so that if not already done lose no time in giving protection by means of Fir branches, pieces of some other evergreen, or Bracken stuck in all over the flower-beds. Leaf-mould may be spread evenly over the beds, for which this makes a good warm covering and looks neat and clean. All branches can be removed as soon as the weather changes to mild, so as to have all the beds and walks in a presentable state.

### THE HERBACEOUS BORDER

had better be left untouched until the weather becomes warmer, when it will require a thorough looking over and rearranging.

### VACANT BEDS AND SHRUBBERIES.

Manure, dig, or trench all beds and borders that contain no plants, the shrubberies also should undergo a thorough inspection, carefully thinning out all dead wood; cut out and remove any shrubs that are standing too thickly together, and give all single specimens plenty of room to grow in; and if not already done dig all shrubberies, and trim the grass edges, so as to improve the look of the verges. *W. Smythe, Basing Park, Alton.*

## Plants and their Culture.

### FORCED PLANTS AND BULBS.

THESE should now be rendering a good return for all the past attention paid to them, and both now and onwards for some weeks to come will yield the staple product for the supply of flowers for cut purposes, as well as being most useful in the conservatory. Suitable houses or pits are not often allotted to our craft as a rule for the production of these barbingers of the coming spring time; it cannot be wondered at, therefore, if we fail to produce flowers in such a successful manner as our brethren in the trade, who know full well the importance of special treatment for certain subjects, and who, therefore, place together in one structure only those plants that will give the maximum return under one mode of treatment. Those of us who have to deal with the smaller supply of a private garden do not need such large quantities at one time; a succession according to the demand has rather to be aimed at; and it is well known that a small number of any given plant often gives as much trouble as a greater number of the same would do.

### SUITABLE PLANTS FOR PRESENT FORCING:

#### AZALEAS.

Of these the early flowering Azalea indica are among the best. The easiest to induce to flower early are, of whites, *A. narcissiflora* and *A. indica alba*; of striped kinds *A. punctulata* and *A. vittata elegans*, two of the quickest that can be grown; whilst *A. Marie Vervane* and the newer form of *A. Roi Leopold* (*A. Roi Leopold alba* of catalogues), are two varieties of much desirability; of selfs for early work *A. Roi Leopold* (salmon) is one of the freest, *A. Model* (rose) also being a good reliable kind. Azalea amœa is well known as one of the best of its colour; both this and the improved forms of it that have been introduced during the last few years readily start into flower early in the season. *A. obtusa* closely resembles *A. amœa* in habit, but with flowers of an orange-crimson—a pleasing

and distinct shade of colour at this season of the year. Why this species has been so long neglected we cannot conceive; it is of equal value to the latter variety, and where one is grown the other should also find a place. We are glad to see that its merits are now appreciated as they deserve to be. Azalea mollis may now be introduced, but not into too brisk a heat at first. We have a stock of these plants that have been in pots for three or four years; more or less they have flowered well each year, every alternate season, however, being the best as a rule. This season they have departed from this course, and are promising well the second season in succession; so also is another species of this type, *A. altaclarensis* of catalogues. I think this may be fairly attributed to the unusually dry and sunny weather of last summer. This deciduous section of Azaleas can, therefore, be retained in their pots from year to year with good prospects of a full crop of bloom at least every alternate season, in a similar way as with *A. sinensis*. *J. Hudson, Gunnersbury House, Acton.*

## The Hardy Fruit Garden.

### MORELLO CHERRIES.

THESE varieties may be planted on east and north walls. The wood on established trees should be well thinned out, so as to allow space for laying-in a portion of young wood every year, as it is mostly on the current year's growth that the best fruits are produced. To obtain fine fruit the shoots should never be closer than 8 or 9 inches apart. It is always more satisfactory to have fine large fruit than a quantity of inferior produce, and this can only be obtained by good cultivation.

### APRICOTS.

Trees on walls may be pruned any time before the end of February. In old trees, if the fruit-bearing spurs have become long and 8 or 9 inches away from the wall, these long spurs should be thinned out so as to encourage growing shoots to break away close to the wall. The Apricot being a native of the sunny slopes of the mountains of Central Asia and elsewhere, the soil, no doubt, in such positions is hard, dry, and warm; this being the case we should by all means plant our trees in the warmest positions at command. The covering of wall trees should be deferred as late as possible. When covered early it only encourages them to come into flower, and our object should be to retard the blossoming period as late as we possibly can. *J. Smith, Mentmore, Bucks.*

## The Kitchen Garden.

### FORCING CUCUMBERS.

PLANTS obtained from the first sowing will now be ready for planting out. Before this is done the house should be thoroughly cleansed by washing all the woodwork and glass, and by applying a good coating of lime wash to the brickwork. Whether the plants are to be grown and fruited in pots or planted out in brick beds specially constructed and supplied with bottom-heat pipes, ample drainage must be provided. The bottom-heat pipes are much better if surrounded by water. Assuming that the above is provided the following preparation to receive the plants will answer well. Thick slates or something equivalent will form the bottom of the bed, with holes pierced through or space left between for the double purpose of allowing heat to ascend and water to pass down. Over the slates place a layer of clinkers, next a layer of good fibrous loam, from which as much of the soil should be shook out as possible without breaking the turves. If the latter is not available thin cakes of porous peat will answer the purpose. The layer of clinkers will allow a free circulation of warm air from the pipes beneath. The hillocks to receive the plants should be composed of fibrous loam and leaf soil, and allowed to become thoroughly warmed prior to planting.

### MUSHROOMS.

Have material prepared in readiness to replace exhausted beds. If a shed is available it will be found a



considerable advantage for this purpose. Dung, for forming beds, should be collected every morning as it is removed from the stables. Do not follow the old plan of rejecting the whole of the short straw and using the droppings only; the system is unsound and unnecessary, and if followed takes a long time in most places to collect enough material for each bed. One-third short stained straw at the least should be retained, as in the preparation this will quickly decompose and become scarcely perceptible, providing the heap is managed well and turned regularly and thoroughly mixed.

Wheel the stuff direct to the shed, and after five or six barrowloads have been placed together thickly, in three or four days fermentation will commence; then the turning and purifying should begin: every fresh addition to the heap should be well mixed and distributed through the mass. Do not spread it out thinly, the quicker the dung is purified and placed in the Mushroom-house, with the least loss of ammonia, the more lasting will be the crop. After the bed is made up it should not become very hot, or the compost will be too dry to encourage the rapid spread of the spawn, and the Mushrooms will appear only immediately above the places where the spawn was inserted, instead of coming up all over the surface of the bed.

#### TOMATOS.

Before young plants approach a pot-bound state they should be repotted. Place a stake to each, and keep them near the glass, to induce a short, sturdy growth. Cuttings which were struck last autumn, or plants raised from seed sown about that time, will now possess some good firm wood, and should be encouraged by repotting, or they may now be planted out in the position in which they are to fruit. *G. H. Richards, Somerley Gardens, Ringwood, Hants.*

### The Rosery.

#### CELINE FORESTIER ROSE.

THIS is a most valuable Noisette Rose for early forcing. The half-opened blooms, of a deep yellow in the centre and deliciously scented, are well adapted for button-hole work. We have been cutting nice blooms of it since Christmas, which it is needless to say are much appreciated. Cuttings taken off now with a heel of last year's wood and inserted round the edge of 3-inch pots filled with sandy loam, and having a surfacing of sand, watered, and then plunged to the rim in sawdust in a box sufficiently deep to admit of a square of glass being placed over it without coming in contact with the cuttings and placed over the pipes in a forcing-house, will soon root; after which they should be potted singly into 3-inch pots, watered through a rose to settle the soil about the roots, and be placed in a forcing pit near the glass, subsequently pinching out the points of the shoots to make them branch, and shifting the plants into 6-inch pots as soon as they have partly filled the 3-inch ones with roots. Afterwards they should be gradually hardened off and be plunged to the rim of the pots in coal-ashes in a sunny situation out-of-doors, and be liberally treated and kept very clear of fly and other insects. They will be good plants for forcing in November. *H. W. W.*

#### ROSE ADMIRAL COURBET.

A new hybrid perpetual, said to be a chance seedling, raised by Mr. F. Dubreuil. Flowers of moderate size, cup-shaped, "bright carmine, the back of the petals magenta." Very sweet-scented.

#### ROSE MADAME PAUL MARMY.

A seedling from Gloire de Dijon, with large well-formed flowers, clear yellow in the centre, the outer petals pale rose-coloured. According to the *Journal des Roses*, in which this Rose is figured (January 1, 1885), M. Marmy, the raiser of this Rose, collected the seeds of Gloire de Dijon, Madame Berard, Madame Faicot, and other Roses in Algeria, stratified them in a large flower-pot which accompanied him on his travels through Algeria, thence to Paris, and ultimately, after a lapse of some months, to Portugal, where he settled down and planted out what remained of his seedling Roses. The beautiful variety now figured was one of them, and is now in the hands of M. Cochet, of Suisses.

### THE POPPY GALL-FLY.

THE remarkable diversity in the shape, size, and general appearance of the different kinds of galls, which are vegetable protuberances growing from the roots, stems, leaves, and even seed-vessels of various plants and trees, raises a great variety of physiological enquiries as to the mode of operation of the insects which are the cause of such abnormal growths, and the reason why the minute amount of matter deposited with the eggs should result in such great diversity of structure and texture in the growths originating therefrom even in the same kind of plant. It was the fancy of some writers that the portion of the plant in which the eggs were deposited, being interrupted in its normal growth, had sent out a structure which was regarded as an incipient attempt to reproduce the real growth of the plant; thus the spine-growing stem of the wild Rose was supposed to reproduce an abortive mass of spines, beset with smaller spines, in the large mass well known as the pin-cushion gall. It need scarcely be said that such a fallacy is disproved by the investigation of almost every species of gall. The large, hard, woody gall of the Willow stem, the large, soft gall of the Oak, well

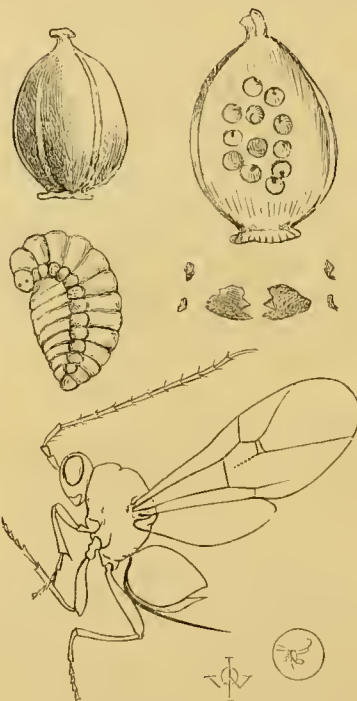


FIG. 31.—THE POPPY GALL-FLY (*AULAX RHŒADIS*, HARTIG).

known as King Charles' Oak-apple, the Currant-like galls and the Artichoke galls of the Oak are other well-known instances of the diversity which must have taken place in the parts of the same tree affected by different kinds of Cynipidae, and we now bring to the notice of our readers another kind of gall, in which the capsule containing the seeds of the common Poppy (ordinarily hollow, but divided by several slender plates into so many cells, in which the seeds are placed) is transformed into a solid mass, in which are a number of small round cavities, each occupied by a fat footless grub or larva, which feeds on the mass of the gall surrounding its cell.

We received a specimen of this kind of Poppy-gall in February, 1836, from the late Dr. Dickson, at which time the enclosed insects were in the pupa state, and were of a brown colour. Other specimens subsequently obtained produced the perfect flies, which proved to be the *Aulax Rhœadis* of Hartig (*German's Zeitschr.*, bd. ii., p. 195). In July, 1884, we also received from G. H. Sawyer, Esq., capsules of *Papaver dubium*, taken near Guildford, which contained numbers of small circular cells not more than half a line in diameter, each enclosing a minute white, soft, plump larva, with a very small head, furnished with two three-toothed mandibles. The perfect insect reared from these galls is represented of the natural size in the circle in the lower part of our woodcut

(fig. 31), and highly magnified in the large figure; the wings are quite transparent, with a small cell in the middle of the forewings. This little cell is more triangular than represented in our figure, being narrowed towards the anterior margin of the wing, where it joins the large marginal cell; it has chestnut-coloured feet; the antennæ of this female are long and slender, and fourteen-jointed. The ovipositor with which the female pierces the capsule to deposit her eggs therein is like a very fine needle, and is seen at the extremity of the body in our figure, in which we need scarcely say that the antennæ, wings, and legs on only one side of the body are represented, to avoid confusion in the details. *I. O. W.*

### FRUIT NOTES.

**PATCHING VINES.**—Last year a few rather strong growing young Vines of Muscat of Alexandria, Lady Downe's, and Mrs. Pince not breaking so regularly as I could wish, some of my friends advised me to cut the young rods down to the regular break, and then take up fresh leaders. This advice I could not see the desirability of doing, seeing that the evil thus sought to be remedied was just as likely to repeat itself, and instead of following it the shoot immediately below the bare portion of each Vine was trained up the stem, and inarched thereon, having in each case the lower bud of the shoots so treated, and which will produce shoots this year, and fruit if necessary, as close to the base as possible. They were then bound together with matting, after which a little moss was tied round at the point of contact for the purpose of retaining the moisture which was applied three or four times a day with the syringe. In one or two cases the same lateral was used to supply two separate shoots at about 15 inches apart this year. As far as I know this mode of "stopping gaps" on Vines is as novel as it is efficacious, as I have never read nor heard of any one having practised it before. Hence my object in recording the *modus operandi*, the results of which I hope to supply to the readers of the *Gardeners' Chronicle* in due season. *H. W. Ward, Longford Castle.*

#### BLenheim ORANGE

is the Apple *par excellence* in this neighbourhood, and last season quite surpassed itself in the heavy crop produced, which always finds a ready sale at remunerative prices, which ranged from 6s. to 12s. per cwt. during the past season, commencing at the former, and ending with the later price, at Christmas. I gathered 25 cwt. from the only two trees of that variety in an orchard of 12 acres, which made me wish there had been more of the same kind. Now an orchard of Blenheims, the extent of the one mentioned, planted 30 feet apart each way, would give forty-eight trees to the acre; and suppose they bear every other year (for I find it is a bionial as a rule) 2 cwt. each, worth 8s. per cwt. on an average, would give an annual value of £19 4s. per acre. After deducting cost of gathering and marketing, which I reckon to cost about 1s. 6d. per cwt., a very good return is left. Blenheims do not bear young; they are strong, vigorous growers, and there is plenty of other varieties that surpass it for early bearing, but it is a sort that makes a tree to last, and having a good reputation in the markets there is no difficulty in disposing of them, for dealers only know a few sorts of Apples, and Blenheims stand at the head of their list; most other kinds are sold under the term of pot-fruit in this district at a much lower price. One of our largest nurserymen informed me the other day that there was such an extraordinary demand for Blenheim trees now that it could not be supplied. Planters for market do not plant a number of varieties now, but stick to what are in request—an example that all might follow who are not collectors or exhibitors. I find Blenheims vary a great deal from different situations in size and colour. They show it most at the time of gathering; after storing for a time there is not so much difference in colour. *Wyeside.*

#### BRITISH APPLES.

Having read the report of the Apple Congress, and finding there were only two collections from Ireland, and those not large, I will give a list of those kinds that were fruitful in the cold summers of 1879, 1880, 1881, in the North of Ireland. Culinary kinds:—Ringer, Domino, Keswick Codlin, Lord Suffield, Hawthornden (old), Warner's King, Rymcr, Cellini,



Dessert kinds:—King of Pippins, Court of Wick, Yellow Ingestre, Mr. Gladstone, Duchess' Favourite, Blenheim Pippin. The above form part of a collection of over 150 bush-trained trees from fifteen to twenty-eight years of age, and consist of upwards of forty kinds. *Pomona*.

## HOME CORRESPONDENCE.

**Retarding Blossoms on Wall Trees.**—Our gardening friends seem chiefly occupied with devising more or less expensive contrivances for warding off the effects of frost from Plums, Apricots, Peaches, and Pears. It seems to me that this protection of the bloom in these various ways will not be generally adopted because of its expense and the great labour required in fixing and removing it, and also because of its inefficiency at the critical time. As many think our winters tread more on the heels of summer than was their wont, which is by no means proved, why not in some manner retard the flowering of the trees to a more favourable period in the spring months? No transparent substance as glass or oiled canvas is so good for screening trees from frost as opaque ones. This is one, and perhaps the sole cause of the loss of bloom under wide copings of these with only a moderate degree of frost. They do not arrest radiation of warmth from the border nor from the wall to the same degree as straw, wood, or slate. I found that no form of open protection was so good in retarding the growth of the buds, the

fruit on it in a garden at "Burry Port," in South Wales. The garden belongs to Captain T. Edmunds, and I last month heard of a fine Laburnum tree, one half of which was then in full bloom on the lawn at Killymaen Llwyd, the residence of Marcus Bees, Esq., which is in the immediate vicinity of "Burry Port." *Helen Watney, Liss, Hants.*

**Penzance Notes.**—The weather here, with the exception of a few days, has been remarkably mild—a fact which, of course, has material influence upon vegetation. Fuchsias, Pelargoniums, and many other subjects in the open still exhibit traces of "departed glory." The handsome Passion-flower, *Passiflora cœrulea*, is practically a hardy evergreen on the walls of houses around this town; its showy Orange-like fruit renders it singularly attractive, and the plant itself flourishes with remarkable vigour within a few feet of the sea. Market gardeners have already commenced, to some extent, putting in Potatoes; in a few favoured localities I have noticed that the first leaves are already above the surface of the soil. The Cucumber-forcing industry of this district has made most rapid strides within the past three or four years, half a dozen men having no less than sixty-two houses in full swing; of this number three or four structures are devoted to Vines and Peaches. *Bevis.*

**A Patent Boiler.**—This form of vessel, in which water may be heated, before flowing into the glass-houses (fig. 32), is noticed, not because it is "the most powerful and economical boiler ever invented,"

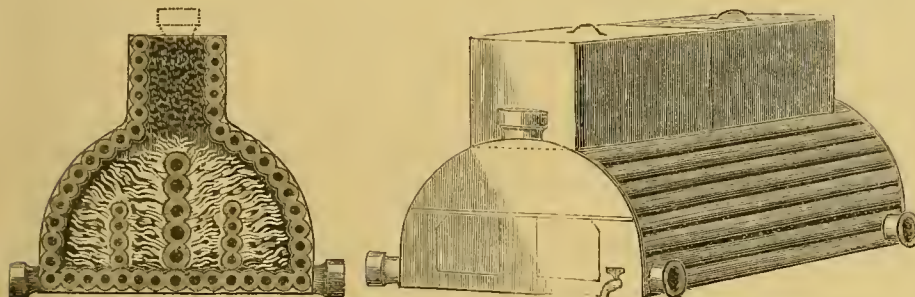


FIG. 32.—A PATENT BOILER.

nearest approach to it being found in boards of 11 inches wide resting on iron supports, and having Frigi Domo covered frames, placed almost upright against the edge of the board. All such blinds are apt to get blown over or torn into shreds by the boisterous March winds, failing just when most wanted. The best methods of keeping the bloom in check were covering the trees with straw or bast mats at a short distance (6 inches) from the wall, the first being the better for the purpose, or by using the Frigi Domo frames at the same distance. These are better put on in the daytime and removed during the night until the trees come into flower, when the procedure must be reversed. All this is very troublesome, but it paid in returns of more than average crops. The gardener must begin in January or February, the latter month in severe winters being usually early enough. The best of all retarding material is undoubtedly Spruce Fir branches put on the wall thickly, fastening with nails or tying them to the wires, if the wall is wired. It is sufficient if the edges of the branches just touch each other all over the surface of the trees—they will keep the wall cool during the sunny days of late winter, but as the sun gains power it will cause the "needles" to fall off gradually and lessen in size individually, so that the branches will both hinder the too early opening of the bloom and well protect it when open. The spray must remain on the wall till all danger from frost is over, by which time it will have lost all its foliage, so that the removal of it will cause no check to healthy growth, and an abundant crop of fruit will be found underneath. *M. W.*

**Unusual Blooming of Trees.**—There is now, I am informed, an Apple tree with a large crop of

but because we perceive an apparently useful deviation from the general saddle form in vogue. Of its power or economy we can say nothing; still, its form, encased in corrugated iron, embodying the advantages of the tubular boilers without that multiplicity of parts existing in them, should favour the rapid rise of the temperature of the contained water, and this latter, being of considerable bulk, should retain its heat for a comparatively long period of time, and so assist in keeping the circulation up after the fire has got low. The makers are Messrs. Wood & Milton.

**Eucharis amazonica.**—Like your correspondent, A. Macdonald, I have not seen or heard anything to justify the belief in the so-called disease in this plant. The symptoms mentioned by numerous writers in your columns of late have been amply demonstrated in my own plants from time to time, but the evil has generally proved to be the same, viz., loss of roots, the soil having become like paste, which is not to be wondered at, however full of fibre the compost may be at the time of potting, and especially if kept, as many of your correspondents' plants are, in a strong heat and deluged with water from one year's end to the other. With us when a plant shows signs of exhaustion, as soon as it has done flowering I shake it out and wash the bulbs thoroughly, then with a good rough compost, similar to what "Young Gardener" mentions at p. 24, I repot, having first sorted the bulbs in three sizes, and plunge in cocoa-nut fibre up to the rims; bottom-heat is applied and they commence to grow at once. I may mention that some so treated just twelve months ago, and that had not a vestige of a leaf, are now in perfect health again. As soon as they have made a good leaf or two I gradually lift

them from the plunge-bed which they only inhabit at such times as when not established, as I consider it has a tendency to destroy the fibre in the compost and turn it sour much sooner than when the pots are stood on the stage in the ordinary way. Thrips are great pests and will soon make headway if the atmosphere is allowed to become dry for any length of time: unremitting attention in the way of damping down and syringing will soon lessen their numbers, and be highly beneficial to the plants. Until by some means we introduced the mealy-bug three years ago, we had no difficulty whatever, but the constant cleaning and dressing has sadly disfigured our best plants which were then 5 feet across, but although disfigured they are none the less healthy, and now that the bug is stamped out we hope to have our turn again. *J. Prevett, Swiss Nursery, Hammersmith, W.*

**Gas Lime.**—Your correspondent, Mr. Divers, must not think this the destructive agent to vegetation he makes out if applied to the land with judgment for the destruction of slugs: I have never used it, and do not intend to; but for preventing the attacks of wireworm on Carrots and Parsley, it has been used here successfully for years—indeed we should not think of sowing these crops without the application of gas-lime first. For Carrots we manage to dig in about a quantity equal to half an inch in depth some time before Christmas—that is for the main crop; but for late Carrots, and also for Parsley, we have often dug in gas-lime, and sown directly upon it, and I have never yet witnessed the ill-effects; on the contrary, whereas these crops used to melt away like butter before the sun, now they come to perfection. Beyond this I do not intend to preach, but as recommended for the destruction of weeds on walks by "T. B.," p. 26 (I wonder if he practises what he preaches?), I should say it would be a disagreeable nuisance, worse than the weeds, and which no rational man would attempt. Fancy a good shower of rain on a coating of gas-lime. What a delightful mixture for carriages, boots, &c. *J. Corbett.*

**Lapageria rosea: Hardiness of the White Variety.**—At p. 54 the Rev. J. T. Boscawen makes the remarkable observation that the white variety of this plant is, "if anything, hardier than rosea." Readers of the *Gardeners' Chronicle* will remember that Mr. Darwin has pointed out that a number of white varieties of plants are decidedly less hardy than the coloured ones, but the fact seems to be that no generalisation of this sort will hold good, as numerous instances are known (in addition to one adduced by Mr. Boscawen), where a white variety is equally hardy with, if not harder than, the coloured form. *W. G. S.*

**A Large Cupressus macrocarpa.**—On Dec. 20 a *Cupressus macrocarpa* was blown down by a north-westerly gale. It was set up on the 22d and stayed with four pieces of fencing wire secured to posts driven nearly 3 feet into the ground. On Jan. 15 it was blown down by an easterly wind, which drew the posts out of the ground. The tree was planted early in 1867 when 3 feet high, and measures—height, 40 feet; circumference at 3 feet from ground, 40 inches, at 5 feet 36 inches. Soil light, resting on dum stone. The roots are very brittle. *H. R. R. N.*

**Anthurium Andreanum.**—A very fine variety of the above is in flower in the gardens of J. S. Hodgson, Esq., Lythe Hill, Haslemere. The flower-spikes are about 8 inches long and 6 wide; the foliage is both healthy and strong, which is one thing essential for producing large flowers. The plant in question is potted in a mixture of rough fibrous peat, sphagnum moss, crocks, and charcoal. The top is surfaced with live sphagnum moss, which the roots delight to run in, and which gives the plant a neat and finished appearance. *A Visitor.*

**Californian Onion Seed.**—California has for some years past been considered an important State for the growth of Onion seed to supply the principal American markets, and it bids fair to come into competition in providing also for the markets of the Old World. In October last we had three samples of Californian-grown Onion seed handed to us by the London agent of a seed firm doing a large business at Santa Clara. We carefully tested the growth of this seed, and we found, although it was 1883 seed,



that it germinated very strongly, producing a high percentage of plants, and everything on this score was perfectly satisfactory. But we were not satisfied with this, and asked to have some bulbs sent over, in order to judge of the different stocks. In due course these arrived, and we were highly pleased with them, the size, shape, and colour being all that a gardener or seedsman need wish. One sample of Danver's large flat yellow Onion seems the most suitable for our markets, and is a really first-rate Onion—large size, good substance, and an excellent keeper, superior to and quite distinct from the Danver's Early Yellow of France and Germany. The other sorts were red varieties, one a large flat, and the other a globular-shaped Onion, and very excellent stocks they appear to be. We propose growing a good breadth of the large Danver's Yellow in our own market gardens, and shall certainly not fail to bring this variety before the notice of our friends, and in due course we shall have pleasure, if you think well, in giving you the results of our crops [Please do so]. As we venture to think this may be of some interest to many of your readers we are sending you some specimen bulbs for your inspection, and we should be glad to have your opinion respecting them. *W. W. J. & Son.* [A sound medium-sized sample of perfectly ripened bulbs, differing from our Danver's Yellow in being a little more oblate and in the darker tint of the skin. If it should prove a late sort it would rank with our best late-keeping ones. *ED*]

**Tobacco Growing in Ireland.**—A very interesting debate took place at the meeting of the Statistical Society on Tuesday, in Dublin, as to the feasibility of again resorting to the growth of Tobacco as a remunerative crop. When grown before its growth seems to have been confined to a few places, of which this was one. Old people say it was subject to many vicissitudes—and this seems not unlikely, when a temperature of from 70° to 80° Fahr. is said to be indispensable to mature the leaf; while, on the other hand, all are aware 1° of frost will ruin the crop. Can a minimum profit of £25 per statute acre be realised on a successful crop after paying 3s. in the pound tax? If so it would be a Heaven-sent blessing to the Irish, and, I presume, English farmers. Would one correspondent discuss the matter impartially in your columns? *W. J. M.*

**Brussels Sprouts.**—Having some seed sent me by Mr. May of a variety called May's Northaw Prize, I must say, after a fair trial with several sorts, I have found nothing to compare with it; the buttons are medium-sized, very firm and clean, which is a great advantage in its keeping qualities. *W. A.*

**Celeriac.**—These uncouth but toothsome additions to our winter salads are now common in Covent Garden, and are wholly of Continental growth. This should not be, as the root will grow just as well in Essex or at Isleworth as in Southern France or Northern Germany. The preparatory cultivation of the plant is identical with that of our blanched Celery, and, like it, it requires plenty of water in dry weather, and rich soil to grow it large. If planted at the same distance apart, on flat ground, made up into 5 feet beds, with an alley of 18 inches wide, as medium growing Cabbages are set out, it will have room to develop its head. It dislikes crowding, but requires a sunny open spot, and the only cultivation wanted in summer is keeping the soil stirred on the surface, watering, and some time in August cutting off close to the bulb a few of the oldest leaves, so that sun and air can mature the root. No earthing-up is needed, and nothing extraordinary in the amount of manure to be dug in. The roots are taken up on the approach of frost, in October or November, and stored in a cool moist root cellar. A few of the heart leaves may be left, although that is immaterial, provided the roots are not trimmed too closely. They can be stacked with the crowns outwards in steep banks of damp seed or mould, and should not be kept quite dark. They may be used stewed in a little soup, or boiled till tender in salt and water, when they are good eaten with Beet-root or waxy-fleshed Potatoes, all cut into slices, and eaten with salad dressing or salad oil and vinegar. *M. W.*

**Fungus in Imported Japanese Lilies.**—You must allow me a few lines to thank Dr. Wallace for his notes (p. 120), confirmatory of my first impres-

sions that this fungus was of Japanese origin. Permit me to repeat his remarks:—"Your correspondent is quite correct as to there being a Japanese fungus which attacks Lily bulbs first in the warehouses of Japan, and whose rapid development in the hold of the steamers on the voyage, fostered by the high temperature"—I presume on or during the voyage through the tropics—"has brought death to thousands of imported bulbs." This is very important to all concerned, inasmuch as the first step towards the remedy of any effect is to find out the cause. Hitherto that has been, at the most, merely conjectural—so much so that your correspondent, "A. D.," same page, speaks of it as "a clue to the mystery;" and to my own knowledge several able gardeners and amateurs have been blaming themselves, their method of treatment, the soil, the importers, and so on. All this is now disposed of, for Dr. Wallace has not only found the cause, but also found an antidote, for he says, "We . . . keep our imported bulbs in cold frames until root action has commenced, and the bulbs are as firm, sound, and heavy, and as free from all fungus germs as home-grown bulbs." He then adds, "In this way, and this way only, can we obtain satisfactory results, both to our customers and ourselves," then most kindly concluding, "If 'W. J. M.' will pay us a visit we shall be happy . . . to explain the process we use to devitalise the fungus germs." Permit me to say business in France the coming year may enable me to accept this kind invitation *en route*; but apart from that, the gist of the whole matter is in the last phrase—"The process we use to devitalise the fungus germs." Now, I am strongly tempted to ask Dr. Wallace to explain in your pages his method of devitalising or destroying the fungus germs, and thus become a public benefactor; but I am restrained from doing so, on consideration, for, so far as I know, the matter is still a secret, and may therefore be worth money to the representative of an important bulb firm. However, I mean next year to continue my experiments with some of the mineral oils, &c., if in the meantime the point is not definitely known. Buyers, and importers, and the public, however, now have definite information. *W. J. M.*

## Notices of Books.

**The Rosarian's Year Book, 1885.** (Bemrose.)

We have come to look on this as the record of the year's work, its hopes, its fruition, its anticipations as far as regards Roses. The present issue opens with a portrait of Mr. George Paul, to whose intelligence, zeal, and cordial good feeling the editor does fuller justice than the photographer. Pruning occupies a considerable share of attention, but is a matter on which we may hope to have in future a much fuller treatment. Roses in the Azores are touched on, a *resumé* of the work for the year of the National Rose Society follows; and lastly, that admirable annual summary of the relations of plant life, as exemplified by Roses, to meteorological conditions which Mr. Mawley has taught us to look for. For these articles alone the Year Book is worth a place on the shelves as a book of reference. Pruning is so very much a matter for the zealous amateur that we looked with some interest to the opinions of the various writers. Should it be done early or late? The general tenour of the answers given, subject to circumstances, seems to be that early pruning is best, if the conditions be favourable. The plants break more slowly and evenly after, and escape injury from late frosts. Hard pruning is generally recommended, though some of the writers advocate the retention of as much of last season's well-ripened wood as possible. The question really turns upon a physiological point. If the matured wood is left the new growths get their food and their building materials from that wood; if the matured wood is cut away, the Rose has double work to do—it has to accumulate in a short space of time the material requisite for the formation of flower-buds. If it were a question of seed production or even of fruit forming there would be no hesitation in preferring the safer course of relying on the matured wood and its accumulated hoard of food-supply, but as we only require the flower and are mostly indifferent as to pollen formation and its quality, as also to the formation of ovules and embryo plants, then we may well content ourselves with the new growth provided the climatal conditions be such as to secure

rapid and uninterrupted growth. Unfortunately, we cannot anticipate what the weather is likely to be, and so the teachings of physiology and the demonstrations of experience in any one year are only partially applicable to the circumstances of the next. On all grounds, however, we concur in the opinion of the Rev. Mr. Pemberton, who tells us that the quicker and steadier the growth from pruning to blooming, the more perfect will be the flowers. Late pruning produces a quick growth. As we have adverted to physiological matters we may indicate some most questionable statements put forth on p. 11, but which assuredly no physiologist would now admit to be correct. It is probable, from the context, that these antiquated statements have been accepted as gospel from some so-called popular books which propagate and perpetuate error in a rather exasperating manner, and would lead to the inference that botany has made no progress, and that physiology has retrograded, during the last half-century. It is only right to say, however, that these matters are mere specks in an article full of sound practical teaching. There are a few awkward misprints that have escaped observation, such as *Coupe d'Hobé*, but these, too, do not detract from the utility of this pleasant little volume.

**The Fern Portfolio.** By F. G. Heath. (Society for Promoting Christian Knowledge.)

A series of quarto plates, representing fronds of all our British Ferns, of life-size. The character of the venation is shown, but the arrangement of the spore-cases is little more than indicated. No attempt is made to show the habit of the plant, or to convey any information beyond what is apparent on superficial inspection. Within the limits expressly prescribed by the author himself we have nothing but praise to bestow, as the representations of the fronds are life-like and accurate, and the colouring more faithful than is usual in such productions generally. Surely, however, Mr. Heath is much too self-complaisant in general and specially in error when he says that no attempt (the italics are his own) has ever been made to produce an absolute fac-simile in form, colour, and venation. *Vixere fortes ante Agamemnonem.* Mr. Heath must have overlooked the splendid work of Mr. Thomas Moore; but that was necessarily costly, while this series of plates is published at a low cost. As an original work it is of little value, and this makes the omission of reference to its predecessors the more to be regretted.

**Practical Taxidermy.** By Montagu Browne. (L. Upcott Gill.)

Most of us are familiar with the very remarkable productions, supposed to be stuffed birds, which one meets with in country museums, and which, by some curious association, the significance of which we fail to unravel, are also to be met with in third-rate barbers' shops in the back streets of our towns. These were the admiration of our youth, when in the collecting stage of existence, before the sense of beauty, the fitness of adaptation, the significance of form and colour had dawned upon us. The richness of our collections, apart from any intrinsic appreciation of the beauty of the objects, or any real knowledge of them, was then the main object of pursuit. The joy was in collecting and possessing, and we would not undervalue these delights even now. But with increasing knowledge comes increasing appreciation, and the grotesque masks no longer satisfy us, but jar on our sensibilities.

With us the awakening began in 1851, when the stuffed animals from Württemberg in the Great Exhibition formed as it were a revelation. Since then taxidermy—"bird stuffing," shall we say? though it includes mammals and fishes as well as birds—has made great strides. In our museums whole skins and skulls, wings, and feet are stowed away in drawers for the use of the student. Well mounted groups, illustrative of the life-habits of the creatures, charm the public, and reveal fresh points of interest to the student. Let the visitor compare the really admirable groups now to be seen in the Natural History Museum at South Kensington with the ghastly abortions of the barber's window, or the apothecary's shop, as mentioned by one Romeo, and he will feel as if a new world had been opened to him, and derive all the more satisfaction from the knowledge that the cases and drawers contain, in



convenient form for study and examination, hundreds more illustrations of types and species than were possible under the old system.

How all this can be done, and how museums can be made at once attractive and really useful to the student, is well told in the volume before us. We cannot go into detail here, but we may most earnestly commend Mr. Browne's eminently practical treatise to all concerned in the preservation of birds and other creatures for purposes of study or otherwise. No one with a passion for collecting and preserving, specially no museum curator, should be without it.

## ROYAL HORTICULTURAL SOCIETY'S COMMITTEES.

THE following gentlemen have been appointed to serve on the different committees for the year 1885:—

### SCIENTIFIC COMMITTEE.

*Chairman.*—Sir Joseph Dalton Hooker, K.C.S.I., M.D., C.E., F.R.S., V.P.L.S., Royal Gardens, Kew.  
*Vice-Chairmen.*—Rev. M. J. Berkeley, F.R.S., Sibbertoft, Market Harborough; Dr. Michael Foster, F.R.S., Shelford, Cambridge; Grote, Arthur, F.L.S., 42, Ovington Square, S.W.  
*Secretary.*—Rev. G. Henslow, F.L.S., F.G.S., Drayton House, Ealing.  
 Baker, J. G., F.R.S., Royal Herbarium, Kew.  
 Balfour, Professor I. Bayley, Oxford.  
 Beddome, Colonel, Sispura, West Hill, Putney, S.W.  
 Bennett, Alfred W., M.A., B.Sc., F.L.S., 6, Park Village East, Regent's Park.  
 Boulger, G. S., 9, Norfolk Terrace, Bayswater, W.  
 Burbidge, F. W., Trinity College Gardens, Dublin.  
 Church, A. H., F.C.S., Royston House, Kew.  
 Clarke, Colonel R. Trevor, Welton Place, Daventry.  
 Glaisher, James, F.R.S., Dartmouth Place, Blackheath.  
 Houston, D., F.L.S., 179, Mayall Road, Herne Hill, S.E.  
 Loder, Edmund Giles, Floore, Weedon, Northamptonshire.  
 Lowe, Dr. W. H., Woodcote, Inner Park Road, Wimbledon.  
 Llewelyn, J. T. D., F.L.S., Penllegare, Swansea.  
 Lynch, R. Irwin, A.L.S., Botanic Gardens, Cambridge.  
 Masters, Maxwell T., M.D., F.R.S., Mount Avenue, Ealing, W.  
 McLachlan, R., F.R.S., Limes Grove, Lewisham.  
 Michael, Albert D., Cadogan Mansions, Sloane Square, S.W.  
 Moore, Thos., F.L.S., Botanic Gardens, Chelsea, S.W.  
 Murray, G., F.L.S., Natural History Museum, South Kensington, S.W.  
 Pascoe, F. P., F.L.S., 1, Burlington Road, Westbourne Park, W.  
 Plowright, C., F.L.S., 7, King Street, King's Lyon.  
 Ridley, Henry N., F.L.S., B.A., Natural History Museum, South Kensington, S.W.  
 Smee, A. H., The Grange, Wallington, Surrey.  
 Smith, Worthington G., F.L.S., 38, Kyverdale Road, Stoke Newington, N.  
 Wilson, A. Stephen, North Kimmund, Summerhill, Aberdeen.

### FLORAL COMMITTEE.

*Chairman.*—Geo. F. Wilson, F.R.S., Heatherbank, Weybridge Heath.  
*Vice-Chairmen.*—Maxwell T. Masters, M.D., F.R.S., Mount Avenue, Ealing, W.; John Fraser, Lea Bridge Road Nursery, Leyton; Shirley Hibberd, 1, Priory Road, The Green, Kew.  
*Secretary.*—Archibald F. Barron, Royal Horticultural Society, Chiswick, W.  
 Bailes, Thomas, Fern Cottage, Palmer's Green, N.  
 Ballantine, H., The Dell Gardens, Egham.  
 Bealby, William, The Laurels, Roehampton Park, Putney Heath, S.W.  
 Bennett, H., Shepperton, Walton-on-Thames.  
 Canonell, Henry, Swanley.  
 Child, Jas., The Garden, Garbrand Hall, Ewell.  
 Dominy, John, 11, Tadema Road, Chelsea, S.W.  
 Douglas, J., The Gardens, Great Gearies, Ilford, E.  
 Duffield, G., The Gardeos, Bamford Lodge, Winchmore Hill, W.  
 Herbst, H., Kew Nursery, Richmond, Surrey.  
 Hill, E., The Gardens, Tring Park, Tring.  
 Hudson, James, The Gardens, Gunnersbury House, Acton.  
 James, J., Woodside, Farnham Royal, Slough.  
 Kellock, W. B., F.L.S., Stamford Hill, N.  
 Kinghorn, F. R., Sheen Nursery, Richmond, Surrey.  
 Laing, John, Stanstead Park, Forest Hill, S.E.  
 Llewelyn, J. T. D., F.L.S., Penllegare, Swansea.  
 Noble, C., Sunningdale Nursery, Bagshot.  
 O'Erico, James, West Street, Harrow-on-the-Hill.

Perry, Amos Isaac, Stamford Road, Page Green, Tottenham.

Pollett, H. M., Fann Street, Aldersgate Street, E.C.  
 Smith, J., The Gardens, Mentmore, Leighton Buzzard.  
 Turner, Harry, Royal Nursery, Slough.  
 Walker, J., Whitton, Middlesex.  
 Wilks, Rev. W., Shirley Vicarage, near Croydon.  
 Williams, Henry, Victoria Nursery, Upper Holloway.

### FRUIT COMMITTEE.

*Chairman.*—F. Du Cane Godman, F.R.S., 10, Chandos Street, Cavendish Square, W.  
*Vice-Chairmen.*—H. J. Veitch, F.L.S., Royal Exotic Nursery, Chelsea, W.; John E. Lane, Berkhamstead; Blackmore, R. D., Teddington.  
*Secretary.*—Archibald F. Barron, Royal Horticultural Society, Chiswick, W.  
 Bunyard, George, The Old Nurseries, Maidstone.  
 Burnett, J., The Gardens, Deepdene, Dorking.  
 Denning, W., The Gardens, Londesborough Lodge, Norbiton, Surrey.  
 Ellam, Joseph, The Gardens, Cliveden, Maidenhead.  
 Ford, The Gardens, Leonardslee, Horsham.  
 Goldsmith, O., The Gardens, Hollanden, Tunbridge.  
 Haywood, T. B., Woodhatch Lodge, Reigate.  
 Hogg, Robert, LL.D., F.L.S., 99, St. George's Road, S.W.  
 Howcroft, Anthony, 14, Tavistock Row, W.C.  
 Lee, John, 78, Warwick Gardens, W.  
 Lyon, S., The Gardens, Sundridge Park, Bromley.  
 Mason, Major E., The Firs, Warwick.  
 Miles, George T., The Gardens, Wycombe Abbey, High Wycombe.  
 Paul, George, The Old Nurseries, Cheshunt, Herts.  
 Paul, William, Waltham Cross, N.  
 Rivers, T. F., Sawbridgeworth.  
 Roberts, J., The Gardens, Gunnersbury Park, Acton.  
 Ross, Charles, The Gardens, Welford Park, Newbury.  
 Rutland, F., The Gardens, Goodwood, Chichester.  
 Sheppard, J., The Gardens, Woolverstone Park, Ipswich.  
 Silverlock, Charles, 412, Strand, W.C.  
 Sutton, Arthur W., Reading.  
 Webb, Henry, Redstone Manor House, Redhill.  
 Weir, Harrison, Tunbridge Wells, Kent.  
 Willard, Jesse, Holly Lodge Gardens, Highgate, N.  
 Woodbridge, John, The Gardens, Syon House, Brentford, W.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, JANUARY 28, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reducing to 32° Fahr.	Departure from Average of 40 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 40 years.	Dew Point.	Degree of Humidity.		
Jan. 22	29.86	+0.11	35.0	22.5	12.5	30.3	-7.1	29.2	95	E.	0.00
23	29.91	+0.16	35.5	27.8	8.0	31.0	-6.5	30.3	96	E.	0.00
24	29.97	+0.22	37.0	27.5	9.5	32.2	-5.5	29.8	90	E.	0.00
25	29.95	+0.20	40.0	25.9	14.1	32.9	-4.9	29.6	85	N. E.	0.00
26	29.84	+0.09	43.0	27.0	16.0	36.7	-1.2	35.7	96	E. S. E.	0.04
27	29.68	-0.09	49.0	38.5	10.5	44.3	+6.2	41.5	99	E. S. E.	0.02
28	29.61	-0.16	49.0	35.0	14.0	43.6	+5.4	41.2	91	S. S. W.	0.00
Mean	29.83	+0.07	41.2	29.1	12.1	35.9	-1.0	33.9	92	E.	0.06

Jan. 22.—Dull day and night.

— 23.—Dense fog from early morning till 1.30 P.M. Dull night.

— 24.—Very cold morning; dull day and night.

— 25.—Very fine bright day; fine clear night.

— 26.—Dull day and night.

— 27.—Dull day. Fine and clear at night.

— 28.—Dull day and night.

LONDON: *Atmospheric Pressure.*—During the week ending January 24, the reading of the barometer at the level of the sea increased from 30.11 inches at the beginning of the week to 30.25 inches by 9 A.M. on the 19th, decreased to 30.06 inches by 3 P.M. on the 20th, increased to 30.08 inches by midnight on the same day, decreased to 29.97 inches by 3 P.M. on the 21st, increased to 30.02 inches by 9 A.M., decreased to 30 inches by 3 P.M. on the 22d, increased to 30.10 inches by 9 A.M. on the 23d, decreased to 30.06 inches by 3 P.M. on the 23d, and was 30.17 inches by the end of the week.

The mean reading of the barometer for the week was 30.10 inches, being 0.34 inch higher than last week, and 0.18 inch above the average of the week.

*Temperature.*—The highest temperature in the shade in the week was 38°, on the 19th; the highest on the 21st was 31°.5. The mean of the seven high day temperatures was 35°.6.

The lowest temperature was 22°.5, on the 22d; on the 18th the lowest temperature was 34°. The mean of the seven low night temperatures was 28°.

The greatest range of temperature in one day was 12°.5, on the 22d; the smallest was 3°, on the 18th. The mean of the seven daily ranges was 7°.6.

The mean temperatures were—on January 18, 35°.4; on the 19th, 34°.9; on the 20th, 31°.1; on the 21st, 27°.9; on the 22d, 30°.3; on the 23d, 31°; on the 24th, 32°.2; and these were all below their averages by 1°.5, 2°.1, 6°.2, 9°.4, 7°.1, 6°.5 and 5°.5 respectively.

The mean temperature of the week was 31°.8, being 3° lower than last week, and 5°.5 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 64°, on the 21st. The mean of the seven readings was 50°.6.

The lowest reading of a minimum thermometer with its bulb placed on grass was 15°, on the 22d. The mean of the seven readings was 21°.6.

Rain.—No rain fell during the week.

ENGLAND: *Temperature.*—During the week ending January 24 the highest temperatures were 48°, at Truro, 46°.8 at Plymouth, 41° at Bristol, Leeds, and Sunderland; the highest at Wolverhampton was 35°.8, at Nottingham 37°.5, at Cambridge 37°.8. The general mean was 40°.1.

The lowest temperatures were 50°, at Cambridge, 21° at Sheffield, 21°.2 at Wolverhampton; the lowest at Plymouth, 32°.8, at Sunderland 27°, at Liverpool 26°.6. The general mean was 24°.2.

The greatest ranges were 24°, at Truro, 18° at Sheffield, 17°.8 at Cambridge; the smallest ranges were 11°.9, at Nottingham, 12°.1 at Liverpool, 13°.6 at Bradford. The general mean was 15°.9.

The mean of the seven high day temperatures was highest at Truro, 44°, at Plymouth 41°.9, at Sunderland 38°; and was lowest at Wolverhampton, 33°.5, at Liverpool 34°.8, at Nottingham 34°.9. The general mean was 36°.9.

The mean of the seven low night temperatures was 36°, at Plymouth; at Truro 35°.6, at Sunderland 31°.7; and was lowest at Wolverhampton, 27°.3, at Blackheath 28°, at Bolton 28°.6. The general mean was 30°.5.

The mean daily range was greatest at Truro, 8°.4, at Blackheath 7°.6, at Hull 7°.5; and was least at Liverpool, 4°.4, at Nottingham 4°.7, at Brighton 5°.1. The general mean was 6°.4.

The mean temperature was highest at Truro, 39°.6, at Plymouth 38°.8, at Sunderland 34°.7; and was lowest at Wolverhampton, 30°.2; at Blackheath and Sheffield 31°.8. The general mean was 33°.4.

Rain.—The largest falls were 0.25 inch at Truro, 0.17 inch at Plymouth, 0.15 inch at Bradford; the smallest fall was 0.02 inch at Nottingham and Bolton. No rain fell at Brighton, Blackheath, Cambridge, Hull, or Sunderland. The general mean was 0.07 inch.

SCOTLAND: *Temperature.*—During the week ending January 24, the highest temperature was 42°.3, at Aberdeen; at Dundee, Greenock and Paisley the highest was 40°.2. The general mean was 40°.7.

The lowest temperature in the week was 2°.2, at Glasgow and Edinburgh; at Dundee the lowest temperature was 26°.8. The general mean was 24°.

The mean temperature was highest at Aberdeen, 37°.1; and lowest at Glasgow, 32°.4. The general mean was 34°.

Rain.—The largest fall was 0.07 inch, at Aberdeen; the smallest fall was 0°.01 inch, at Leith. The general mean was 0.02 inch. No rain fell at Glasgow, Dundee, or Greenock.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, January 26, 1885; issued by the Meteorological Office, 116, Victoria Street, London, S.W.:—The weather has been less cloudy than of late in the south-east of England, but dull or gloomy elsewhere, with showers of rain over Ireland and the extreme south-west of England.



By the end of the period the unsettled, rainy condition had extended to the entire kingdom. Much fog or haze was experienced during the earlier part of the period at some of the English stations.

The temperature has been 2° above the mean in "Ireland, S.," and about equal to its normal value in "Scotland, N.," but below in all other districts, the deficit ranging from 1° in "Ireland, N.," to between 4° and 6° over nearly the whole of England and in the east of Scotland. The daily maxima were generally low over the greater part of England and Scotland, but towards the end of the week they became higher, till by the 26th the thermometer had risen to between 42° and 51°, while in the "Channel Islands" and "Ireland, S.," readings of 53° and 54° respectively were recorded. The minima, which were registered on different days in the various localities, ranged from 22° to 28° in the "grazing districts" to 20° in the "Midland Counties," 19° in "England, E.," and 11° in "Scotland, E." (at Nairn).

The rainfall has been less than the mean in all districts, especially in the south of England. At some of the south-eastern stations, in addition to the rain, there was a succession of heavy dews which caused sufficient water in the gauge for measurement.

Bright sunshine shows a decided increase in the east and south-east of England; but elsewhere very little has been recorded. The percentages of the possible duration varied from 2 in "Scotland, E.," and "England, S.W.," and between 4 and 9 in most other districts to 31 in "England, E."

Depressions observed.—No depressions appeared in our immediate neighbourhood until the period drew towards its close, when the high-pressure area recently established over Scandinavia moved slowly southwards, and depressions began to skirt our extreme western coasts. Moderate to light breezes between south-east and south prevailed during the greater part of the week, but in the West they at times blew freshly or strong, and at some of the more exposed spots attained the force of a moderate or fresh gale.

## Obituary.

DR. GWYN JEFFREYS.

DR. JOHN GWYN JEFFREYS, the well-known conchologist, died suddenly on Friday last. Dr. Jeffreys was born at Swansea, in 1809. His tastes were rather scientific than legal, though he practised at one time as a solicitor. In 1869, 1870, 1871, and 1875, he either conducted or took part in exploring voyages in the North Atlantic and on the north-eastern coast of the United States. In 1880 he joined the French Sounding and Dredging Expedition in the Bay of Biscay. He is probably best known by his principal work, *British Conchology*, in five volumes. Dr. Jeffreys was an occasional correspondent of this journal, and a referee on matters relating to conchology.

MR. JAMES HARDIE.

We regret to announce the death of Mr. James Hardie, of the firm of Messrs. Laird & Sinclair, nurserymen and seedsmen, Dundee, which took place suddenly at his residence on the 23d inst.

## Answers to Correspondents.

BOOKS: *T. M.* Half-a-crown.—*W. J. M.* We have no copy of the work you name that can be spared.—*T. W.* We do not know what you signed. If you committed yourself to take the whole book, we fear you have no remedy. Such books are usually inferior compilations, and persons should be more circumspect, and not commit themselves to take what they do not want.

CAMELLIA LEAVES: *R. V. & Sons.* Apparently eaten in places by a weevil, of which there are many species. Let the depredator be caught, and then identify him.

CUSTARD APPLE: *H. M.* *Anona reticulata*; native of the West Indies, but cultivated in the East Indies; trees or shrubs. Its yellowish pulp is not so much relished as that of other kinds of *Anona*. There is no record of its having been fruited in this country.

GUMMING CAMELLIAS: *Amateur.* As you do not describe the appearance of the affection, which may be a black mould (*Dematiel*), or some other parasitic fungus, please send a few affected shoots.

HABITAT OF *POPULUS TREMULA*: *F. C. D.* Middle of Asia; Europe; the North American variety, *P. greeca*, from Carolina—Canada.

LATIN WITHOUT A MASTER: *Enquirer.* Get *Initia*

*Latina*, by Dr. Smith. Yes, you will find the language of much use to you as a gardener.

MARGUERITES: *Mrs. F. H. Allen.* You should be able to get the seeds you name from Messrs. Cannell & Sons, Swanley, Kent.

NAMES OF FRUIT: *D. K.* Apples, not known.

NAMES OF PLANTS: *W. F.* *Arbor-vitæ* (*Thuia Elwan-giana*).—*H. J.* *James, Lower Norwood.* *Pothos cannaefolia*.—*O. O.* A species of *Eupatorium*. From what country does it come?

PEACH BUDS FALLING OFF: *Constant Reader.* The shoots are not well developed; we suspect it is not want of water at the root. Examine closer, and send then further particulars if you think it necessary.

PUSLEY: *B.* The "fat ground-clinging spreading greasy thing, and the most propagacious," is our Purslane, used as a salad on the Continent, and which has spread as a weed over most warm countries. The brilliant *Portulacae* of our gardens are its brethren.

RATING GREENHOUSES IN TRADE GARDENS: *D. W.* Yes, they are rateable.

## CATALOGUES RECEIVED.

AUSTIN & M'ASLAN, 16, Buchanan Street, Glasgow—Garden Seeds, Gladioli, &c.

SMITH & SON, Aberdeen—Seeds, Plants, &c.

W. SAMSON & CO., and W. & T. SAMSON, Kilmarnock—Vegetable, Flower, Agricultural Seeds, Gladioli, Forest Trees, &c.

HOOPER & CO., Covent Garden—Flower and Vegetable Seeds.

BEN. REID & CO., Aberdeen—Vegetable and Flower Seeds, &c.

J. SLAYMAKER, Covent Garden Market, W.C.—Choice Garden Seeds.

T. CROSS, Bury St. Edmunds—Vegetable and Flower Seeds.

JONES & ROBERTS, Oswestry—Vegetable and Farm Seeds.

M. CUTHBERTSON, Rothesay, N.B.—Garden and Flower Seeds.

THOMAS HORSMAN, Bradford—Garden and Flower Seeds.

COMPAGNIE CONTINENTALE D'HORTICULTURE, Ghent—Seeds.

COMMUNICATIONS RECEIVED.—*J. T. Riches*.—*A. van Geert* (shortly).—*W. T.* (next week).—*T. L.*—*E. H.*—*H.*, *Solomon Isles*.—*H. B. G.*—*Baron v. Mueller*, Melbourne.—*J. W.*—*C. K.*—*Messrs. Sutton*.—*M. J. B.*—*G. H.*—*T. W.*—*T. W.*—*M. W.*, *J. M.*—*Ed. Beckett*.—*J. Unthank*.—*H. E.*—*J. W. Mackey*.—*T. O. B.*—*A. D. Webster*.—*A. W.*—*R. D.*—*E. Bonavia*.—*A. Waterman*.—*J. S.*—*H. W. Ward*.—*G. McK.*, *Eriska*.

## Enquiries.

"He that questioneth much shall learn much."—BACON.

INTRODUCERS OF PLANTS: Can any of our readers say who were the introducers of *Clerodendron illustre* and *Aphelandra Margaritæ*?

PLANTS ADAPTED FOR LIVING-ROOMS.—Will any of our correspondents give "W. M. S." their experience with regard to the following plants being well adapted or otherwise for standing in living-rooms from October to April?—Palms in variety, requiring but small pot-room, Anthurium, Pothos, green-leaved *Dracænas*, Ferns, Cissus, Ivy, Philodendrons, Hoya, *Coffea arabica*, *Cucurigo*, *Arundo Donax*, and *Bambusa*. The light is fairly good, aspect south and south-west, gas being used in some rooms and not in others; the air-warmth ranging from 65° in the day to 50° by night. The proprietor an amateur, who does not trust the watering of his plants to "Jeamies."

DIED, on January 23, aged sixty-three years, Mr. JOHN STEVENSON, The Nurseries, Timperley.

## Markets.

COVENT GARDEN, January 29.

GRAPES have well maintained the rise of last week, samples generally being good and well kept. Good samples of Apples also are meeting better prices, but business generally is still quiet. *James Webber, Wholesale Apple Market.*

VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz. . . . .	4 0 6 0
Asparagus, English, per bundle . . . .	12 0 14 0
— French, bundle 20	0 30 0
Beans, Eng., per 100	3 0 0
Beet, per doz. . . .	1 0 0
Cabbages, per doz. .	1 6 0
Carrots, per bun. . .	0 6 0
Cauliflowers, Eng., doz. . . . .	2 0 4 0
Celeriac, per root . .	0 4 0
Celery, per bundle . .	1 6 2 6
Cucumbers, each . .	1 0 2 6
Endive, Eng., dozen .	1 0 0
Garlic, per lb. . . .	0 6 0
Herbs, per bunch . .	2 0 4 0
Horse Radish, bun. 3	0 4 0
Lettuces, Cab., doz. .	1 6 0
Mint, green, bunch . .	1 6 0
Mushrooms, p. basket	1 0 2 0
Onions, per bushel . .	4 0 0
— Spring, per bun. .	0 6 0
Parsley, per bunch . .	3 4 0
Peas, per lb. . . . .	1 0 0
Potatoes, new, per lb.	0 6 0
Radishes, per doz. . .	1 6 0
Rhubarb, bundle . .	0 6 0
Salsify, per bun. . .	1 0 0
Seakale, per punnet	2 0 2 6
Small salad, per punnet . . . .	0 4 0
Spinach, per bushel	4 0 0
Tomatoes, per lb. . .	1 0 1 6
Turnips, bun. . . .	0 5 0

POTATOES.—Magnum Bonums, 40s. to 70s.; Regents, 70s. to 90s. Champions, 45s. to 60s. per ton. Markets have a downward tendency.

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, ½-sieve . .	1 6 4 0
— Nova Scotia . .	6 0 9 0
— Canadian, barrel	12 0 21 0
Cobs, per 100 lb. . .	60 0 0
Grapes, per lb. . . .	2 0 5 0
Lemons, per case .	12 0 18 0
Pine-apples, Eng., lb.	1 0 2 0
— St. Michael, each	5 0 10 0
Pears, French, doz.	3 0 9 0

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilon, 12 bunches	2 0 4 0
Arum Lilies, 12 blms.	6 0 9 0
Azalea, 12 sprays . .	1 0 1 6
Bouvardias, per bun.	1 0 1 6
Camellias, per doz. .	3 0 8 0
Carnations, 12 blms.	1 0 3 0
Chrysanth., large, 12 blooms . . . . .	2 0 4 0
Cinerarias, per bun.	1 0 1 6
Cyclamen, 12 blooms	0 3 0 0
Epiphyllum, 12 blms.	0 4 0 6
Eucharis, per doz. . .	4 0 6 0
Euphorbia, Jacquiniflora, 12 sprays . .	3 0 6 0
Gardenias, 12 blms.	18 0 30 0
Heliotropes, 12 sp. . .	0 6 1 0
Hyacinths, Roman, 12 sprays . . . . .	1 0 1 6
Lapageria, white, 12 blooms . . . . .	2 0 3 0
— red, 12 blooms . . . . .	1 0 2 0
Lily-of-Val., 12 sprays	1 0 2 0
Marguerites, 12 bun.	6 0 9 0
Mignonette, 12 bun.	6 0 9 0
Narcissus, Paper-white, 12 sprays . .	2 6 3 0
— French, 12 bun.	6 0 12 0
Pelargoniums, per 12 sprays . . . . .	1 0 2 0
— scarlet, 12 sprays	1 0 1 6
Poinsettia, 12 blooms	3 0 9 0
Primula, double, bun.	1 0 1 6
— sinensis, 12 bun.	4 0 6 0
Roses (indoor), doz.	2 0 6 0
Stokesia, 12 blooms	1 0 1 0
Tropæolum, 12 bun.	2 0 4 0
Tuberoses, per doz.	2 0 4 0
Tulips, 12 blooms . .	1 0 1 6
Violets, 12 bun. . . .	1 6 2 0
— French, bunch . .	2 6 3 0
— Parme, French, per bunch . . . . .	7 0 9 0
Wallflower, 12 bun.	4 0 6 0
White Jasmine, bun.	0 6 1 0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz.	6 0 24 0
Arbor-vitæ (golden), per dozen . . . . .	6 0 18 0
— (common), dozen	6 0 12 0
Arum Lilies, dozen	9 0 15 0
Azaleas, per dozen . .	18 0 42 0
Begonias, per doz. . .	6 0 12 0
Bouvardia, dozen . .	9 0 18 0
Cinerarias, per doz. .	9 0 12 0
Cyclamens, per doz. .	9 0 24 0
Cyperus, per dozen	4 0 12 0
Dracæna terminalis, per dozen . . . . .	30 0 60 0
— viridis, per doz. . .	12 0 24 0
Epiphyllum, doz. . .	18 0 24 0
Erica, various, doz. . .	9 0 18 0
Euonymus, various, per dozen . . . . .	6 0 18 0
Evergreens, in var., per dozen . . . . .	6 0 24 0
Ferns, in variety, per dozen . . . . .	4 0 18 0
Ficus elastica, each	1 6 7 0
Foliage Plants, various, each . . . . .	2 0 10 0
Genista, 12 pots . .	12 0 18 0
Heaths, var., 12 pots	12 0 30 0
Hyacinths, per doz.	8 0 10 0
— Roman, per pot	1 0 1 3
Lily-of-Valley 12 pots	8 0 36 0
Marguerite Daisy, per dozen . . . . .	8 0 15 0
Myrtles, per doz. . .	6 0 12 0
Narcissus, 12 pots . .	12 0 18 0
Palms in variety, each . . . . .	2 6 21 0
Pelargoniums, scarlet, per dozen . . . . .	4 0 6 0
Poinsettia, per doz.	9 0 15 0
Primula sinensis, per dozen . . . . .	4 0 6 0
Solanums, dozen . .	9 0 12 0
Tulips, dozen pots . .	8 0 10 0

## SEEDS.

LONDON: Jan. 28.—Messrs. John Shaw & Sons, of 37, Mark Lane, E.C., report that there is no change of any importance to be noted in connection with farm seeds. The demand keeps steady, but no great activity is looked for until next month. Of English red Clover there is still an abundant supply; choice samples, however, are becoming scarcer. Trefoil, being unprecedently cheap, is attracting attention. White Clover and Alsike are without change in value. Italian and perennial Rye-grasses continue to sell at the extremely low prices now ruling. There is a very dragging sale for bird seeds.

## CORN.

At Mark Lane on Monday English Wheats were reported down a full shilling per quarter on the week. Foreign Wheats were also noted 1s. lower, with limited sale at the decline. Flour was 6d. lower than on Monday's night. Barley showed a steady value for both malting and grinding parcels, with not more than a moderate business in either. Beans and Peas quiet and unchanged. Maize was rather steadier, but flat corn easier on the week. The trade in Oats was slow, at the prices of the previous Monday.—On Wednesday the extremely meagre business concluded in Wheat was at a further slight reduction from Monday's reduced rates. Flour remained inactive. Barley was quiet on the spot, and the turn easier floating. Beans and Peas on retail sales were without quotable change. Maize was dull. Oats were unchanged.—Average prices of corn for the week ending Jan. 24:—Wheat, 34s. 11d.; Barley, 32s. 5d.; Oats, 20s. 4d. For the corresponding period last year:—Wheat, 38s.; Barley, 32s. 8d.; Oats, 19s. 5d.

## POTATOES.

The Borough and Spitalfields Markets reports state that there were good supplies, but a dull trade. Quotations:—Scotch Regents, 80s. to 100s.; Kent ditto, 70s. to 80s.; Champions, 50s. to 60s.; Magnum Bonums, 60s. to 80s.; and Victorias, 70s. to 90s. per ton.—The only imports into London last week were 2 bags from Harlingen.

## COALS.

The following are the prices current at market during the week:—Ravensworth West Hartley, 14s. 9d.; Broomfield West Hartley, 14s. 6d.; East Wylam, 15s. 6d.; Walls End—Tyne (unscreamed), 11s. 3d.; Hetton, 18s.; Hetton Lyons, 16s.; Lambton, 17s. 6d.; Wear, 16s.; Tunstall, 16s.; Hartlepool, 17s. 3d. and 17s.; South Hartlepool, 16s. 3d.; East Hartlepool, 17s. 3d.; Tees, 18s.

Government Stock.—Consols closed, on Monday at 99½ to 99¼ for delivery, and 99½ to 99¼ for the account. Tuesday's figures were 99½ to 99¼ for delivery, and 99½ to 99¼ for the account. The closing figures of Wednesday and Thursday were 99½ to 100 for both delivery and account.

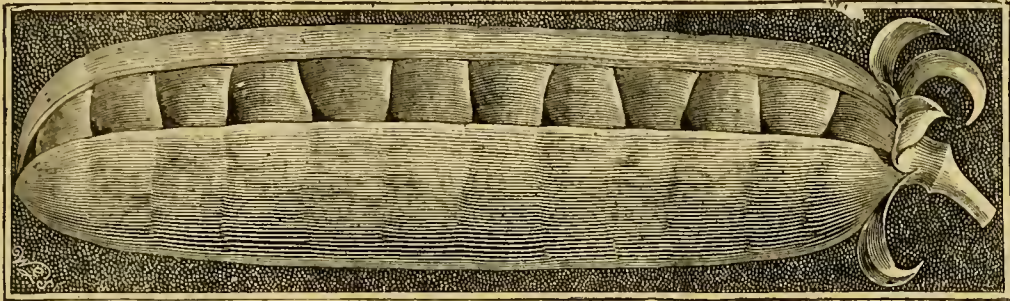


## SHARPE'S EARLY PARAGON PEA.

THE EARLIEST  
WRINKLED MARROW.

SEALED PACKETS.

One Pint 2s. 6d. ; Half-pint 1s. 6d. each.



SEALED PACKETS.

THE EARLIEST  
WRINKLED MARROW.

First-class Certificate Royal Horticultural Society, 1884.

PARAGON shows in many respects a great improvement upon any variety at present in the trade. It is a Blue Wrinkled Marrow of fine flavour; height from 3 to 4 feet. The pods are produced two and three together in such abundance as to almost conceal the foliage. They are of an unusual size, broad and thick backed, containing from twelve to fourteen immense Peas packed in a double row as shown in the illustration.

Paragon is the earliest of the large Wrinkled Marrows, being ready before Prizetaker. It is very hardy, and will stand earlier sowing than any Pea of its class. It is most valuable for succession crops as it is not liable to mildew, and a constant supply of Peas for four months can be obtained from this one variety.

TRADE PRICE PER BUSHEL ON APPLICATION.

CHARLES SHARPE &amp; CO., SEED MERCHANTS, SLEAFORD.

# STEVEN BROS. & CO.,

35 and 36, UPPER THAMES STREET, LONDON, E.C.

Manufacturers of  
Wrought and Cast Plain SADDLE BOILERS.  
Terminal-end Saddles.

GOLD MEDAL BOILERS.

Independent Conical Boilers.

ARGOSY BOILERS, &amp;c.

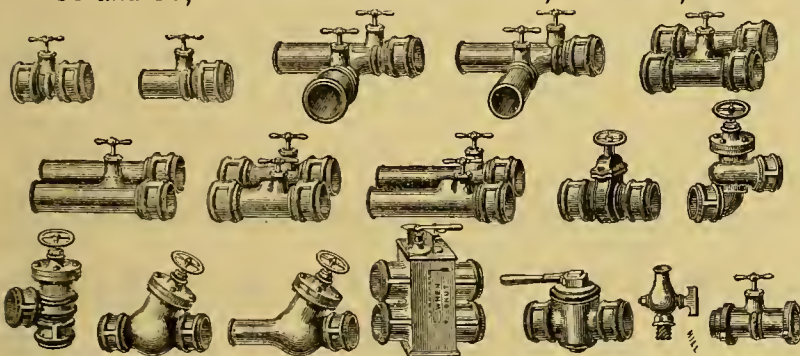
Hot-water Pipes and Connections.

Patent Hot-water PIPES and CONNECTIONS.

Patent Expansion Joints.

THE "MILTON" VALVES, &amp;c.

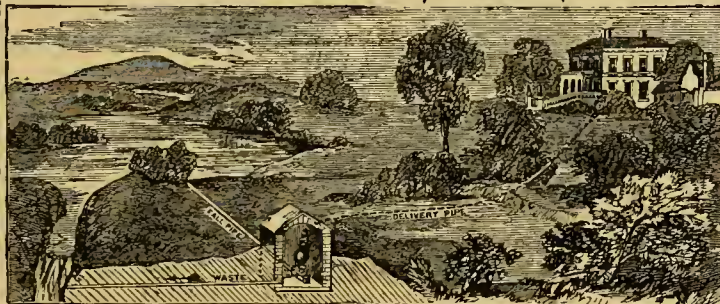
NOTE.—STEVEN BROS. have the largest and best stock  
of Hot-water Appliances in London.



# S. OWENS & CO.,

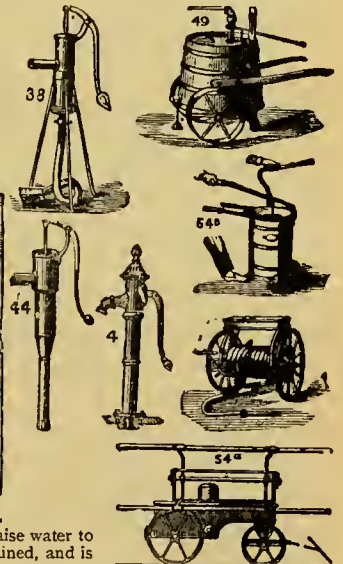
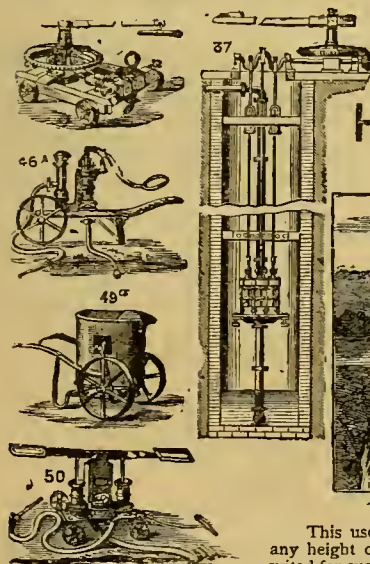
## HYDRAULIC ENGINEERS,

WHITEFRIARS STREET, LONDON, E.C.



## THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance without cost for labour or motive-power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.



- No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.  
No. 63. PORTABLE IRRIGATORS, with Double or Treble Barrels for Horse or Steam Power.  
No. 46a. IMPROVED DOUBLE-ACTION PUMPS on BARROW for Watering.  
No. 49a. GALVANISED SWING WATER CARRIERS, for Garden use.  
No. 50 and 54a. FARM and MANSION FIRE ENGINES of every description.  
No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.

S. OWENS and CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GASWORKS, Apparatus for LIQUID MANURE distribution, FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. Particulars taken in any part of the Country. Plans and Estimates furnished.

- No. 49. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.  
No. 54b. THE CASSIOBURY FIRE EXTINGUISHER, as designed for the Right Hon. the Earl of Essex.  
No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.  
No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.  
No. 39b. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.



**Laing's**  
**Begonia**  
**Seed.**

**JOHN LAING & CO.**  
GOLD MEDAL STRAIN from our Prize Plants.  
New crop now harvested. Sealed packets.  
CHOICE MIXED, from single varieties, 1/- and  
2/6 per packet; 5/- extra large packets; double  
varieties, 2/6 and 5/- per packet.  
COLLECTIONS, 12 named varieties, separate, 7/6  
6 named varieties, separate, 4/-  
Begonia Growers, Forest Hill, S.E.

**SEEDS,**  
VEGETABLE, FLOWER, and FARM,  
*Carefully Selected,*  
AND FROM WHICH MAY BE EXPECTED  
**THE BEST RESULTS**  
EVER YET ATTAINED.  
**ILLUSTRATED LIST,**  
Containing Copious, Interesting, and Reliable  
Information, Free.

**RICHARD SMITH & CO.,**  
SEED MERCHANTS and NURSEYMEN,  
**WORCESTER.**

**Martin's**  
**President**  
**Cauliflower**  
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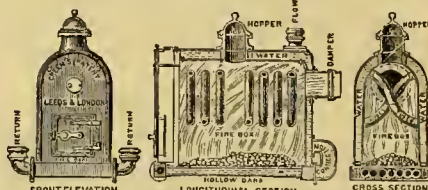
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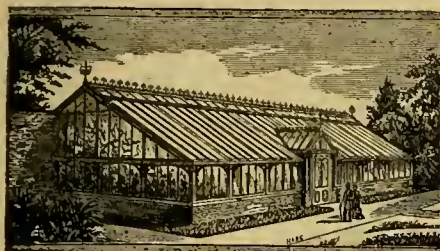


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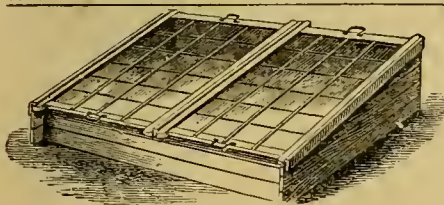
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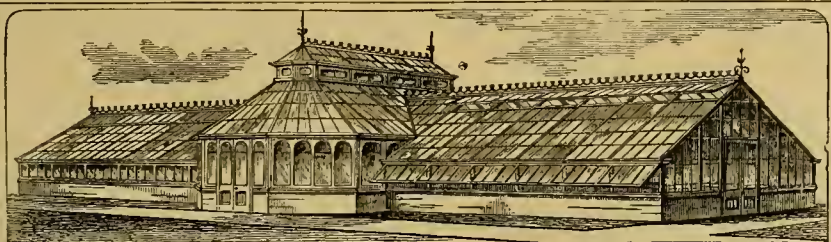
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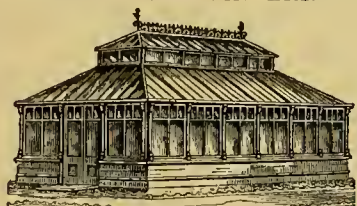


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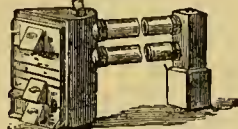
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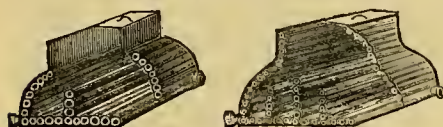
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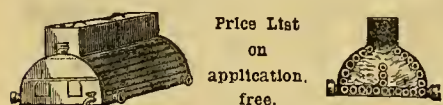
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" " BOLANDERII, 12 to 18 inches, 4s. per dozen; 2 to 3 feet, 12s. per dozen.

" " CEMBRA, 18 to 24 inches, 3s. per dozen.

" " INSIGNIS, 2-yr. seedling, 6s. per 100.

" " JEFFREYI, 2-yr., 1-yr. transplanted, 10s. per 100; 12 to 18 inches, 50s. per 100.

" " MURICATA, 2-yr., 1-yr. transplanted, 12s. per 100.

" " PARVIFLORA, 4 to 6 inches, 6s. per dozen; 9 to 12 inches, 12s. per dozen.

" " PEUCE, 2 to 3 feet, 18s. per dozen.

" " PINEA, 2-yr. seedling, 5s. per 100.

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Established 1841.

No. 580.—VOL. XXIII. { NEW SERIES. } SATURDAY, FEBRUARY 7, 1885.

{ Registered at the General } Price 5d.  
Post-office as a Newspaper. } POST-FREE, 5½d.

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ROYAL HORTICULTURAL SOCIETY,  
South Kensington, S.W.

NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M., in the Conservatory; Scientific at 3 P.M., in the Library.

ANNUAL GENERAL MEETING, at 3 P.M., on TUESDAY NEXT, February 10. Candidates for Fellowship will be elected at this Meeting.

N.B.—Entrances, N.E. Orchard House, Exhibition Road; and Exhibitors' Entrance west side of Royal Albert Hall.

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See report in the *Gardeners' Chronicle*, August 9, 1884, p. 178.

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## To the Trade.

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RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.



## SALES BY AUCTION.

Monday Next.—(Sale No. 6840.)

5000 LILIAM AURATUM and MANY OTHER BULBS.  
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, February 9, at half-past 12 o'clock precisely, an importation of 5000 LILIAM AURATUM, just received from Japan, in the finest possible condition; 10,000 SOUTH AFRICAN TUBEROSES, 3000 GLADIOLI, of sorts; 2000 Berlin Crown of the VALLEY, 600 CLOXINIAS, BECONIAS, and AMARYLLIS; a large quantity of LILIAM HUMBOLDTII, COLCHICUM, GI-ANTHEUM, and many others; a few BORDER PLANTS, &c.  
On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6841.)

ROSES, FRUIT TREES, PLANTS, &c.  
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent, W.C., on WEDNESDAY NEXT, February 11, at half-past 12 o'clock precisely, 1200 first-class ROSES, including most of the best sorts; 800 FRUIT TREES, in great variety; Ornamental and Flowering SHRUBS and CLIMBERS, choice named BORDER PLANTS, LILIES, GLADIOLI, and other BULBS and ROOTS, &c.  
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6843.)

ARAUCARIAS, as received.  
MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, February 12, several cases of ARAUCARIAS, as received, each containing several hundred plants in fine condition.  
On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6843.)

WHITE LÆLIA ANCEPS, in magnificent masses.  
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Messrs. Shuttleworth, Carder & Co., on THURSDAY NEXT, February 12, at half-past 12 o'clock precisely, a grand importation of the beautiful and rare WHITE LÆLIA ANCEPS, including magnificent masses, many of them with several hundred Bulbs in splendid condition, the finest importation ever introduced. (See dried flowers). Also ODONTOGLOSSUM CRISPUM (Alexandra), the finest type possible to collect, grand masses and in splendid condition; ONCIDIUM KRAMERIANUM with perfect leaves, CATILEYA TRIANÆ, LÆLIA SPECIES found growing with the White Lælia, very distinct looking; L. AUTUMNALIS, received as atrorubens; EPIDENDRUM NEMORALE, &c.; also established MASDEVALLIA RACEMOSA CROSSII, M. SHUTTLEWORTHII, M. TROCHILUS, M. SCHLIMII, M. MACRURA, and M. HARKYANA.  
On view morning of Sale, and Catalogues had.

## Flowering Orchids.

MR. J. C. STEVENS begs to announce that his NEXT SALE of FLOWERING ORCHIDS will take place on WEDNESDAY, February 18. Gentlemen desirous of entering plants for this Sale will please send particulars not later than THURSDAY NEXT.  
Auction Rooms and Offices, 38, King's St., Covent Garden, W.C.

Tuesday Next.

ODONTOGLOSSUM ALEXANDRÆ,  
LÆLIA ANCEPS ALBA, in Flower.  
" " WILLIAMSIANA, in Flower.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY NEXT, February 10, at half-past 12 o'clock precisely, a remarkably fine importation of ODONTOGLOSSUM ALEXANDRÆ, of the best type and to superb masses; LÆLIA ANCEPS ALBA, in Flower; and ODONTOGLOSSUM ROSSI MAJUS, splendid varieties, in Flower, from Messrs. Fred. Horsman & Co., Colchester; also a fine plant of LÆLIA ANCEPS WILLIAMSIANA, with ten bulbs, in Flower—another property.  
On view morning of Sale, and Catalogues had.

Tuesday Next.

ESTABLISHED ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, February 10, a fine lot of ESTABLISHED ORCHIDS from various owners, including many fine specimens, amongst which may be mentioned:—  
Masdevallia Trochilus  
Schomburgkia Lyonsi  
Cypripedium Crossianum  
Lælia elegans alba  
Cologyne Lemoineana  
Angraecum sesquipedale (fine specimen)  
Cattleya Skinneri alba  
Dendrobium Schroderi, and others.  
On view morning of Sale, and Catalogues had.

Wednesday Next.

LILIAM AURATUM, PLANTS, and ROSES.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, February 11, at half-past 12 o'clock precisely, 10,000 very fine Bulbs of LILIAM AURATUM, just arrived from Japan in splendid condition; a consignment of AZALEA INDICA and A. MOLLIIS, RHODODENDRONS, PALMS of sorts, DRACENAS and other PLANTS from Belgium; 400 Standard and other ROSES from a well known English nursery, 2000 Berlin Crown of LILY of the VALLEY, 2000 Double African TUBEROSES, 1000 GLADIOLI GANDAVENSIS of sorts, CHRISTMAS ROSES, a fine assortment of the best varieties of hardy English-grown LILIES, the beautiful L. NEILGERRENSE, and various PLANTS and BULBS.  
On view morning of Sale, and Catalogues had.

Wednesday Next.

LILIAM AURATUM.—TO THE TRADE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, on WEDNESDAY NEXT, 10,000 exceedingly fine BULBS, just received from Japan in splendid condition.  
On view morning of Sale, and Catalogues had.

Friday Next.

LÆLIA ANCEPS—New White Type.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, February 13, at half-past 12 o'clock precisely, a truly grand importation of a magnificent LÆLIA ANCEPS, White Type. The flowers are very large and fine, petals very broad and pure white, and the flowers are nearly 5 inches across; lip pure white, the throat dark crimson, veined and blotched, the colouring being most vivid. A large quantity of dried flowers on view will convey an adequate idea of the great beauty and value of this species. The plants were collected by Mr. Arnold, and are in grand order, great masses being among them. Also three unsold masses of LÆLIA ANCEPS SANDERIANA, a grand lot of L. ALPIDA, ANGULOIA CLOWESII, a very large and magnificent lot of a superb type of ODONTOGLOSSUM ALEXANDRÆ, O. TRIUMPHANS, VARSEWICZELLA WENDLANDI, EPIDENDRUM MACROCHILUM, SOBRALIA VIRGINALIS, and many other fine things.  
On view morning of Sale, and Catalogues had.

Deal, Kent.—Important Clearance Sale.

By order of the Executors of the late Mr. W. H. Newing.  
MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, The Field, Middle Deal, and St. Andrew's Nurseries, close to St. Andrew's Church, Deal, on WEDNESDAY, February 18, at 12 o'clock precisely, without reserve, the whole of the thriving NURSERY STOCK, comprising 2000 Border Shrubs, in fine condition for removal; Hollies, Laurustinus, Auriculas, Laurels, 5000 fine Euonymus, Ornamental Trees, Fruit Trees, Roses, and an assortment of Deciduous Shrubs.  
May now be viewed. Catalogues may be had on the Premises of Messrs. MERCEB, EDWARDS and CO., Solicitors, 19 and 20, Queen Street, Deal, and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.  
N.B.—The Two NURSERIES, with the Glass Erections, TO BE LET, on most advantageous terms, either separately or together. Full particulars of the Auctioneers.

Warminster, Wilts.

Re J. Wheeler.—In Liquidation.—IMPORTANT SALE of VALUABLE FREEHOLD PROPERTIES.

To Nurserymen, Builders, and Others.

MESSRS. PROTHEROE AND MORRIS (in conjunction with Messrs. Harding & Sons) are instructed to SELL by AUCTION, at the "Bath Arms" Hotel, Warminster, on TUESDAY, March 3, at 3 o'clock precisely, by order of the Trustees, the valuable FREEHOLD NURSERY GROUNDS, with comfortable DWELLING-HOUSES, OUT-BUILDINGS and OFFICES, extensive HOTHOUSE and GREENHOUSE ERECTIONS, Brick PITS, &c., and the GOODWILL of the Old-established BUSINESS; also several productive GARDENS, possessing choice FREEHOLD BUILDING SITES, the whole conveniently situated in the Town of Warminster, close to the Railway Station, and only three hours' journey from London. Offering an excellent opportunity to Nurserymen requiring a thoroughly genuine Old-established Business and others desirous of securing Land in the best part of the Town for Building Purposes. The purchaser or purchasers of these Properties will have the great advantage of securing, at unreserved Auction prices, any of the Trees and Shrubs growing in the Grounds at the extensive SALE of NURSERY STOCK, commencing WEDNESDAY, March 4.  
Particulars and Conditions of Sale may be had on the Premises, at the place of Sale, of Messrs. SPARKES and POPE, Solicitors, Exeter and Crediton; of Messrs. CHILTON and GREEN-ARMYtage, Solicitors, Bristol; of Messrs. WAKEMAN and BLACK, Solicitors, Warminster; of Messrs. HARDING and SONS, Auctioneers, Frome and Warminster; and of Messrs. PROTHEROE and MORRIS, Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Warminster, Wilts.

Re JAMES WHEELER.—In Liquidation.—GREAT CLEARANCE SALE of about 40 ACRES of NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS (in conjunction with Messrs. Harding & Sons) will SELL by AUCTION, on the Premises, the various Nurseries situate at or near Warminster, on WEDNESDAY, March 4, and following days, at 12 o'clock precisely each day, without the least reserve, the whole of the valuable NURSERY STOCK, extending over 40 Acres, including an enormous number of Trees and Shrubs of young growth, and an extraordinary stock of large Conifers, Evergreen and Deciduous Shrubs, invaluable to Noblemen, Gentlemen, and others largely engaged in planting. The Stock includes 5000 Green Hollies, 1 to 2 feet; 3600 English Yews, 2½ feet; 30,000 Common and Caucasian Laurels, 9 inches to 3 feet; 7000 Portugal Laurels, 14,000 Fir and Pine, 10,000 hybrid and named Rhododendrons, 10,000 Larch, 2 to 5 feet; 7000 Privet, 15,000 Thorns, 1½ to 2 feet; 20,000 Hazel, 1½ to 4 feet; 35,000 Ornamental and Forest trees, such as Limes, Beech, Poplars, Oaks, Chestnuts, &c.; 8000 Standard and Pyramid Apples and Pears, 2000 Standard and Dwarf Roses, GREENHOUSE PLANTS, and other Stock, too numerous to mention.  
May now be viewed. Catalogues may be had on the Premises; of Messrs. SPARKES and POPE, Solicitors, Exeter and Crediton; Messrs. CHILTON and GREEN-ARMYtage, Solicitors, Bristol; Messrs. WAKEMAN and BLACK, Solicitors, Warminster; W. H. PHILLIPS, Esq., Chartered Accountant, 1, Small Street, Bristol; Messrs. HARDING and SONS, Auctioneers, Frome and Warminster; and of Messrs. PROTHEROE and MORRIS, Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Barnes, Surrey.—Short Notice of Sale.

MELADYS, WHITE HART LANE NURSERY.  
A few paces from the "Edinburgh Castle" Tavern, midway between Barnes Terrace and Upper Richmond Road.  
To GENTLEMEN, NURSERYMEN, and OTHERS requiring the choicest kinds of FRUIT TREES, in right condition for moving, also CAMELLIAS, AZALEAS, PINKS, CLOVES, TULIPS, and other Flowers in pots.

MR. J. A. SMITH has received instructions from Mr. Melady, to SELL by AUCTION, on the Premises, as above, on TUESDAY, February 24, at 7 o'clock precisely, the whole of the NURSERY STOCK—Fruit Trees of named and choice sorts; Flowers, Shrubs, Plants, six pieces of Asparagus, 500 Fruit Trees, including Marie Louise, Beurre Diel, and other Pears; Cox's Pippin, Flower of Keat, Bleau Orange and other Apples; Victoria, Magnum, and Green Gage Plums; Lee's Red Grape and Black Currants, Gooseberries—all selected sorts; Poplars, Horse Chestnuts, Lilacs, Laburnum, Arbor-vitæ; Oval-leaved Privet, 4 feet high; Moss and other Roses, Cloves, fine specimen plants of Camellias and Azaleas, in pots; nearly new Span-roof Propagating House, 36 ft. x 15 ft., as fitted and heated with hotwater; the 36 ft. x 25 ft. Span-roof Conservatory, as fitted complete; large three-light frame, and sixteen 2-in. glazed lights. Viewed the day prior and morning of Sale. Catalogues on the Premises; at the Bull's Head Omnibus Station, and at Mr. J. A. SMITH's Auction and Estate Offices, 58, King Street, East Hammsmith, W.

To Market Gardeners, Fruit and Flower Growers.

MR. H. J. E. BRAKE will SELL by AUCTION, on MONDAY, February 9, at the "Royal Swan" Hotel, Blackwater, Hants, at 4 for 5 o'clock, several Plots of LAND at Crowthorne, Berks, and near to the Wellington College and Station, suitable for Market Gardening and Horticultural purposes, in plots from a Quarter of an Acre to 12 Acres. May be paid for by Instalments.  
Plans, Particulars, and Conditions on application, or by Post, of the Auctioneer, Farnborough, Hants.

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TO BE DISPOSED OF, a WHOLESALE and RETAIL SEED BUSINESS. A splendid going concern. One of the finest in existence, doing a large and profitable trade. An unusual opportunity.  
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TO BE DISPOSED OF, a First-class FLORIST, SEED, and JOBBING BUSINESS, in a main thoroughfare, about 7 miles from London. All in good working order.  
Address L. Nurseryman, *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO BE DISPOSED OF, a NURSERY, SEED, and CUT FLOWER BUSINESS, doing a first-class trade, one of the best manufacturing districts in the North of England, consisting of Flery, three large Vineries, two Peach Houses, and the following Houses, all separate, Camellia and Lapageria, Eucharis and Melon, Rose and Show, with Seed Shop, Pits and Frames, Sitable, Packing Sheds, and a good Dwelling House. All well fitted up, in good repair, and first-class working order. Well stocked with plants. All Freehold property standing on an acre of ground. Satisfactory reasons given for owner's selling.  
For particulars apply to HURST and SON, 152, Houndsditch, London, E.

To Nurserymen, Florists, Gardeners, and Others.  
FLORIST'S BUSINESS.

FOR SALE, by Private Treaty, as a going concern, all that well known and remunerative FREEHOLD BUSINESS PREMISES, called Guildford Street Nurseries, within two minutes' walk of the Barton Railway Station, Hereford, the property of Uriah Hais, Florist, who is relinquishing business on account of declining years. The Property comprises a modern and substantially brick-built Residence, called Blenheim House, with several Perches of Freehold Garden Ground, a number of Span-roof and Lean-to Glass Houses, with Hot-water and other Heating Apparatus, Hot and Cold Pits, and Potting Sheds; together with the Stock-in-Trade, consisting of a well-grown and healthy lot of Bedding, miscellaneous assortment of useful Greenhouse and Hardy Outdoor Plants, in popular demand; small collection of useful Nursery Stock, Horticultural Requisites, Tools, and absolute Goodwill. A splendid opportunity for an enterprising young man or gentleman's gardener with small capital desirous of retiring from service. One-half or so of purchase money can remain on mortgage, if required. For further particulars, apply to GEO. H. BARLOW, Estate and Property Agent, Hereford.

Pottery and Brickwork.

Near three Railway Stations, in a good neighbourhood, and within 6 miles of the City.

TO BE LET on LEASE, or FREEHOLD SOLD, a well-established increasing BUSINESS, comprising nearly 9 Acres very superior quality of Clay. Machinery all modern, and in full work. Advantageous terms.  
Apply to Mr. E. JACKSON, Land Agent, 15, King Street, Cheapside, London, E.C.

Important to Florists, Nurserymen, Market GROWERS and OTHERS.

TO BE LET, on LEASE, or SOLD with possession, the valuable FREEHOLD ESTATE known as Osborn's Nursery, Sunbury, Middlesex, comprising 17 Acres of excellent Land with Dwelling-house, Stabling, Sheds, and all the extensive range of modern and recently-erected Greenhouses. The Estate having a frontage of 1100 feet to the high road, possesses a great prospective value for Building purposes. Full particulars may be obtained of Messrs. PROTHEROE and MORRIS, Auctioneers, 67 and 68, Cheapside, E.C.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

JOHN KENNARD'S HORTICULTURAL SUNDRIES, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

SPECIAL TRADE OFFER.—Three Acres of Conover's COLOSSAL ASPARAGUS PLANTS, on land that must be cleared; 2-yrs. 95. per 1000; 3-yrs. 112. per 1000; 4-yrs. 125. per 1000. The very best money can buy. Cash with orders. Packing free.  
R. LOCKE, Redhill, Surrey.

BULBS for SPRING PLANTING, of all sorts.

JAPANESE MAPLES, JAPANESE LILIES, choice Seeds of our own sowing; choice New Zealand Seeds; NEW MAGNOLIAS, ZAMIAS from the Cape, North American Hardy Plants; CALOCHORTI, FRESIAS, GLADIOLI, &c.  
See our Spring LIST, No. 72, just issued.  
NEW PLANT and BULB COMPANY, Colchester.

To Noblemen and Others Planting, &c.  
FOR IMMEDIATE SALE, 10 magnificent Specimen WELLINGTONIA GIGANTEA, over 6 feet high, in perfect health, shape and foliage—such handsome trees seldom seen; 10 good Silver Variegated Japanese MAPLES, from 4 to 8 feet high (grafted), and about 20 fine shaped Purple BEECH—all moved within the last year. Also 5 immense Specimens of ADIANTUM CUNEATUM, over 30 inches through—these are fit for high competition.  
The above, the property of a Lady, are for immediate Disposal. Price, &c., address letter only to R. GARDINER, care of T. Smith, 15, Wine Office Court, Fleet Street, London, E.C.



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Respectfully invite attention to the following  
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STANDARDS .. from 15s. doz.  
DWARF STANDARDS, 10s. "  
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The *Rose Garden*, by Wm. Paul, F.L.S., 8th edition, with plates, 21s. The same without plates, 10s. 6d. The *Rose Annual*, with plates, six parts, 4s. each. *Roses in Pots*, 6th edition, in the press. *Roses and Rose Culture*, 5th edition, 1s.

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Of every description of the first quality, and low in price.

VEGETABLE SEEDS include BEET, Paul's Crimson, 1s. 6d. per oz. CAULIFLOWER, superb Hertfordshire, 1s. 6d. per pkt. CUCUMBER, Paul's Telegraph Improved, 1s. 6d. per packet.

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MUSHROOM SPAWN, 5s. per bushel. MATS, KNIVES, GLOVES, TOOLS, and every garden requisite.

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ANEMONES, RANUNCULUSES, and other Bulbs for spring planting, good and cheap.

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IRELAND AND THOMSON have an extensive and healthy stock of Seedling and Transplanted Forest Trees, including Ash, Alder, Birch, Elm, Austrian Pine, from 6 in. to 2½ ft.; Scotch Fir, Larch, Spruce, Black Spruce, Laricio, Beech, Thorns, Maple, Oak, Poplars, Thorn Quick, Chestnuts, Hazel, &c. Special offers on application.  
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All my own careful saving, and strongly recommended.

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G. STEVENS, F.R.H.S., St. John's Nursery, Putney, is now Booking Orders for his New CHRYSANTHEMUMS, which will be sent out in April next:—

WHITE PERFECTION, beautiful single, very free and compact grower, acknowledged to be the finest of this class of Chrysanthemums. First-class Certificate, National Chrysanthemum Society, 1884. 2s. 6d. each.

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CATALOGUES on application to  
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WISE AND RIDES, Covent Garden, W.C., have now a demand for Tuberoses, Arum Lilies, White Bouvardias, good Roses, &c.

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SQUELCH AND BARNHAM, Long Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatoes, Cucumbers, choice Flowers, &c.

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LAXTON'S INVINCIBLE CARMINE;

The stocks of several of which are limited and are fast selling out—

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SEEDS,  
VEGETABLE, FLOWER, and FARM,  
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AND FROM WHICH MAY BE EXPECTED

THE BEST RESULTS

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Containing Copious, Interesting, and Reliable Information, Free.

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SEED MERCHANTS and NURSERYMEN,  
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Rhododendrons and other American Plants  
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A superb Collection of all the leading varieties in cultivation. Also thousands of RHODODENDRON PONTICUM and HYBRIDS for Plantations and Covers.

A Sample Dozen of well-budded Plants of the best varieties for 24s.

Larger Sizes, from 30s. to 42s. per dozen.

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The finest Raspberry and best cropper ever known. First-class Certificate. Royal Horticultural Society, 1883. Strong Canes, 15s. per dozen, 45s. 5s. per 100; 4 feet Fruiting Canes 9s. per dozen, 43s. per 100. Usual allowance to the Trade.

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It comprises all the best varieties in cultivation, and the

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Seed Growing Establishment, Wisbech.

ABIES DOUGLASII, 1½ to 2 feet, 25s. per

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CRYPTOMERIA ELEGANS, 2 to 2½ feet, 60s. per 100.

CUPRESSUS LAWSONII, 2½ to 3 feet, 60s. per 100; C.

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50s. per 100; 1½ to 2 feet, 15s. per dozen; 6 feet, extra, 84s.

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THUJA LOBBII, 10 to 15 inches, special by the 1000, the

best substitute for Larch. RHODODENDRON PONTICUM,

2 to 4 feet, each size in thousands.

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HENDER'S STRAIN OF NEW FRINGED

PETUNIAS.—After great care and attention we have

obtained beautifully fringed flowers of our strain of Petunias.

The Double Seed will turn out a good percentage of fine double

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Singles (now offered for the first time) are magnificent, flowers

large and finely fringed. Colours very rich and varied in

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of FRUIT and ORNAMENTAL TREES, SHRUBS,

CAMELLIAS, ROSES, SEEDLINGS, STOCK FRUIT

TREES, &c. CATALOGUES sent on application. Freight

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New, Choice, and Rare Seeds.

W. THOMPSON, SEEDSMAN, 34, Tavern

Street, Ipswich, begs to inform his numerous Patrons

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Edition of CATALOGUE of Flower Seeds is now ready, and

will be sent to any intending purchaser, post-free. It includes

many seeds not to be had elsewhere.

W. H. ROGERS, Red Lodge Nursery,

Southampton, has a fine stock of the following

articles, which he can offer at low prices:—

RHODODENDRONS, Standard and Dwarf, named, all the

best sorts, mostly with blooming buds.

AZALEA PONTICA, MOLLIS, and AMENA.

PERNETTYA MUCRONATA, several sizes.

ERICAS, Hardy, including CODONOIDES.

GAULTHERIA SHALLON, strong clumps.

SKIMMIA JAPONICA, OBLATA, and FRAGRANS.

GRISLIENTIA LITTORALIS, in pots, 1 foot, fine.

EUONYMUS AUREA MARGINATA, in pots, 1 foot.

„ RADICANS VARIEGATA, nice bushy plants.

MENZIESIA POLIOPHYLLA ALBA and RUBRA.

ANDROMEDA FORMOSA, 1 to 2 feet.

LIGUSTRUM OVALIFOLIUM, 2 feet.

„ JAPONICUM, in pots, 1 to 1½ foot.

EURYA LATIFOLIA VARIEGATA, in pots, 1 to 2 feet.

ELÆAGNUS REFLEXA VARIEGATA, 1 to 3 feet.

COTONEASTER MICROPHYLLA and SIMONSII.

ESCALLONIA MACRANTHA, in pots, strong, 1 foot.

OLEARIA HAUSTII, 1 to 2 feet in pots.

OSMANTHUS ILICIFOLIUS and VARIEGATUS.

BUDLEIA GLOBOSA, 2 feet.

AUCUBA, of sorts, very fine, 1 to 2 feet.

MESPIUS CANADENSIS, 4 to 6 feet.

THORNS, Single and Double Scarlet.

CHERRIES, Double Blossom.

FURZE, Spanish and Double, in pots.

BERBERIS DARWINII, 1 to 1½ foot, bushy, fine.

„ fine fruiting variety (deciduous).

LAURELS and LAURUSTINUS.

COB NUTS, wonderful free-bearing sorts.

APPLES and PEARS, Espalier and Pyramidal.

CUPRESSUS MACROCARPA, 2 to 4 feet, well-rooted.

„ LAWSONIANA, 2 to 4 feet.

„ DENS, 1 to 2 feet, fine.

„ PYRAMIDALIS, 2 to 4 feet.

„ ERECTA VIRIDIS, 2 to 3 feet.

RETINOSPORA PLUMOSA AUREA, 1 to 4 feet.

„ ARGENTEA, 1 to 3 feet.

„ ALBA, 1 to 2 feet.

„ LEPTOCALDA and ERICOIDES, 1 to 2 feet.

THUIOPSIS BOREALIS, 1 to 3 feet.

„ DOLABRATA, 1 to 3 feet, fine.

CEDRUS DEODARA, 3 to 5 feet, well-rooted.

PINUS INSIGNIS, 2 feet, transplanted last spring.

CRYPTOMERIA ELEGANS, 2 to 4 feet.

THUJA LOBBII, 2 to 4 feet.

DACRYDIUM FRANKLINII, 3 to 5 feet.

FITZROYA PATAGONICA, 3 to 6 feet.

HARDY CLIMBING PLANTS of all sorts, in pots.

ROSES, Standard and Dwarf, all the best sorts.

Prices of any of the above and CATALOGUES of General

NURSERY STOCK, extending over 60 acres, will be for-

warded on application to

W. H. ROGERS, Red Lodge Nursery, Southampton.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE'S Wholesale Priced

LIST of SEED POTATOS is now ready, and can

be had on application. It comprises the best kinds in cultiva-

tion, and the prices are very reasonable.

Seed Growing Establishment, Wisbech.

## NEW HARDY SWEET-SCENTED

### WHITE PASSION FLOWER,

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**NEW**

**BEGONIAS.**

*B. incomparabilis*

(Queen of Bedders),

*B. hybrida gigantea*,

*B. semperflorens coccinea*.

*Petunia fimbriata fl.-pl.*

(Lady of the Lake).

*Primula fimbriata atrosanguinea*

&c.

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**Come and See.**

Our **PRIMULAS, CYCLAMEN**, and

**CINERARIAS.**

They are now grand, and all for Seeding and  
 Stock. Next Tuesday we hope to show some  
 of the finest ever seen.

**H. CANNELL & SONS**,

THE HOME of FLOWERS, SWANLEY, KENT.

**THURSDAY NEXT.—(Sale No. 6843.)**

## WHITE LÆLIA ANCEPS IN MAGNIFICENT MASSES.

**MR. J. C. STEVENS** will **SELL** by **AUCTION**, at his Great  
 Rooms, King Street, Covent Garden, W.C., by order of Messrs. SHUTTLEWORTH,  
 CARDER & Co., on **THURSDAY NEXT**, February 12, at half-past 12 o'clock precisely, a  
 grand importation of the beautiful and rare **WHITE LÆLIA ANCEPS**, including magnificent  
 masses, many of them with several hundred bulbs, in splendid condition. The finest importation  
 ever introduced. (See dried flowers.)

Also **ODONTOGLOSSUM CRISPUM (ALEXANDRÆ)**, the finest type possible to collect,  
 grand masses, and in splendid condition; **ONCIDIUM KRAMERIANUM**, with perfect leaves;  
**CATTLEYA TRIANÆ**, **LÆLIA SPECIES**, found growing with the **White Lælia**, very distinct-  
 looking; **L. AUTUMNALIS** (received as **ATROBUBENS**), **EPIDENDRUM NEMORALE**,  
 &c. Also **ESTABLISHED MASDEVALLIA RACEMOSA CROSSII**, **M. SHUTTLE-**  
**WORTHII**, **M. TROCHILUS**, **M. SCHLIMII**, **M. MACRURA**, and **M. HARRYANA**.

On view morning of Sale, and Catalogues had.

**FRIDAY NEXT.**

## LÆLIA ANCEPS—NEW WHITE TYPE.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr.  
**F. Sander** to **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68,  
 Cheapside, E.C., on **FRIDAY NEXT**, February 13, at half-past 12 o'clock precisely, a truly  
 grand importation of a magnificent **LÆLIA ANCEPS—WHITE TYPE**. The flowers are very  
 large and fine, petals very broad and pure white, and the flowers are nearly 5 inches across; lip  
 pure white, the throat dark crimson, veined and blotched, the colouring being most vivid. A large  
 quantity of dried flowers on view will convey an adequate idea of the great beauty and value of  
 this species. The plants were collected by Mr. Arnold, and are in grand order, great masses being  
 among them.

Also three unsold masses of **LÆLIA ANCEPS SANDERIANA**, a grand lot of **LÆLIA**  
**ALBIDA**, **ANGULO CLOWESII**, a very large and magnificent lot of a superb type of **ODON-**  
**TOGLOSSUM ALEXANDRÆ**, **O. TRIUMPHANS**, **WARSCWICZELLA WENDLANDI**,  
**EPIDENDRUM MACROCHILUM**, **SOBRALIA VIRGINALIS**, and many other fine things.

On view morning of Sale, and Catalogues had.

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A very early and distinct variety, which has  
 been grown in the East Riding of Yorkshire for  
 the past six years, where it is held in great  
 reputation.

It comes into use in May, and continues until  
 the late summer varieties are ready for cutting.  
 The heads are medium sized, beautifully close  
 and white and well protected by the foliage,  
 which enables it to stand the dry hot weather,  
 such as we experienced last summer.

The plant is dwarf and very compact, and  
 can be planted three or four inches closer than  
 any other variety.

Retail Price, 1s. 6d. per packet.

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<b>HURST AND SON</b> ...	London.
<b>NUTTING AND SONS</b> ...	London.
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 Farleigh, prolific dwarf maiden, 50s. 100. Nectarines and  
 Peaches, dwarf maiden, 60s. 100. £27 10s. 100; dwarf trained,  
 24s., 30s. doz., £8 10s. 100. Pampas Grass, fine, 10s. to 40s.  
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**CHAS. KERSHAW** offers strong Crowns  
 of his **PARAGON RHUBARB** at 25s. per 100. Strong  
 plants with several crowns—price on application.

**DECIDUOUS SHRUBS** in variety, fine transplanted stuff,  
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He can still supply extra strong plants in pots of **MARE-**  
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**ROSES.—ROSES.—ROSES.**  
 An immense quantity of Standards, Half-standards,  
 low budded on Manetti and on Briar roots. Best Trading  
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 all fine stocks, for sale at very low prices, from £4 to £6 and  
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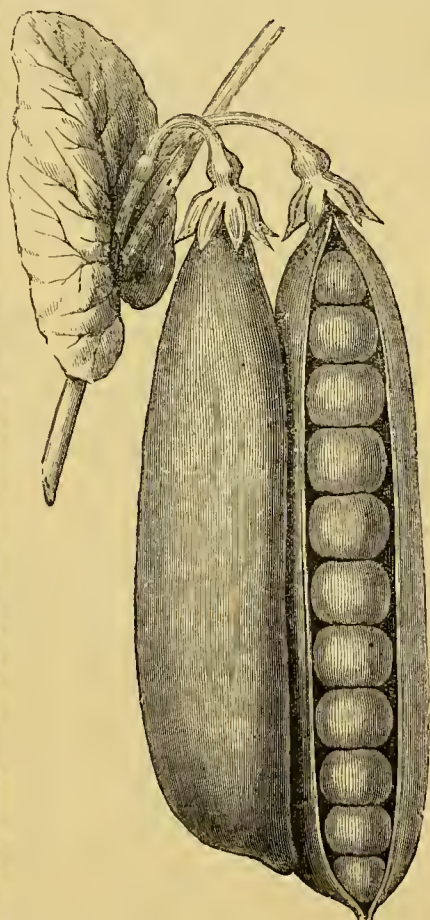
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From Mr. ROBERT COCKS, *Gardener to Lord Auckland*.—"Duchess of Edinburgh" is, without exception, the best Pea I have ever seen: it is a wonderful bearer, the pods are all well filled, and the flavour is most delicious."

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Introduced by us in 1883, since which time it has become increasingly popular. As evidence of its remarkably quick growth we may mention the fact that a plot of land sown with Cabbage at our Experimental Grounds on March 20 was fit to clear and receive another crop on August 12.

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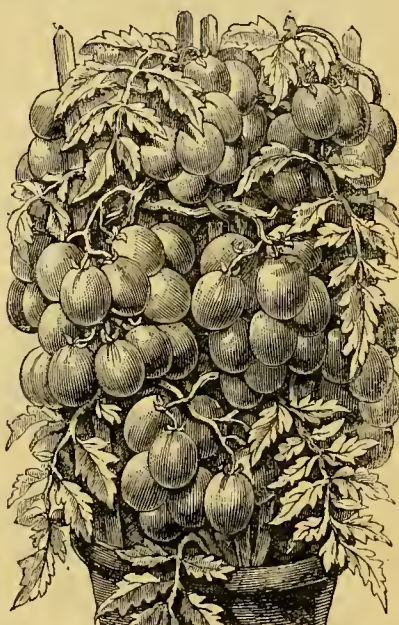
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A distinct and remarkably prolific variety, oval in shape, medium size, perfectly smooth, of bright red or crimson colour, and excellent in flavour. The fruit grows in large, heavy clusters, each cluster having from twenty to thirty fruit, and every plant bears from six to eight clusters. The entire stock of seed is in our hands, and every packet will bear our Registered Trade Mark.

Per packet, 2s. 6d., post-free.

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Messrs. SUTTON'S Experimental Trial Grounds—which are frequently referred to by leading Horticultural Papers—afford the opportunity of ascertaining the comparative value of every kind of Vegetable, Flower, and Potato. These trials are made under Messrs. SUTTON'S personal superintendence in the most careful and exhaustive manner. During 1883-84 nearly 10,000 plots were sown and records taken of the results for future guidance.



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ON  
EVERY PACKET.

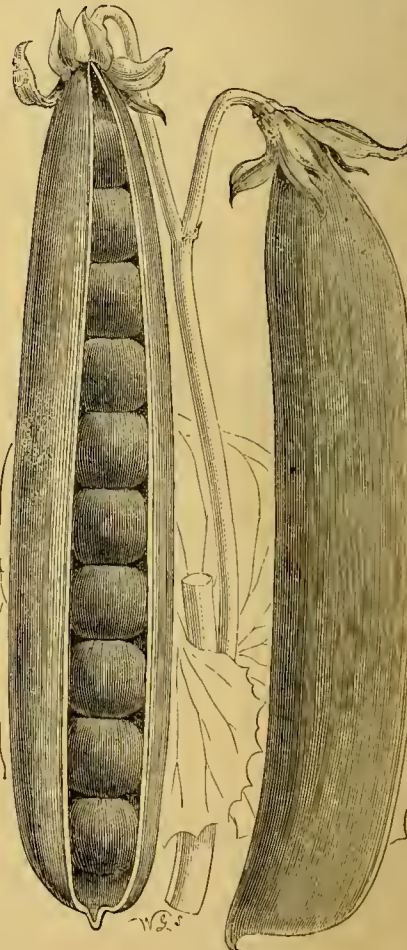


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### SUTTON'S "SATISFACTION."

By far the most robust medium-cropping Pea in cultivation, and in productiveness is unsurpassed. The pods are produced in pairs, and are thickly set on the haulm. The Peas are remarkably large, and sometimes as many as ten are contained in a pod. When brought to table they are of a beautiful green colour, and even when quite old they retain their sweet and delicate flavour. The haulm is very stout, resists drought and mildew, and is easily distinguished from that of all other Peas. Height 3 feet.

Per quart, 3s. 6d.

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Introduced by us last year, and has acquired a reputation unequalled by any other Melon known. Form somewhat globular; skin orange-red, finely and evenly netted; flesh thick, bright scarlet, and of exquisite flavour. On June 26, 1883, it was awarded a

First-class Certificate by the Fruit Committee  
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and in every competition we are acquainted with it has taken 1st Prize.

Per packet, 1s. 6d. and 2s. 6d., post-free.

"A scarlet-fleshed variety of the most distinct character and highest excellence."—*Gardeners' Magazine*, June 30, 1883.

"A brace of very handsome fruit of a new kind, Sutton's Scarlet Invincible, oval in form, finely netted, were well placed first, the flesh proving soft, luscious, and richly flavoured."—*Gardeners' Chronicle*, July 26, 1884.



SEASON 1885.



Is now offered to the Public for the tenth year, and the Manufacturers have again much pleasure in stating that it is still increasing in popularity.

They are, however, sorry to find that it is still necessary to CAUTION the Public against, under any circumstances, accepting it, unless in their PACKETS or SEALED BAGS, as they will not be responsible for its genuineness under any other conditions.

Where no Agent resides in the neighbourhood they will forward a Sample Bag, carriage paid, on receipt of Cheque or Post-office Order.

Sold in Packets, ONE SHILLING each, and in

Sealed Bags,

7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
2/6	4/6	7/6	12/6	20/-

CLAY & LEVESLEY,  
TEMPLE MILL LANE,  
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Clay & Levesley also supply CRUSHED BONES, BONE DUST, PERUVIAN GUANO, SULPHATE OF AMMONIA, and NITRATE OF SODA, of the best quality only.



The quality of all is alike, the difference in price applies to the quantity of seed put in the packets.

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Gloxinia, erect, very choice .. ..	1 6
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VICTORIA and PARADISE NURSERIES,  
UPPER HOLLOWAY, LONDON, N.



THE

## Gardeners' Chronicle.

SATURDAY, FEBRUARY 7, 1885.

## MORTUARY FLOWERS.

THE author of a work on *The Wonderful Years* (1603), when Queen Elizabeth died, and the country was stricken with the plague, remarks, "Rosemary, which had wont to be sold for twelve pence an armefull, went now at six shillings a handfull." Shakespeare makes Friar Lawrence say in *Romeo and Juliet*—

"Dry up your tears, and stick your Rosemary on this fair corse."

Gray says of strewing flowers upon graves, as we read in the Rev. Hilderic Friend's interesting account of "Flowers and the Dead" (*Flowers and Flower Lore*, vol. ii.):—

"Upon her grave the Rosemary they threw,  
The Daisy, Butter'd-flower, and Endive blue."

Old persons may remember that the practice of strewing graves with flowers was common in English villages early in the century. It was so hundreds of years previously, not only in England, but throughout the Continent, and not merely among modern nations, but among the ancient Greeks and Romans, and earlier, as we have seen, in these columns, in Mr. Hemsley's account of the wreaths discovered in the tombs of Ramses II. and other kings of Egypt 3000 years ago (*Gardeners' Chronicle*, vol. xix., June 23, 1883). The funeral plants of old Egypt were numerous, and, in fact, all inoffensive plants and flowers are appropriate as tokens of affection for the dead, since the appropriateness, though it may possibly be increased by the use of plants that fade slowly, or those of special beauty, lies mainly in the sentiment of affection, which the lowliest flower may express.

How eager man has been to lift the veil which separates him from those he has loved and lost; and if he has failed, he reaps the reward of his solicitude, and of his affection for the memory of those who have gone before him, for thinking of them brings him among the angels.

Rosemary is used because it is common and long-enduring. It played its part at weddings too. Herrick says—

"Grow for two ends; it matters not at all  
Be 't for my bridal or my burial."

It was dipped in scented water at weddings, in plain water at funerals. Like Laurel, Ivy, and other evergreens, it was, we are told, regarded as a symbol of immortality. But this could hardly have been the leading idea of village folk in the use of Rosemary. What do those best authorities, the poets, say? We read of the attendants at a funeral in the following lines—

"Prythee see they have  
A sprig of Rosemary dipped in common water,  
To smell at as they walk along the streets."

Another poet says—

"Sprigg'd Rosmary the lads and lasses wore,  
While dismally the parson walked before."



In "A Maiden's Song for her Dead Lover," more than 200 years ago, these lines show that the modern custom of using numerous kinds of flowers in honour of the dead was the old one too. The maiden says—

"Let him have faire flowers enough,  
White and purple, green and yellow,  
For him that was of men most true."

On the grass-covered grave of Charles Kingsley at Eversley some of his humble parishioners, who loved the man and revered the spot where he rests, strewed many kinds of flowers, such as the Heath, Thyme, and Forget-me-Not, years after his death. Flowers used in honour of the dead may be looked upon as messages to the departed, and any pleasing flower may carry our unspoken thoughts as well as another. Mr. Friend observes that the tombs of Michelet, Baroche, and Thiers are still heaped up with flowers. It is touching to read occasional notices in the papers of the afflicted Empress—who, in her bereavement, is more welcome to our Queen than when she filled a throne—bearing wreaths to the chapel where her husband and son lie. The flowers may be costly, like those which were placed on behalf of the Queen on the bier of President Garfield, but they carry their message no better than the simplest flowers that grow. The Queen's wreath for the coffin of the young Prince Waldemar was composed of white Roses, white Camellias, and Passion-flowers. In the hour of mourning all give their best, as the poor old peasant woman did when, at the funeral of the Princess Alice, she timidly approached and laid by the side of the rare and costly flowers that well-nigh hid the pall from view, her wreath of Rosemary with two small white blossoms. Another pathetic touch of Nature is seen in the tribute of a shepherd on the death of his master's wife. Having asked permission to see her once more, he placed two Snowdrops in the coffin, observing, "She was fond of them."

If it were not for the greenhouse flowers, such as the Eucharis, Stephanotis, white Lapageria, and others, the use of flowers would be more restricted. The white Chrysanthemums, which abounded last autumn were available, however, for the humblest country funerals. It is part of the business of florists to supply wreaths, but ladies in the country are often skilful in fashioning these sad but appropriate adornments; and in a house of most sincere mourning for an aged but bright and much loved relative, the relief of mind occasioned by the making of wreaths and the arrangement of flowers were manifest in the household, and when the wreaths and crosses covered the grave late on that grey and still November day, the one most admired was home-made. It was beautiful from contrast, being composed entirely of autumn leaves and blushing Roses.

In Germany garlands and crowns made of flowers are placed on the graves of young men and maidens. The author of *Flowers and Flower Lore* attended the funeral of a youthful damsel in Devonshire, and five such garlands of white flowers, each the present of a friend, were placed on the coffin and laid afterwards on the grave. Shakespeare says of Paris in *Romeo and Juliet*—

"He came with flowers to strew his lady's grave."

The poet knew the customs of his own country and that other countries share them. In Ireland, says an old writer, "when a virgin dies, a garland, made of all sorts of flowers and sweet herbs, is carried by a young woman on her head, before the coffin," and two other maidens went before with a basket of flowers which they strewed along the road. Such an observance must always be subject to the season of the year, and accordingly it was said of a certain "faire and happy milkmaid," "All

her care is that she may die in the spring time, to have store of flowers stuck upon her winding-sheet." In Wales, in the flower season, the coffin and room were bedecked and the grave overspread with flowers. Graves were again dressed in the same way on Whit Sunday and other festivals at the time of year when flowers abounded, and many kinds of sweet-scented flowers—but those only—were planted on the graves. Such flowers, especially the Pink or a sprig of Thyme, were gathered by friends and worn in remembrance. It was anciently believed that Paradise was planted with sweet flowers. There can hardly be a Paradise on earth without them, and perhaps it may be the maimed life that must be led in great cities, where the culture of gardens is unknown, which has rendered them from Babylon downwards, as Edmund Burke protested, "Sinks of iniquity and graves of genius." If we attach a locality to Heaven, the streets we know by Revelation are paved with gold, and we may feel sure that flowers and gardens abound. No wonder that the love of flowers from the time of our first parents should be universal, and that it should have extended from that one spot in the East, the Garden of Eden, throughout the world, in every country among all people.

Even the aborigines of Australia used green leaves at funerals, and a custom of similar character prevailed among the native tribes of India, and the islanders of that Paradise in the Pacific, Tahiti, which Lady Brassey has described so well, excelled them all, as their climate enabled them to do, in the profusion of wreaths and garlands of choice flowers. The Buddhists are lavish in this way, and their monasteries have large gardens, and Lotus ponds attached to them, for the provision of mortuary flowers without stint.

The Periwinkle in Italy has gained the name of "Death Flower," and in Mexico the Indian Carnation is called the "Flower of the Dead." Among the Greeks the Amaranthus ("undying"), or Prince's Feather, symbolises the immortality of the soul, and Mr. Friend mentions that the passage in St. Peter, "a crown of glory that fadeth not away," would be correctly translated, "an amarantine crown of glory." Milton, in sublime verses, represents the angels in the act of adoration, wearing such crowns:—

"Their crowns inwove with Amaranth and gold—  
Immortal Amaranth, a flower which once  
In Paradise fast by the tree of life  
Began to bloom."

The use of evergreens alone has to some extent given place to floral decoration, among the wealthy at any rate, but only for the reason already intimated. All kinds of evergreens are excellent—Yew, Cypress, Arbor-vitæ, Bay, Box, or Myrtle, and many others unknown by our forefathers. As an emblem of Victory the Bay is particularly appropriate as a funeral plant when the life of the departed has been long and meritorious. It was thus used lately by one who placed sprigs of Bay where the shepherd placed the Snowdrops, without knowing at the time how widely the plant has been employed with a similar sentiment in England as well as other countries. *H. E.*

**THE TREE TOMATO (CYPHOMANDRA BETACEA).**—The plant (belonging to the natural order Solanaceæ) is of shrubby habit, and 5 or 6 feet high. It is not generally known, and seldom used in Jamaica, but it is without a doubt a fruit that should be more largely cultivated, as it answers in every respect the purposes for which the ordinary Tomato is esteemed. Plants are easily raised from seed, which come into bearing in about two years. They are very prolific bearers, and the fruit is available during the winter months—November to March—when ordinary Tomatoes are not so easily obtained. *D. Morris.* [A plant bearing fruit may now be seen in the Temperate-house at Kew. *Ed.*]

## New Garden Plants.

MASDEVALLIA ACROCHORDONIA, *Rehb. f.*

*Xenia Orchidaceæ*, ii., p. 213.\*

"Masdevallia acro-acro-chor-donia?" Yes, acrochordonia, published as early as 1874 from a single specimen kindly given by Messrs. Backhouse & Sons, discovered in Ecuador, by Mr. Krause of Leipsic, who died as a doctor, a collector of Orchids and an officer of the Chilean navy, celebrated for his heroic deeds. It is very near Masdevallia Ehippium, *Rehb. f.*, 1873, which is much better known by its later name as Masdevallia Trochilus, Lindl., or even as Masdevallia Colibri (*cui?*). This last has a curious history. Gustav Wallis, its discoverer, sent a very glowing description to his patron, Director Linde, as travellers do but too often, over-excited as they often are by their fatigues and hunger and thirst. Having seen some metallic sheen on the flower, he compared it to that of a humming-bird, and by-and-bye imagined the flower was of the finest blue! "How blue!" (*Wie blau!*) say Berlin people when they allude to something they do not believe, and in the Berlin sense the stately flower was blue indeed. (Now poor Gustav Wallis, of course, did not behave as the collector who sent to his patron a big mass of Cattleya Trianae and suggested that the proprietor of a hacienda had asserted that the flowers might be snow-white. And when they flowered they were purple.)

Now my Masdevallia acrochordonia is quite the worthy sister of M. Ehippium, though it never was declared to be blue. It has (always?) narrower leaves. The petals are acuminate. The lip is much narrower with an undulate median keel on the upper part and an acuminate top. The inner surface of the sepals shows numerous warts. The usual number of flowers appears to be six to ten. I have, however, a peduncle with vestiges of more than fifteen flowers (!), whereas my richest peduncle of Masdevallia Ehippium shows the scars of more than twenty-one flowers. One might guess such a peduncle had lasted a year, though with us nobody would permit the plant to be so long a time in flower provided it were not of an exceptional strength. The plant has at last appeared in Europe. Mr. F. Sander has a few living plants, the remainders of hundreds and hundreds gathered and sent by Mr. Hübisch. That is the final lot of those lovely things. *H. G. Rehb. f.*

DENDROBIUM EUOSMUM, *hyb. artif.*

This is a new Veitchian production, a hybrid between Dendrobium endocharis and D. nobile. The flower is cream-coloured, and marked with fine purple. The tips of the median sepal and of the petals are purple. The disc in the middle of the lip rich purple, as also the apex. There are purple parallel veins on each side near to the superior outer margin. A white cushion of hairy bodies is set before the base in the mid, and numerous parallel longitudinal stripes before. Column light green, with purple longitudinal lines under the fovea. Anther fine purple, with a small white area at the base. The flower exceeds in size that of Dendrobium endocharis. The rhombic form of the lip speaks of the descent from Dendrobium aureum (heterocarpum). The plant has a grand quality in its fine sweet powerful perfume, that even lasted after the trip to Hamburg during frost. The bulbs are said to be in the way of those of Dendrobium nobile. *H. G. Rehb. f.*

PHALÆNOPSIS SCHILLERIANA (*Rehb. f.*) VAR ADVENA.

A lovely variety of Phalænopsis Schilleriana like Schilleriana immaculata. This bulb has mauve borders to the side lacinie of the lip. Our plant has also a quite spotless flower, lightest purple sepals and petals, with a mauve-purple line at the foot of the

\* *Masdevallia acrochordonia*, *Rehb. f.*, l. c.—Valde affinis *Masdevallia ehippium*, *Rehb. f.*; pedunculo latius alato (semper?) plurifloro 15–16; bracteis compressis argute dorso carinatis, pedicellis bene casatis; tubo ampliculo; sepalis superioribus triangularibus longe caudatis; sepalis lateralibus proparte linearibus oblongis longe caudatis intus tricarminatis et multiverrucosis porrectis; tepalibus ligulatis acuminatis supra basin angulatis, intus carina una d. curvante; labello a basi ad medium lineari angusto ibi lamella quadrata utrinque oblique extrorsum spectante; parte anteriori ligulata acuminata; carina flexuosa a basi in medium labellum, androchii membrana trifida. Ecuador, *Rehb. f.*



column. Lip white, with yellow callus and yellow on the side lacinie. Two light rose-purple spots are set before the callus, and mauve-purple on the sides of the column. It has been sent several times by Messrs. Hugh Low & Co. *H. G. Rehb. f.*

### K E W.

A DULL day in February is perhaps not the one that would be chosen for a visit to the garden, nevertheless it will amply repay the trouble. The maintenance and condition of the plants in most departments is admirable; the Temperate-house in particular shows to great advantage. The grand Tree Ferns, massive Araucarias, and stately Dracenas are in splendid condition, and there is ample promise of a wealth of flowers shortly on Acacias, Rhododendrons, and Camellias. The group of Cycads at the south end of the Palm-stove furnishes one of those sights which, when seen for the first time, makes one catch one's breath, and even when familiarity has taken off the edge of surprise, the noble outlines and monumental substance of the plants impresses one as much as ever. The Orchids have greatly improved of late years. Just now, perhaps, there are fewer in flower than there were a few weeks ago, but there is still much to interest the *connoisseur* in such plants as *Cattleya chocoensis*, *Lælia anceps*, *Dendrobium aureum*, *Agrostem sesquipedale*, various *Calanthes*, *Dendrobium Falconeri*, *Maxillaria venusta*, &c. In the Succulent-house—that repository of what is strange in form and gorgeous in colour among plants—numerous Aloes are in bloom, quite lighting up the part of the house in which they are placed. *Senecio macroglossus* hangs its golden stars from the roof, and *Restio subverticillatus*, misnamed *Willdenowia teres*, waves its elegant plumes. Out-of-doors the buds show that they are preparing for action, and in the new rockery, which must absorb much time and labour to keep in such perfect order, the *Hellebores* make a brave show.

### "LA PETITE CULTURE."

I DIFFER, with all due respect, from so good an authority on market gardening as is Mr. W. Earley, in his estimate of the value of small holdings. Happily it is a subject that can be discussed without referring to Georgian theories or Socialistic ideas, because the question of converting large farms that are admitted failures into small holdings which may and often do prove successes, is one of the most practical ones of the day. The great value of small holdings of land is found first in the strong tie with which they bind the holder—literally the peasantry—to the land upon which they are born; second, small holdings necessitate, indeed are dependent for success upon, actual manual labour, and specially upon hand tillage. In fact, small holding culture becomes in expert hands gardening; hence, as we see in gardening, the land is made to produce double that farming gives; hence small holdings are necessarily creative of far more labour and greater produce than are large ones. Probably there are few market gardens of the present day—and I know some ranging from 200 to 600 acres—literally huge garden-farms—but what originated from small holdings. If the present grower was not, some years since, the cultivator of a few acres, no doubt his father, or predecessor, was one before him; indeed, numberless cases occur which prove that if a man is a good gardener, industrious and energetic, he will inevitably convert his small holding in time into a larger one, simply because he has been prosperous. I do not think that Mr. Earley actually means to condemn small holdings for market garden purposes, but really he does so. Now, it may be a fair matter for debate, whether the small holder—that is, the occupier of some 6 to 10 acres—is in a position to compete in the metropolitan market with growers who have ample capital and broad acres to back them. But then even London is not all fed through its markets, for great quantities of vegetables and fruit are sent into it, and sold by the small men in and about the suburbs, who put their produce down at the shops, and, gathering up the straggling heaps of manure in the locality, return home neither empty in cart nor in pocket. But then there are other populations in the kingdom besides that of London; and, although the provincial markets may seem to be of less importance than are the metropolitan ones, yet the consumption in them of garden produce is vast, and these are far more largely

supplied by small growers than by large ones. It must not be by any means concluded that the largest holders of land display the best culture. Having ample capital and more horse labour at disposal, they may perhaps manure the most heavily, but it cannot be admitted that in filling the soil with manure until it almost stinks is to be found the highest element of culture. Without doubt, deep culture, or working of the land, and keeping it clean, are more valuable cultural elements, and there the small grower may show even in a more marked degree than can his neighbour who has six times the extent of land to oversee, simply because such oversight can only be intermittent and not constant. The really practical cultivator who finds manure a costly item prefers not only to plough deep but also to subsoil, whilst the smaller cultivator not only digs his soil deeply and thus works it more thoroughly than ploughs can, but also, if he be alive to its value, trenches a portion of his holding annually, with the result, that his crops are of the finest and most profitable. Market gardening is so far in advance of farming that it employs thrice the labour, gives much better wages, and it also creates from out the soil a wonderfully enhanced produce. It calls into play the most useful intellectual faculties, and creates in the worker a totally different being from the farmer or his labourer. *La petite culture* would add immensely to our garden produce, it would add to public security, and increase the national wealth. It is almost the only method by which it will be possible to grapple with the needs of the public in relation to eggs and poultry, and indeed of milk and butter also. The small holder was always a keeper of live stock of the domestic order—the large grower of any form regards these elements as troublesome. In a hundred ways the consuming public suffer, and in many country districts, because of the absence of small cultivators, simple produce cannot be obtained, all the large growers sending it to the towns. *A. D.*

### ORCHIDS FOR AMATEURS.

(Continued from p. 78.)

#### PLANTING ORCHIDS.

ORCHIDS are either planted on blocks of wood, on rafts, in baskets, or in pots. Some species do better in pots, others with less compost, or none at all, on blocks or rafts, but many growers have a special predilection towards different methods of growing the same species.

#### PHALENOPSIS.

Take, for instance, the genus *Phalenopsis*. It is usual to grow these beautiful Orchids in baskets, but some unusually fine specimens have been grown in pots, and my own experience leads me to prefer the latter form of culture, at least during winter. The warmth of the bench directly over the pipes is very conducive to the health of these plants, and keeps the roots active in the cold dark months. In summer they may hang from the rafters of the house in baskets, but in winter, except in a very warm house—which, in my opinion, is not good for these plants—the roots suffer from change of temperature and drought in a basket.

I place the basket in a pot, and surround it with living sphagnum for the winter, and find it saves my plants from injury, and keeps them plump and healthy, or I place the baskets upon the bench over the pipes if the roots are confined to their interior, and dispense with the pot; by this simple device *Phalenopsis Schilleriana* and *P. amabilis* will stand a temperature of 50° in the night without suffering, provided the house rises to 60° or 65° in the course of the day. I attribute success entirely to the warmth stored in the compost, which cools far more slowly than the air of the house, and the fact that the benches themselves and the pots they support are always 5° or 6° warmer than the air at night. Perhaps in a house where the average temperature is 10° higher such plants would succeed better hanging from the roof than standing on a bench.

#### COVERING PLANTS TO KEEP THEM WARM.

A good plan in very cold weather is to cover such plants at night with a sheet of white cotton wool. I have often saved tropical plants in a cold greenhouse by this means. I should adopt it with the more delicate Orchids if at any time I found I could not maintain a sufficient temperature. Of course it would only do good for a time, unless heat were supplied to

the plant from the bench beneath it. The experience of Russian gardeners shows that many tropical plants can be kept healthy in the dark for months; this is only done, however, by giving no more heat than is necessary to keep the plant alive without stimulating its growth.

#### ENFORCED REST.

I find most grown plants—and I use this term to distinguish them from half-grown plants and seedlings—can be kept in a torpid state for a long time without damage. *Phalenopsis Schilleriana* does not grow at a temperature under 60°, but it does not suffer at 50°, and flowers all the better for a few months' enforced rest at a temperature between 50° and 60°.

#### THE COMPOST.

The compost I use consists of fibrous peat, small pieces of crock, fragments of wood charcoal, and sphagnum moss; equal parts of these ingredients by bulk, not weight, is the best mixture in my opinion. The peat must consist entirely of fibre; more failures arise from clogged peat, peat full of earth, sand, or decaying vegetable matter, than from anything else. Fibrous peat, freed from all earth by pulling it to pieces, and shaking out the dust, should be used in portions varying in size from a Cobnut to a Walnut. It should feel quite elastic between the finger and thumb, and should be dry, otherwise it cannot be freed from dust. It should then be of a light brown or golden-yellow colour. Black or dark brown peat is quite unfit for any Orchid.

It is sometimes very difficult to get the proper kind of peat; under such circumstances it is better to plant the Orchids in the above compost without peat than to use black peat, replanting them as soon as the proper material can be obtained. I once dispensed with peat for six months, and lost no plants by its want. I do not, however, recommend such treatment except when it cannot be avoided.

*Masdevallias* and *Cypripediums* do not suffer from the use of small pieces of inferior peat so much as the epiphytes, such as *Cattleyas*, *Brassias*, *Lælias*, &c.

#### THEIR WANTS SHOWN BY THE ROOT.

The colour of the roots of Orchids is a great indicator of their wants: those covered with a white epidermis, which looks like porcelain glaze, cannot endure any decaying vegetable matter in their neighbourhood; those with brown or black roots only suffer from stagnant water, and some growers even add old manure to the compost in which they plant them. I do not recommend an amateur to risk such treatment.

The charcoal should be in pieces the size of a Cobnut for small plants, larger for large ones. I believe its great power of absorbing carbonic acid gas and oxygen is the secret of its utility; it certainly keeps the compost sweet, and the roots cling to it firmly. Cocks are, like charcoal, absorbent bodies, and keep the compost open; perhaps they only serve the same purpose as the charcoal less efficiently, but I use them with it and have no reason to give up this addition to the compost; the roots cling to cocks firmly, the variety of material suits the plants, and the cocks keep the compost firm by their weight. I have already spoken of the necessity for drainage: from half to two-thirds of the pot should be filled with cocks, or a small pot may be inverted in a large one and surrounded and covered by cocks, this lightens the whole—a very important point, as it greatly lessens the labour of dipping the plants. A layer of sphagnum is then spread over the cocks and the Orchid planted in the compost above described. It may be necessary to secure it with sticks driven into the cocks below, to which the bulbs may be secured with bast.

#### FASTENINGS.

The parts tied to the sticks should be carefully examined from time to time, as these often swell as the plant starts into growth, and may easily be damaged by the pressure of the unyielding bast. String must never be used, as it is sure to swell with moisture, and damage the plant by constriction.

#### THE ROOTS.

The roots should be spread out near to or on the surface of the compost, and the whole covered with a layer of living sphagnum, the tops pulled off about three-quarters of an inch, or an inch, from the growing end of the moss, or, better still, when possible, cut from the surface of a bed of sphagnum. The moss



should grow, and if it dies should be replaced. It is not to be expected, however, that the sphagnum will keep bright and green all the year, especially on resting Orchids; but it ought to grow when the plant is growing. Too much water will kill the sphagnum, and so will hard water; rain-water is essential for its maintenance.

#### WHEN TO REPOT.

Orchids require repotting every year or two. This should be done when they are resting; it is usually necessary to break the old pot, or the roots will be damaged by attempting to remove the plant. Cattleyas and other plants adhere very firmly to the pot; in such cases I break away the bottom of the old pot with a hammer, and then plant the remainder in a pot an inch larger each way, and so avoid any serious disturbance of the roots. *B. T. L.*

(To be continued.)

### THE NAME VERONICA.

A QUESTION was asked about the pronunciation of Veronica, which is answered on p. 125. I do not wish to dispute the truth of that answer. Whether generic names in botany are no more than fancy combinations of letters, as is often the case with those now given, or are real Latin or Greek words, in either event whatever pronunciation custom sanctions I willingly adopt, even though inconsistent with ancient usage. But the name Veronica is so old, and so seldom referred to its true origin, that I hope I may be allowed to say a few words about it. I will not repeat the well known legend of the relic in St. Peter's at Rome, the "vera-icon" or "true likeness," but will only say that this derivation obtained such universal currency in France, that we find in classical French a man spoken of as "*la Veronique*" of another, just as we might say "the very image." But we need not stop to inquire why, in that case, the name is not "*Vericonia*," because the ancient ecclesiastics were at least good scholars, and would not have been guilty of the barbarism of thus mixing Latin and Greek in a compound word. It is likely enough, however, that the name is in some way connected with legends concerning the woman who was healed by touching the hem of our Saviour's garment. A very early tradition gives her name as Prounike, which was probably a corruption of Peronike, or Berenike, a name very fashionable in Egypt and Syria about the time of the Christian era, the most celebrated of the Jewish nation who bore it being the sister of Herod Agrippa, and the owner of the famous diamond ring so much coveted by the ladies of Rome. It is in fact the Macedonian form of the ancient Greek name "*Pherenike*" ("*Winner of Victory*"), which occurs in the *Odes* of Pindar, as having been given to a celebrated racehorse of his time. The transition from Pherenike, or its corrupted form Peronike, to Veronica is easy and natural. *C. Wolley Dod, Edge Hall, Malpas, Jan. 24.*

### PARASITE OF HENBANE.

#### PERONOSPORA HYOSCYAMI, P.

Now that so much attention is directed to raising new Potatoes with *Solanum Maglia*, Sch., as one of the parents, it may be well to remind Potatogrowers that the dreaded *Peronospora infestans*, Mont., is not the only *Peronospora* found on the Solanaceæ of Britain. A second species occurs on the common Henbane named *Peronospora Hyoscyami*, P. The study of the Potato fungus has shown that its attacks are by no means confined to *Solanum tuberosum*, L., as it spreads to other species and genera of the Solanaceæ, and even to a different natural order of plants, the Scrophulariaceæ.

We do not say that it is probable that *Peronospora Hyoscyami*, P., will attack Potatoes which have a different constitution from *Solanum tuberosum*, L., such as *S. Maglia*, Sch., or Potatoes containing blood of the latter plant. Judging, however, from what we know of the habit of *Peronospora infestans*, Mont., this is at any rate possible. *Hyoscyamus* is generally esteemed a somewhat rare plant in Britain, but it is not everywhere rare; we have seen it in such abundance in South Wales, in wild places washed by the sea at high tide, that it might have been mown down like corn.

The accompanying illustration (fig. 33), drawn from Nature, will give a good idea of what *Perono-*

*spora Hyoscyami*, P., is like when enlarged 400 diameters. It is a large sturdy species, with somewhat dull-coloured conidia or spores, even larger than those belonging to *P. infestans*, Mont. Professor De Bary, who is generally very exact, says, in describing this species (we suppose by a slip of the pen) "*conidia parva*." The spores are full of lustrous convoluted protoplasm, and are said to germinate by bursting at the side. Sometimes they germinate at the top, as shown, on the left of the illustration. Zoospores with vibrating flagella and resting-spores have not been observed in *P. Hyoscyami*, P.

Dr. Rabenhorst considered this fungus to be a variety of *P. effusa*, Grev., a parasite of Spinach; this, although undoubtedly very near indeed to the plant now before us, has still larger conidia, and apparently differs a little in other ways from *P. Hyoscyami*; Dr. Rabenhorst also altered the spelling to *Hyosciami*—an alteration which has not been approved or accepted. Few acts of botanists create more con-



FIG. 33.—HENBANE FUNGUS, GROWING FROM THE LOWER SURFACE OF THE LEAF; REVERSED IN THE ILLUSTRATION.

fusion than the unnecessary and uncalled for alterations of names. *W. G. Smith.*

### APPLE CULTURE.

In England Apple culture does not keep pace with the times, nor is it likely to do so until some alteration is made in our laws. Who is encouraged to start plantations? The landlord waits for the improvement, to reap a permanent benefit; the Government, to grasp more rates and taxes; and railway companies to demand rates for carriage nearly prohibitory. An instance only recently came under my notice of a lease running out of land which when taken consisted of poor grass and copse. The tenant during fourteen years improved it, planted Apples and other fruit trees. He desired a new lease, which was granted for a 20 per cent. rise, coupled with the condition of same acreage of orchard as now being left at end of new term, and this followed by being assessed up to rental. An instance also occurs of railway rates demanded exceeding the through charge for Apples from New York *via* Liverpool to London, the distance not much exceeding that from Liverpool. Orchardists all know that the full benefit of a new

plantation cannot be secured until a lapse of nearly fourteen years, and success is not always certain; so when handicapped as above who can wonder at the culture not keeping pace?

Now that land is such a glut something might effectually be done by landowners as well as Government to foster Apple culture and such permanent improvements, thereby keeping the monied land grabbers from roaming to other climes, for success without capital is impossible.

Among all fruits cultivated we as a nation are further behind in Apple culture in comparison with requirements than in any other kind suitable to our climate. To find an orchard of one kind is the exception, they generally will be found containing Apples of all colours as also for all purposes. To manage successfully a mixed orchard is not an easy matter, and often the fruit is marked as "mixed," which means quite 40 per cent. off the value. The idea of planting orchards of one kind and covering wide areas has only been grasped at present by the few.

Good examples of Apple culture are weekly arriving from America, and the knack of sending each sort separately enhances much the value of the produce. The supply to Great Britain alone during this season to end of December last was nearly 600,000 barrels, which represents about half the supply for the season, and quite apart from Canada, including the prolific island of Nova Scotia, whose supply may be calculated about half as much. Taking 60 barrels per acre, average value 15s., we get the grand total of 30,000 acres, and gross value of £1,350,000 supplied us by that continent.

These figures to the uninitiated, no doubt, will appear staggering, but they can be borne out by facts. To incite tenants of land to go in for Apple culture thoroughly will demand very much thought from our "G. O. M." *J. B. T.*

### CUPRESSUS MACROCARPA.

THE accompanying figure (fig. 34), is reproduced from a sketch of a group of trees of *Cupressus macrocarpa* taken in the dusk of the evening at Cypress Point, Monterey, California, in September, 1877, about 80 miles south of San Francisco. The trees were growing on rocky granite soil near the sea, and exposed to the westerly Pacific gales. Their well-known likeness to Cedars as I saw them in the old grove on the Lebanon itself struck me forcibly, and except that the trunks of the Cupresses were more silvery-grey (an appearance I never saw them put on in this country) I could not from a little distance recognise any character whereby these two botanically dissimilar plants could be distinguished.

The form here represented is that with widely spreading limbs, which goes in our arborescence by the name of *Cupressus Lambertiana*, and it is the only one which I saw at Cypress Point. How and when the columnar form—*var. fastigiata*, Knight—which is by far the most common in cultivation, originated, is a mystery to me, for there is no other known native locality for this Cypress than that here given, and no one has there seen other forms than the one I have attempted to portray. Watson, in the *Botany of California*, says of it:—"The trees at this, the only certain locality, very much resemble the Cedar of Lebanon in habit, with wide-spreading branches." On the other hand, I saw in California countless cultivated plants of *Cupressus macrocarpa*, but never one with the Cedar habit; all were columnar. The natural inference is, that the Cypress when brought into cultivation at once took to sporting, and that the fastigate form appeared soon to become the favourite, and very constantly reproduced its kind. I am far from saying that the spreading form does not occur in Californian gardens; all I can affirm is, that I looked for it in vain as I drove or rode along in town and country.

This tendency of spreading trees suddenly to assume a fastigate habit is a very singular one; it is conspicuous in the common Cypress, and in many deciduous-leaved trees, notably the Poplar (Lombardy), and Oak (*Robur fastigiata*), but perhaps the most striking instance of all is in the *Cupressus Lawsoniana* *var. erecta viridis*, which is too well known to require further description. Except possibly the *Retinosporas*, this Cypress is the most variable plant in habit known to me. The only trees of it which I have seen in a native state were on the Sacramento River, south of



Shasta, at what is perhaps the extreme southern limit of its range: there were but few trees of it growing amongst rocks by the margin of the river, they had slender trunks about 60 feet high, with large spreading and drooping branches, reminding me somewhat of *C. funebris* as it grows in the Eastern Himalayas, and totally unlike any fully-developed state of the tree as I have seen it in England; though possibly *var. gracilis*, of which I have only seen young plants, may grow into it.

To return to *C. macrocarpa*. Gordon (*Pinetum*, ed. 2, p. 92) says of the two forms, "That there is some difference in the shape of the plants may be, but then that arises from all those plants known under the name of *C. Lambertiana* being raised from cuttings, whilst all those called *C. macrocarpa* are seedlings, and have a more pyramidal shaped head, whilst the cutting plants (*C. Lambertiana*) have a horizontal, or rather flat-headed appearance." To this he adds a foot-note, to the effect that seedlings of *Lambertiana* have the erect habit of *macrocarpa*; and that if the points of the leading shoots are taken off young seedling plants of *C. macrocarpa*,

history of the Lambert Cypress, except that I do not see it noticed that it occurs in a forest of Pious insignis, which as it grows there in wretchedly poor soil, appeared to me to be a singularly ugly Pine, totally unlike its progeny in England; and that the *var. Cripsii* of *C. macrocarpa* with rigid acute spreading sharp leaves, of a silvery hue, was a very common form in Californian gardens. *J. D. Hooker*.

## The Arboretum.

### REMARKABLE TREES ON PENRHYN ESTATE.

PLEASANTLY situated near the entrance to the Menai Strait, and backed up by the great Snowdonian range of hills, this estate affords peculiar advantages for the successful cultivation of most timber trees, but more particularly of the rarer and less hardy Conifers of recent introduction. The climate of Carnarvonshire is remarkably mild and humid, more especially

the height of 10 or 12 feet there is but little diminution in the circumference. In its heyday this must have been one of, if not the finest, trees of its kind in Britain; but unfortunately, some years ago, the top was broken over at about 24 feet from the ground by the force of the wind which at times sweeps along the hill-side, near the base of which the farm is situated, with terrific fury, more especially when blowing from the south or south-west. It is still, however, in a fairly healthy state, as the number of fresh shoots shot out annually clearly shows. The butt for a short distance up is quite hollow, and was last season taken possession of by a hen in which to rear her offspring, and afterwards by a thief in which to secret her stolen goods. Another of almost equal dimensions, and in a perfectly healthy state, grows by the side of a mountain stream close to the road at Penybryn farm, or, more correctly, on the left side of the road between the entrances to Penybryn and Tyddynisa farms. This is a noble specimen, with girths at 3 and 5 feet of 18 feet 2 inches and 16 feet 2 inches respectively. As it is growing on a sloping ditch bank, one side of the stem is about 4 feet below the level of that opposite, which renders accurate or reliable measurements somewhat difficult, indeed the measurements given might be greatly extended, were exaggerations and not a fair average size—everything being taken into consideration—recorded. The branches of this tree cover a large area of ground, but the height is not in proportion to the immense size of the somewhat stunted stem.

In the village of Aber, almost opposite an artificial mound, near which was the site in olden days of one of Prince Llewellyn's mansions, stood until lately a remarkably fine Ash tree, of which, I need hardly add, real necessity demanded the removal. At 3 and 5 feet it girthed 16 feet 6 inches, and 15 feet 5 inches. Nineteen feet in length of the butt contained, after due allowance for bark, exactly 161½ cubic feet of timber. The whole tree, including the tops and larger branches, contained considerably over 200 feet of wood, all of which was in a perfectly sound and healthy condition. A special saw had to be procured for felling this tree, which occupied some time, as there were five stones embedded in the wood near the base. Another in the same parish, growing in the rectory field, is 14 feet 3 inches in circumference of stem at a yard up. Two others, one growing on the south-west of the Castle and the other near the sea coast at Port Penrhyn, the first being at 3 feet from the ground 12 feet 3 inches, and at 5 feet 12 feet in circumference of stem; the second, at 3 and 5 feet, 14 feet and 12 feet respectively.

### OAKS.

Of Oaks considered worthy of note the finest are those growing in close proximity to the Castle, but more particularly to the north-west of the flower garden, where many large clean specimens with boles rising over 70 feet in height and with timber of the finest quality are to be seen. Many of these trees contain from 150 to 180 cubic feet of wood, and the stems, which are usually straight and well tapered, girth from 10 to over 12 feet at 3 feet up. One particularly worthy of note, which was pollarded some few years ago so as to prevent injury to the flower garden wall, stands close to the northern doorway. It is a very ornamental tree—in fact, contrary to the usual opinion, has been much improved by removing the upper branches, numberless shoots having sprung out all over the stem, and thus giving to the tree the appearance of youth in old age. A number of gnarled old Oaks grow eastward from the chapel, their peculiar formation giving them a very picturesque and reverential appearance. The Turkey Oak is also abundant, and many fine specimens of 60 feet and upwards are visible from the drives and walks. This tree does well at Penrhyn, but it is only valuable for ornamental purposes, the timber being, comparatively speaking, worthless. Evergreen Oaks with girths varying from 6 to 7 feet are also liberally distributed throughout the park, the largest, however, occupies a very exposed situation on a farm near Talybont, and is, in spite of the breezy situation, the finest and best furnished tree of its kind on the estate.

### SYCAMORE.

The Sycamore is not abundant as a woodland tree generally, although all over the estate numberless specimens of not only ornamental appearance, but gigantic proportions, are to be met with. Near the little village of Pentir, and in a somewhat secluded



FIG. 34.—OLD TREES OF CUPRESSUS MACROCARPA: FROM A SKETCH BY SIR JOSEPH HOOKER.

the plants will afterwards assume the same spreading habit as those known as *C. Lambertiana*.

Now, if this theory is to hold good, it must be proved that all the native trees at Cypress Point, as sketched above, had the points of their leading shoots taken off while young—an improbable but not an impossible assumption; for in countries where goats or other browsing animals abound, mutilated trees of abnormal habit are not unfrequent. A more valid objection is that numerous as are the specimens of *C. macrocarpa* at Kew of which I have seen the leading shoots destroyed, not one has altered its habit on that account. So, too, with the common Cypress; wherever I have seen a partial change from the fastigate to the spreading form, it has been, as far as I could judge, a natural process, and not the effect of accident, disease, or injury. According to Gordon the fastigate variety of *C. sempervirens* is the only one known in its native country (Asia Minor), but Boissier (*Fl. Orient.*, iv., p. 705) contradicts this, saying that both varieties occur in the mountain region, but that the pyramidal is the most frequently cultivated; thus affording a parallel to *C. macrocarpa*.

I have nothing further of novelty to add to the

in the peninsular part; indeed, in this respect it almost equals that of some of the southern English counties, as the fact of such plants as the greenhouse Azaleas, Fuchsia Riccartoni, Cunninghamia sinensis, and many others standing our ordinary winters unscathed clearly proves. In the following paper I intend giving a short description of such trees as may, from their age or other remarkable features, be considered worthy of note. While none of these are connected with historic records, yet from the following dimensions it will be seen that they can favourably compare with many of the same kind growing in this country. As these trees are nearly all growing on the same sort of soil it will suffice to state that it generally consists of sandy loam, or in some places alluvial deposit, resting at no great depth on shaly slate rock. The altitudes range from 30 to 700 feet.

### ASH.

Beginning with the Ash, the largest specimen, as well as the largest tree on the estate, grows at Tynhendre Farm, the residence of Mr. Ellis, midway between Llandegai and Aber. At 3 feet up it girths 20 feet 3 inches, and the taper is so gradual that at



spot around the remains of an old mansion, are some of the finest Sycamores I have seen. Many of these have fine clean boles of from 20 to 30 feet in length, and with girths varying from 10 to 15 feet at 3 feet up.

When thinning these trees some time since, owing to the clo-eness of individual specimens, some idea of their general size was gleaned from the fact that six trees, at 19 feet lengths, contained 370 feet of timber, or an average, independent of tops and limbs, of 61 cubic feet each.

As an ornamental park tree or for planting on poor thin soils near the sea the Sycamore has no equal, and for these reasons has been freely interspersed throughout the park and surrounding grounds, as well as in our maritime woods generally. The Norway Maple has, for the sake of its handsome glossy deep green leaves, received a fair amount of attention, and may be seen of a fair size as well as in luxuriant growth in a small wood on the banks of the Ogwen river at Talybont. Several good specimens of the Oriental Plane grow in a small dell near the home nursery. They are trees of considerable beauty, and have the singular property of throwing off their old bark in hard plates of irregular size and form. The largest is about 60 feet in height.

#### ELMS.

Both the English and Scotch Elm are well represented on this estate, not only as woodland trees but as single specimens. The finest of the former grow in the park, to the south-west of the Castle, many of which have attained goodly proportions both in trunk and branch. At the home farm several over 70 feet in height, with trunks girthing 12 feet at a yard up, and containing upwards of 230 feet of measurable timber, are to be seen. The Scotch or Mountain Elm is inferior in point of size though more valuable as regards the quality of timber produced. It rarely attains a greater height than 40 or 50 feet, with a short thick stem, not unfrequently 17 feet in girth. The largest specimens are usually found as hedgerow trees, many of which, especially those in the park, have seen more than a century come and go. The Cornish Elm (*Ulmus cornubiensis*) has been planted pretty extensively, and many fine specimens are to be seen in the park near Port Penrhyn. When viewed from a distance this tree might readily enough be mistaken for the Lombardy Poplar, than which, however, it is usually more branched and the habit rarely so fastigiate. It is a tree admirably adapted for planting alone or along the outskirts of plantations, in either of which places its decided character can best be seen. The wood is rather brittle, but superior in graining to either the Scotch or English form. Several of these trees throughout the park have a height of over 80 feet, and stems girthing from 7 to 8 feet at 1 yard up.

#### BEECH.

A number of fine Beech trees are distributed all over the estate, but those of largest size are confined to the park and surrounding grounds. On the side of the narrow gauge railway running between Port Penrhyn and the slate quarry, and near the Bishop's Mill, are some of these trees that have attained goodly dimensions. At 3 feet up the circumference of stem is from 6 to 9 feet, and many of the trees contain close on 100 cubic feet of wood. In the park immediately behind Llandegai Church are, however, the largest trees of the Beech on this estate, some of which, growing on average good soil, girth 11 feet 3 inches at 3 feet up, and contain considerably over 100 feet of clean sound timber. Here also is a peculiar amalgamation of a Beech and Ash tree, the former appearing as if it had been planted in a recess at the root of the Ash. Both trees grow together, or rather within a few inches of each other, and perfectly parallel for 20 feet, at which point the Beech sends out a large branch right into the stem of the Ash, thus uniting the two both at base and summit.

#### CHERRY.

Close to the works in connection with the building department of the estate are a number of remarkably fine specimens of the Gean, or wild Cherry. Specimens that are not excelled even by the famous trees that are growing along the banks of the Findhorn and Deveron, and about which so much has been written of late. These trees are growing on well-drained alluvial deposit, and seem from their healthy, vigorous appearance to be perfectly suited both as regards soil and situation. The largest measures

6 feet 10 inches in girth at a yard up, is fully 70 feet in height, and contains 94 feet of measurable timber. Others but little inferior in point of size are conspicuous alongside the drive leading from the Castle to the grand entrance.

A fine specimen of the Bird Cherry (*Cerasus padus*) grows on the banks of a mountain stream at a considerable elevation above sea level. At 3 and 6 feet this tree girths 4 feet 3 inches and 3 feet 9 inches respectively, and is upwards of 30 feet in height. It has suffered severely from its high-lying situation, many of the top limbs and branches bearing unmistakable evidences of the fury of the mountain blast.

#### POPLARS, &c.

The Lombardy Poplar occurs but sparingly in this county, and usually as a hedgerow tree. Several of gigantic proportions are, however, to be met with on this estate, notably one growing on the banks of a small river or hill-stream at Nantheilny, near Aber, which is in girth at 3 feet 10 feet 9 inches, and at 5 feet 10 feet 8 inches. The taper is very gradual, as at 10 feet in height the stem girths nearly as much as at 3 feet. Others of less size occur on the roadside at Wig Farm. Of trees in Bangor remarkable for their size may be mentioned a Walnut at Tanrallt, which is over 70 feet in height, and girths at 1 foot up 18 feet 3 inches. It was planted 150 years ago. *A. D. Webster.*

(To be continued.)

## Orchid Notes and Gleanings.

### THE CYPRIPEDIUM.

DURING the last few years this genus of Orchids has become a very popular one in our gardens, and the favour in which they are held seems to increase. The collectors who daringly explore unknown regions in search of new species of plants cannot claim all the credit for adorning our glasshouses with new forms of the Ladies' Slippers, as for some of the handsomest productions we are indebted to the patient workers at home. I have visited the large collections of Orchids in Messrs. Veitch's nursery three times during the present winter season, and each time I have found that this genus contained more species and varieties in flower than any other. They have not the rich gorgeous beauty of the *Cattleya*, but most of them are quaintly formed, and many are beautifully marked in flower and foliage. There are few Orchids more easily hybridised, and the young seedling plants speedily grow into a flowering size. Further than this, no other genus of Orchids, taking it as a whole, is more easily cultivated, and the hybrids raised in this country in most cases grow with greater vigour than the original species. By far the largest proportion of them will grow in a mixture of tough fibrous peat and sphagnum used in equal proportions, with a good sprinkling of bits of charcoal and clean potsberds. As a rule the pots should be rather more than half full of drainage. Some of the species succeed best if some turfy loam is mixed with the compost, in about equal proportions of loam and peat. Of those that prefer loam the lovely *C. niveum* is one of the most charming. *C. Spicerianum* is one that prefers some loam with the peat, but I must say that it does very well without any loam in the compost. There is this to be said in favour of good brown fibrous peat, that it is much more lasting in its nature than loam of any kind. There are not a great many *Cypripediums* that will succeed all the year round in the cool-house, but the good old *C. insigne* is one of them. It was introduced from Nepal so long ago as 1819. This species and its varieties with the white and spotted dorsal sepals are not only beautiful in themselves, but they have become the parents of the finest hybrid yet raised, viz., *C. Leeatum* and *C. Leeatum superbum*, the latter the produce of a more richly developed parentage than the former. The largest proportion of the evergreen *Cypripediums* succeed best in the *Cattleya*-house, or rather the warm *Cattleya*-house. *C. villosum* is a vigorous free growing kind, and was the parent of one of the earliest, if not the first hybrid *Cypripediums*, viz., *C. Harrisianum*. A singular characteristic of this hybrid is that both the parents, *C. villosum* and *C. barbatum*, are summer flowering, while the produce of the cross made, always flower about mid-

winter. *C. Lawrencianum* is proving itself to be a robust growing species, which flowers in the summer and is the best of the *C. barbatum* group. The most recent, *C. ciliolare*, seems to be a dark coloured form of *C. superbiens* (Veitchii), and will also I fancy be sought after by exhibitors, owing to its time of flowering. There is rather a pretty hybrid now in flower at Messrs. Veitch's, *C. Sallieri*. It is a cross presumably between *C. insigne* and *C. villosum*; the lateral sepals resemble those of *villosum*, the dorsal sepal that of *insigne*, while the slipper seems to be between the two supposed parents. The whole flower is more yellow than any of its parents. There is also a new Chelsea hybrid; the first flower had just opened about January 20—a quaintly formed and lovely soft rose-pink coloured flower. *C. cardinale*, also in flower, seems to increase in beauty as the plant gains in strength. I made out a list of *Cypripediums* in flower on January 22, and found fifteen, mostly Chelsea-raised hybrids, and fourteen original species.

The Hybrids were:—	The Original Species were:—
<i>Cypripedium calceolus</i>	<i>Cypripedium barbatum majus</i>
„ <i>Crossianum</i>	„ <i>Boxalli</i>
„ <i>Domini</i>	„ <i>Dayanum</i>
„ <i>Harrisianum</i>	„ <i>Hayaldianum</i>
„ <i>Sedini</i>	„ <i>insigne</i>
„ <i>Selligerum</i>	„ <i>longifolium</i>
„ <i>Leeatum</i>	„ <i>Spicerianum</i>
„ <i>superbum</i>	„ <i>tonsum</i>
„ <i>Sallieri</i>	„ <i>venustum</i>
„ <i>cardinale</i>	„ <i>villosum</i>
„ unnamed seedling	„ <i>Hookeri</i>
„ <i>cenanthum superbum</i>	„ <i>Maulei</i>
„ <i>marmorophyllum</i>	„ <i>Schlumi album</i>
„ <i>tesselatum superbum</i>	„ <i>purpuratum</i>
„ <i>niveum</i>	
„ <i>veitchianum</i>	

J. Douglas.

#### LYCASTE SKINNERI.

Mr. Donaldson of the Gardens, Keith Hall, sends us two flowers of this useful Orchid produced on separate pseudobulbs, but on the same plant. In one the petals are white in the centre and at the base, and have deep rose-coloured margins. The lip of this flower is white slightly flushed with rose. In the second flower the sepals have a well-marked central stripe of rose-pink. The petals are deep rose-lilac in the centre and at the base, and studded with minute points. The lip also is widely different in colour from the preceding one, being so heavily tinged with deep magenta that but little of the white ground colour is seen except at the extreme tip. If the two were seen separately, there would be ample reason to make two varieties with names and prices to match.

#### CATLEYA CHOCOENSIS.

The flowers of this comparatively recent introduction are large, conspicuous and distinct in appearance. Their beauty, however, would be far more appreciated if the sepals and petals were more expanded to show the different parts. The petals are unusually broad in proportion to their length in this or perhaps any other species, and pure white. Their objectionable feature, however is the semi-erect position whereby they partly hide the lip, owing to the nodding or somewhat drooping flower. The lip is folded so as to form a large tube, with a short oblique orifice representing the limb, and undulated or crisped at the margin. It is a pale lilac-purple in varying shades, with a yellow or orange band along the centre, and an obversely heart-shaped blotch of rich purple at the apex. The flowers are seen to best advantage when staged above the level of the eye. The plant is figured in the *Illustration Horticole*, n. s., p. 120. Its habit is well displayed in a flowering specimen in the warm division of the Orchid-house at Kew.

## FORESTRY.

### REASONS WHY WOODS DO NOT PAY.

(Continued from vol. xxii., p. 683.)

BECAUSE each "kind" of tree is not grown in a way and manner suited to its nature, and so as to fulfil the general objects had in view in planting and growing it. The Sycamore may very properly be taken as a suitable example, and will illustrate what should be done with other species. The Sycamore wood, or timber, is only of real use and value when old, of large size, and well grown. Its commercial value is greatly enhanced by growing it so that the veins, waves, convolutions, and grain of the wood may show to advantage. In order fully to attain this object the tree should be grown with limbs, or arms, bent or crooked rather than straight. Regular uniformity of branches, and single upright stem or trunk, so much desiderated in many other species, are not to be sought for in the Sycamore. The most valuable and beautiful part of the tree is that obtained from the part at the junction between the stem and



limb. A limb emerging from the trunk at an acute angle is exceedingly objectionable for several reasons, and should be carefully avoided in the culture of this tree. On the contrary, only such limbs should be encouraged to grow as divide or project from the main stem at an obtuse angle, the nearer a right angle the better. Young and small Sycamore trees, and, indeed, small wood of almost all kinds, are of comparatively little commercial value, and it is, therefore, only mature and large Sycamore timber that should be grown, and which at the present day pays well, probably as well, if not better, than any other British timber tree. Now the question of questions in connection with this tree is, how most profitably to grow it.

From what we have seen and experienced of the Sycamore, we are of opinion that it should be planted and grown in masses by itself, and not mixed with other trees. Amongst other reasons for adhering to this opinion the following may be adduced:—First, when one species alone is grown instead of a mixture, thinning can be done to much better advantage than it could possibly otherwise be effected. Every tree student knows from experience that some species as well as individual trees grow much faster than others, and their growth can never by any means at command be made to go on equal. Again, in some individual trees the branches or limbs grow out from the stem at a very small angle, while others diverge at a great angle. Now, under these conditions, if the crop is all of one kind of tree, the proper and necessary power is invested in the hands of the forester, by which he can take away or leave such trees as he thinks proper and best, doubtless leaving only those of known merit, and such as will, when grown to maturity as timber, command the highest price. On the other hand, if the group is mixed with, say, one-half Ash or Elm, and the other half Sycamore—under these circumstances the power of selecting the good and proper trees, and rejecting the bad and profitless ones, is very seriously curtailed, if not altogether taken out of his hands. When thinning we have often stood perplexed and confounded in this unenviable position, hesitating what to do, having to consult so many and such grave and conflicting circumstances. The result of such entanglements inevitably is, that we are either compelled to leave many trees on the ground that should have been cut down as worthless wood, or leave wide and unprofitable spaces of ground unoccupied. But as we have already said, and endeavoured to point out, some trees on certain soils grow so much faster than others, that if the fast growers are to constitute the permanent crop the less vigorous ones will have been kept down, and made such slow progress, that they will require to be thinned out before they are of any use, or almost any commercial value. On the other hand, if the slow growers are to constitute the crop, they will have already sustained such serious harm by the tops of the fast growing ones wind-lashing them, as to be almost useless at a stage of growth long before the fast growers are of almost any value to thin out. Much has been said in favour of Ash as a nurse to Sycamore to thin out for profit. That the root cuts of Ash trees are very valuable there can be no doubt, but that the Ash tree pays better than most other forest trees is, to say the least of it, very doubtful. In cutting a fall of Ash here some time ago we found that for every ton of valuable timber the trees yielded, they contained nearly 2 tons of wood fit only for fuel. On this estate, richly and well wooded with every description of timber trees, the Ash pays worse than most of the others. Not that the price per foot is low, for we obtain fully 2s. to 3s. per foot for it, but there is in almost every Ash tree such a large proportion of the timber unfit for any industrial purposes, and therefore sold as fuel cheap, on that account. The Sycamore, let it be borne in mind, is a tree that must either be grown fast, or grown profitless. It requires to be grown with more room than perhaps any other forest tree; the reason for this is, that it must grow fast, in order to attain the desired large size before the diseases incident to old age overtake it. It is also a tree very impatient of confinement, and if once checked in growth rarely if ever regains it. It will be observed that the Sycamore requires from its earliest growth a great profusion of branches and foliage, and in any case, where these are even slightly deficient, the tree invariably falls into a state of slow growth and delicate health. Not that the tree becomes actually diseased or dies, but its growth becomes so slow that

it dies either of old age or disease incident to it before it attains the size which profitable Sycamore requires to attain. I have no desire either to ignore or wink at the difficulty attending the profitable occupancy of the ground during the early years of its growth. I have a piece of Sycamore plantation under my charge planted about twelve years ago. The trees were lifted from a home nursery when about 10 or 12 feet in height, and planted about 15 to 18 feet apart, or about 170 trees to the acre. The surface of the ground is fine, sweet grass, which it would be waste not to turn to profitable account, and, therefore, sheep graze it during the summer season, doing no visible harm to the trees, which are growing remarkably well. By planting trees so large and well-developed, it could be well determined in selecting them what their respective merits were, and thereby, in an important sense, accomplish what under ordinary circumstances would require to have been done by thinning. I have seen the ground under similar circumstances cropped with Potatoes, and also with corn; but this cannot be recommended as practicable, except upon a small scale. Basket Willows have also been grown with considerable success, and proved a very profitable crop during the early years of a Sycamore and Oak plantation, and as they are easily and cheaply propagated and find a ready market, there is no risk in growing them so long as the trees do not overshadow them so as make their culture unprofitable.

Different results are looked for by different foresters—some, no doubt, unreasonably high; but so long as the present demand continues, and current prices are maintained, it appears to me that little more is to be desired or even looked for. For good trees at our auction sales of late years 4s. to 5s. per foot have been readily obtained. During the last fifteen years or so good Sycamore trees have sold well all over Scotland, realising at auction sales by public competition from 4s. to 5s. per foot. By turning to page 40 of the May number of 1884 of the *Journal of Forestry*, the following statement will be met with:—"A. Oliver & Son, Ilawick (Roxburghshire), sold by auction last Friday ten Plane trees (Sycamore), belonging to the Earl of Minto, the average price per tree being £27 5s.; the two highest being £50 and £40 respectively. It may be interesting to know that these trees were grown at an altitude of between 700 and 800 feet above sea-level." Being well acquainted with the Minto estate, and also with the forester, Mr. Robertson, I took the opportunity last August of ascertaining full particulars of the trees referred to, and found that they had grown upon the ground at about 100 trees per acre; 100 multiplied by 27½ gives £2725 as the value per acre. The trees are about 200 years old, and therefore £2725 divided by 200 gives £13 12s. 6d. as the yearly return per acre, from which, of course, reductions have to be made for interest on money invested in planting, maintaining, &c.; but even after making all legitimate allowances there is here a very handsome margin in favour of planting far exceeding in profitableness any other crop the soil could produce. The trees cut were only a few of the large group still growing, and further particulars will be gladly furnished to any who may wish it.

It is improbable that any area of one or more acres of wood ever actually yielded the preceding value, but it is well to show what is within the bounds of possibility, and to indicate by what means it may either be attained or approximated. C. Y. Michie, Cullen House, Banffshire, January 13.

(To be continued.)

## ABIES (TSUGA) MERTENSIANA.

THIS very elegant Hemlock Spruce is the representative on the north-west or Pacific side of the American continent of the Atlantic Hemlock, *A. (Tsuga) canadensis*. In Japan another species exists—the *A. Tsuga* or *Tsuga Sieboldi*. These three are so much alike that there need be little hesitation in coming to the conclusion that they may have all sprang from one common ancestor not so very long ago—that is, if we consider we are dealing, not with centuries, but with æons. Other species there are which present greater differences, such as *A. (Tsuga) Hookeriana*, *A. (Tsuga) Pattoni*, and the common ancestor of these and the three first-mentioned must be of more remote antiquity still, unless, as is possible, they are mere forms or offshoots from one or other of the others. Why indulge in such unpro-

fitable speculation?—some will say, Why attempt to solve the insoluble? First, simply, because we do not admit that it is insoluble. In this, as in other cases, observation of the progressive development, of the internal structure, or of the good fortune offered by some so-called "sport," may solve the mystery sufficiently to satisfy any reasonable mind. But in the present instance, this happy consummation has not yet been arrived at. Those who would hasten it might do good service by studying the minute anatomy of each form, observing the mode of germination and development of each. At one time *A. (Tsuga) Albertiana* was considered to be a distinct form from *Mertensiana*, and this view was held by our late friend, Andrew Murray, and indeed is still held by some folk. Mr. Murray's views are given at length in the *Punctum Britannicum*, in the *Proceedings of the Horticultural Society*, vol. iii., p. 149, and repeated with the figures in our columns on April 11, 1863. In our opinion the alleged differences are so trifling, even when they are observable at all, that it is not at all worth while to make two species. We append from the second volume of the *Botany of California*, p. 121, the late Dr. Engelmann's descriptive account of this tree:—

"*Tsuga Mertensiana*.—A very large tree, 100–200 feet high, with rather thick red-brown bark; ultimate branchlets very slender, roughish, and when young long, hairy; leaves linear, 4–9 lines long, and about ½ line wide, abruptly petioled, entire, or usually minutely spinulose-serrate towards the rounded tip, shining above, when young with two white bands beneath; male flowers 2–2½ lines in diameter, shorter than the stipe; cones oblong cylindrical pointed, slightly pubescent; bracts truncate, scales longer than wide; seeds 1–1½ lines long, the wing twice as long or more, scarcely widened towards the base; cotyledons three, sometimes four. . . . Peculiar to the Pacific coast from Marin County to Alaska. It differs from *canadensis* thus:—A larger tree with finer, straighter grained wood and redder bark, principally distinguished by the more elongated scales of the cone, and proportionately much longer and straighter wings of the seeds. Hypoderm characters not reliable."

In the *Botanical Gazette* for June, 1881, Dr. Engelmann further gives the distinguishing characteristics, as follows:—

"*T. Mertensiana*.—Larger leaves, with two bands, each of 7–9 series of stomata; strengthening cells few on the edges, and very sparse on the upper and lower side of leaf; cones 6–12 lines, long (not 1½ inch, as sometimes stated); scales oblong, mostly a little narrowed in the middle; bracts slightly cuspidate; seeds smaller, with few oil vesicles, wings twice as long as the body of the seed.

"*T. canadensis*.—Leaves of the mature tree smaller (4–7 lines long), obtuse, with five or six series of stomata on each side of the keel below, destitute of any strengthening cells; scales of cone in ½ order, orbicular-oblong, with broad truncate bracts; wing very broad at the base, tapering, scarcely longer than the seed, which shows two or three large oil vesicles."

To this we may add that in cultivation the tree is more elegantly pyramidal in habit than is *A. canadensis*. The branches, moreover, are more thinly set, more horizontally disposed, more slender, and therefore more curved at the tips. The buds are clavate-oblong, not resinous, the bud-scales ovate oblong, coriaceous, dark brown, hairy, one-nerved, the upper ones much longer, thinner, and nerveless. Dr. Lyall mentions having met with native trees of *Mertensiana* 150–200 feet high, with a perfectly clear bole of 60–70 feet. Mr. Hutchison has collected in the *Transactions of the Highland Agricultural Society of Scotland*, 1879, some statistics relating to this tree as cultivated, from which it appears that the tallest tree known to the writer was one at the Cairnies, Perth, growing in hard retentive clay, which was planted in 1851, and which had in 1879 attained a height of 46 feet. But these dimensions are exceeded by those cited in the *Journal of Forestry*, February 17, 1883, wherein the following measurements are given of a specimen of this species growing at Hafodunos, Denbighshire:—Height (1882), 65 feet; girth at 1 foot from the ground, 5 feet 8½ inches; at 3 feet, 4 feet 11 inches; and at 10 feet from the ground, 4 feet 6½ inches. The greatest spread of branch is 32 feet. The same tree when measured in 1879 had a height of 56½ feet, and a girth at 10 feet of 44 inches. From the same journal we quote (January 10, 1880) the dimensions of a tree at Leslie House, Fife, which had attained a height of 40 feet and upwards, and a spread of branches of 78 feet.



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Feb. 9	{ Sale of 5000 <i>Lilium auratum</i> , at Stevens' Rooms. Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.; Annual General Meeting, 3 P.M.
TUESDAY, Feb. 10	{ National Rose Society: General Meeting, 3 P.M. Sale of Valuable and Established Orchids, at Protheroe & Morris' Rooms. Sale of Roses, Fruit Trees, and Border Plants, at Stevens' Rooms.
WEDNESDAY, Feb. 11	{ Sale of 10,000 <i>Lilium auratum</i> , at Protheroe & Morris' Rooms. Sale of Imported Orchids from Messrs. Shuttleworth & Co., at Stevens' Rooms.
THURSDAY, Feb. 12	{ Sale of Valuable Imported Orchids, at Protheroe & Morris' Rooms.
FRIDAY, Feb. 13	{ Sale of Roses, Fruit Trees, Bulbs, and Plants, &c., at Stevens' Rooms.
SATURDAY, Feb. 14	

FOR some time past complaints have reached us from various quarters as to the existence of DISEASE in the EUCHARIS. Gardeners accustomed to the management of this most beautiful and indispensable plant all on a sudden found themselves baffled. The plants ceased to thrive, the leaves turned yellow, no flowers were produced, and dismay and disappointment resulted. Over and over again specimens of the yellow foliage were sent to us, but as we could detect neither insect nor fungus we attributed the disease to some defect in treatment. One correspondent sent us some bulbs, but these appeared to be healthy, and the presence of a few mites near what appeared to be a bruise did not excite our suspicion, as it ought to have done. Quite lately another correspondent, "Z," also furnished us with a bulb, and expressed himself as so strongly convinced that the mites were at the root of the mischief (if the pun may be permitted), that we felt that our notion that the mites that were present were scavengers whose office it was to clear away rotten or decaying tissues must be submitted to more careful scrutiny. To this end we applied ourselves to the leading authority on these matters, Mr. A. D. MICHAEL, and that gentleman entirely confirms our correspondent's notion, that the mite is the real culprit. An extract from Mr. MICHAEL'S letter will best tell the story:—

"The *Acarus* is *Rhizoglyphus Robini*, and the generic name [root-cutter] will be sufficient to tell you that it really is the cause of the evil. The mite gets in between the scales of the bulb and eats the tissue. The red spots seem to be caused by a gummy secretion, which may be practically an effort of Nature to repair the wound. The creature does not confine its attacks to *Eucharis* bulbs, it consumes others as well, indeed with much greater avidity, but I presume it is more noticed in the case of the *Eucharis* from its greater value. *Hyacinth* bulbs and even *Dahlia* roots are quite acceptable to it; the former it eats up in an astonishing manner. I think it is coming over in great quantities this year with the Dutch bulbs, and I would desire to call attention to the importance of examining imported bulbs before mixing them with others of value.

"It is not very easy to suggest a remedy that will kill the mite without injuring the bulb. Desiccation is the best thing if the bulb will bear it. Sulphur and carbolic acid are useful where they can be used. Infected bulbs which are too much injured to be used should be burnt, and every care taken to prevent the dispersion of the insect."

The mite in question is closely allied to the cheese and flour mites, and is noted by the late ANDREW MURRAY (*Economic Entomology*) as occurring on Potato tubers as well as on *Hyacinths* and *Dahlias*. It is so far satisfactory to have ascertained the cause of the mischief. As in so many analogous instances the practical inference may be expressed by the phrase—Prevention is better than cure.

— ROYAL HORTICULTURAL SOCIETY. — We may remind our readers that on Tuesday, February 10, will be held the annual general meeting of this Society, at South Kensington. The meeting commences at 3 P.M., after the close of the other business of the day.

— CACTACEOUS PLANTS. — Under this title, Mr. LEWIS CASTLE, of the *Journal of Horticulture*, has published a little treatise on the history and cul-

ture of these plants, to which we must refer more at length on another occasion. For the moment we content ourselves with saying that it is to be had at 171, Fleet Street, E.C.

— "KÖHLER'S MEDIZINALE PFLANZEN." — This series of coloured plates of plants yielding medicinal products is so excellent that we commend it to the notice of all concerned. The price is 1s. for each part of four plates.

— GLENNY'S "ILLUSTRATED GARDEN ALMANAC FOR 1885" contains, in addition to the usual calendar matter, articles on the "Pansy," "Revivals in Horticulture," devoted specially to the Fox-whelp Apple and the Taynton Squash Pear—the one for perry making purposes, the other for the production of cider. "Manures," "Grape Culture," "Greenhouse Building," "The Daffodil Conference," all come in for a share of attention.

— THE BREATHING OF PLANTS. — The results of the experiments undertaken by Messrs. BONNIER and L. MANGIN with reference to the respiration of leaves as given in the *Annales des Sciences*, t. 19, 1884, show, in opposition to the opinions of M. DEHÉRAIN, that there is a distinct and constant relation for a given plant under given circumstances between the volume of carbonic acid gas exhaled and the amount of oxygen absorbed during respiration, whatever be the temperature. The results obtained by experiments on green leaves in the dark are the same as those previously acquired from experiments on tissues devoid of chlorophyll.

— PLANTING SLOPES. — MM. VILMORIN ANDRIEUX ET CIE. recommend steep banks, such as those of railway cuttings, to be sown with Poppy seed in October or March. In the course of a month the root-development is sufficiently advanced to keep the soil in place, and prevent it slipping. The Poppy being only an annual, when it dies down the ground is in a condition for permanent planting.

— DENDROBIUM SPECIOSUM. — A fine plant of this shy-blooming Dendrobe is just now finely in flower with J. MOORE, Esq., The Mount, Sevenoaks (Mr. CHARMAN, gr.). It has three spikes, carrying seventy-two, fifty, and forty-two blooms respectively.

— "MALESIA." — Under this title the eminent Italian traveller, BECCARI, publishes from time to time observations on the plants of the Malay and Papuan Archipelagos, collected during the years 1865—1878. A part is now before us devoted to the history of certain "*Piante ospitrici*" or plants which constantly form cavities and nests inhabited by ants and other insects. Signor BECCARI only includes plants in which this hospitable tendency is constantly met with, and prefaces his systematic studies by a general review of certain points of structure and function which plants possess in common with animals. The plants which form nests for insects here figured and described belong to the genera *Myristica*, *Endospermum*, *Clerodendron*, *Macaraya*, *Acacia*, *Cecropia*, *Korthalsia*, *Rubiaceæ*, such as *Myrmecodia*, *Myrmedonia*, *Hydnophytum*, &c. It was in this latter named family that the phenomenon was first observed and commented on. Signor BECCARI treats the subject very fully and with abundant reference to the literature. Twenty full, well executed, quarto plates illustrate this valuable treatise on a very interesting subject.

— FRENCH WALNUT. — The finest and most costly of the veneering woods, says Mr. P. L. SIMMONDS, is what is known as French Walnut, but which does not come from France at all, but from Asia Minor and Persia. The tree is crooked and dwarfed, and is solely valuable for its burrs.

— VINES. — M. PLANCHON has recently completed an exhaustive study of the species of Vine. As a result of his investigations he restores *Vitis* to its old limits, including Vines with petals cohering into a hood—a character not possessed by the other genera of the order. For cultural purposes the separation of the genera *Vitis*, *Ampelopsis* and *Cissus* is a convenience. Under a new genus, *Ampelocissus*, is included a number of tropical species with the habit of ordinary Vines, but with bisexual flowers, and spreading very rarely hooded petals. The disc adheres partially to the base of the ovary. The seeds are elliptical, with

a strongly marked ridge separating two deep furrows. The habit is peculiar, inasmuch as the species have thick, fleshy rootstocks of large size, from which shoots spring every year. The species of this group are found in Tropical Africa and Asia. To this group belong the Cochinchina and Soudan Vines. Specimens of some of these may be seen at Kew in the Succulent-house, and are of much interest, though it is to be feared of little economic importance.

— SUNSHINE RECORDERS. — The Council of the Royal Meteorological Society has arranged to hold at 25, Great George Street, S.W. (by permission of the President and Council of the Institution of Civil Engineers), on the evenings of March 18 and 19 next, an exhibition of sunshine recorders, and solar and terrestrial radiation instruments. The committee will also be glad to show any new meteorological apparatus invented or first constructed since last March; as well as photographs and drawings possessing meteorological interest.

— SAHARUNPORE BOTANIC GARDENS. — Considerable improvements have been planned and partially carried out in the Saharunpore Gardens. One lakh and 46,000 plants and 6994 lb. of seeds were distributed, and 1022 lb. of various drugs supplied to medical depôts. Some valuable additions were made to the official and ornamental plants of the garden, and to the museum and herbarium, and a large number of useful publications were received in the library. The progress made in acclimatisation and in other experimental cultivation is fully described by Mr. DUTHIE in his report. The continued success of acclimatised vegetable seeds is noticed with satisfaction. Of the new introductions the Japan Pea has been so far a failure, and the Scotch Champion Potato, though superior in quality, still fails to yield a fair return compared with some of the local varieties. The propagation of the Salt-bush (*Atriplex nummularia*) has scarcely passed out of the experimental stage.

— THE ANATOMY OF FERNS. — Among the lowest groups of plants, growth results from the subdivision, in regular order and sequence, of a single primary cell at the apex of the growing points. This cell is called the "apical" cell. In higher plants, instead of one such cell there is a group occupying the corresponding position, and forming the successive tissues of the plant by subdivision, as in the case of the single cell. Intermediate or transitional cases occur in the roots of *Marattiaceæ*, where two such cells occur, as also in some species of *Selaginella*. Mr. BOWER in a memoir in the *Quarterly Journal of Microscopical Science*, indicates further intermediate stages, and shows from a consideration of the minute anatomy and mode of development alike of the root and of the leaf, that the *Osmundas* are intermediate between ordinary Ferns and *Marattiaceæ*. It is extremely interesting to find that minute research into the origin and mode of growth of these plants brings to light evidence of the filiation and probable course of descent of plants. Thus in the paper before us we are told that the structure of the apex of the root in *Marattia* shows a tendency towards the structure characteristic of *Gymnosperms*—affords a link, in fact, between the Ferns and the Conifers.

— LEEKS. — Last year we had occasion to notice the peculiar growth of a Leek (June 14, 1884, p. 763). M. CARRIÈRE, in a recent number of the *Revue Horticole*, points out that the plant, though usually treated as a biennial, is really perennial. When treated in the ordinary way the stem is single, with a slight bulbous dilatation at the base. But if this stem be cut the plant will produce suckers or offsets and form a tuft of stems. If these are again cut off and the bulbs allowed to remain they form immense tufts which produce no flowers, and thus a state of things analogous to that of the Chives (*Ciboulette*), or the Leek may develop true globose bulbs and propagate itself by their means. It is thus possible to transform the Leek into a tufted perennial or into a bulbous plant.

— KENNEDYA MARRYATTÆ. — According to our leading authorities about eleven species are included in this genus. Great diversity of opinion existed amongst the older authors, and various other species placed here are now referred to *Glycine* and *Hardenbergia*. Most of them are free-flowering and moderate-sized greenhouse climbers of considerable beauty. In this respect possibly the species under notice is unexcelled by any, as a very floriferous specimen in



the greenhouse No. 4 at Kew amply testifies. The slender stems are trained on wires under a rafter, and bear axillary clusters of large bright scarlet flowers throughout the greater part of their length. The ternate leaves are very hairy, with large oval leaflets

of such a delightful occupation, to collect and diffuse from the best sources information that shall be beneficial to all its members, to care for and instruct all in the best modes of carrying on a successful business, to help those overtaken by misfortune and form a

Company is generally conceded, and it will receive careful thought and prompt action on the part of the Society at its first annual meeting in Cincinnati. Practical papers—short, concise, and full of instruction—will be read at the meetings, and printed with



FIG. 35.—ABIES (§ TSUGA) MERTENSIANA: YOUNG TREE. (SEE P. 179.)

that are wavy at the margin. As a winter-flowering climber it deserves extended cultivation on its own merits. There is a figure of it in the *Botanical Register*, tab. 1790.

— THE SOCIETY OF AMERICAN FLORISTS.—The aim of this newly formed Society is "to lift up and carry forward all that tends to advance the growth

brotherhood worthy of the goddess FLORA. The plan of action is to have a yearly meeting at one of the larger cities; in connection with these there will be an exhibition—at such meetings the business of the Society will be conducted, the transactions of the year previous will be presented, and the programme for the ensuing year laid down. The desirability of forming either a Hail Fund or a Hail Insurance

the reports of the Society each year. No new plant or flower, no device or invention of merit, will go unrewarded. Medals and certificates will be given for deserving exhibits. The Society will take especial care to have everything reported in the best manner. The constitution and bye-laws are in preparation, and will be presented at the first general meeting. At a meeting of representatives from eight different States,



held in Chicago on June 19, 1884, this Society was organised by the election of the officers and committee. The first meeting will be held in Cincinnati, O., between August 12 and 25, 1885. All florists, gardeners, seedsmen, nurserymen, superintendents of parks, manufacturers of heating apparatus, greenhouse builders, and dealers in florists' supplies in the United States and Canada are eligible to membership in this Society. The annual subscription is 2 dols., entitling members to all privileges of the Society. E. G. HILL, Sec., Richmond, Ind."

— **SUCCESSOR TO THE LATE DR. VOELCKER.**—At a meeting of the Council of the Royal Agricultural Society of England yesterday Dr. JOHN AUGUSTUS VOELCKER was appointed Consulting Chemist and Director of the Society's Laboratory, in succession to his father, the late Dr. AUGUSTUS VOELCKER.

— **THE SURVEYORS' INSTITUTION.**—The next meeting will be held on Monday, February 9, when a paper will be read by Mr. H. ROBINSON (Fellow), entitled "Some Recent Phases of the Sewage Question." The chair to be taken at 8 o'clock.

— **A NEW INSECTICIDE DISTRIBUTOR.**—We have lately been shown a small machine for use in gardens and nurseries that supplies a want that has been long felt. The old method of applying liquid insecticides was always wasteful of the substance used, and frequently injurious to plants with tender foliage and delicate blossoms; whereas, with the apparatus of Messrs. S. OWENS & CO., the liquid sent out is as fine as a Scotch mist, and the plant operated on becomes rapidly moistened in all parts without any more being used than is necessary for the purpose. For using the dear preparations of the present day, or the cheaper quassia-water, tobacco-water, or soap-suds, on Roses, wall trees, tender stove and greenhouse plants, Auriculas, fruit trees in houses, and Hops, it will be very useful; and so economical is it, that one man using it constantly cannot empty the smaller size, holding 4 gallons, in an hour. We intend shortly to give an illustration of the machine.

— **EDUCATIONAL COLLECTIONS.**—Messrs. SUTTON & SONS have been so obliging as to send for our inspection a handsome case, fitted for museums, lecture or school rooms, and containing samples of the dried plants and of the seeds of our pasture-grasses. Such cases have been presented by Messrs. SUTTON to a large number of museums and agricultural institutions at home and abroad. Further, Messrs. SUTTON have studied the convenience of students by enclosing in cylinders of glass, closed at each end, dried specimens of grasses, &c., accurately named, and by providing small sample bottles of the seeds duly labelled. These are admirably adapted for the purpose, and we should like to see them in every school in the pastoral districts of the country. A knowledge of the distinguishing features of the common grasses, and of their marvellous structure, would not only be more directly useful but more mentally serviceable than much that is taught in schools. Messrs. SUTTON have evidently gauged the need and supplied it.

— **ORCHID SALES.**—At a recent sale by Messrs. PROTHOROE & MORRIS, fifty-four lots of *Lælia anceps* Sanderiana brought £5 to—one very fine mass, 8 feet in circumference, fetching 36 guineas, others 26 guineas, 46 guineas, 38 guineas, 23 guineas, 20 guineas, and 19 guineas, the lowest price for any one plant being 11 guineas. A *Cymbidium eburneum* went for 25 guineas, and an *Odontoglossum Alexandræ* for 15 guineas. The remainder of the Fallowfield collection was sold on this occasion.

— **MIDDLESEX BEE-KEEPERS' ASSOCIATION.**—The annual meeting of the members of this newly-formed Association took place at 149, Regent Street, on the 30th ult., the Hon. and Rev. H. BLIGH, the Vicar of Hampton, presiding. The annual report showed that some substantial progress was being made with the Association, that the county had been arranged into seven divisions, and that local secretaries had been appointed in four of these, and it was hoped that local agents would be established in the other three during the spring. The accounts showed a small balance in hand. The Chairman stated that an impression was abroad that the Middlesex County Association was in antagonism to the

British Bee-keepers' Association, but, as a prominent member of the latter, he could state that it was a helper in the good work, and that the establishment of county associations was looked upon with great favour by the central association. A scheme for extending the Association during the summer was considered, and referred to the Committee of Management for carrying out.

— **EARLY CABBAGES.**—We are informed by Mr. GILBERT, of Burghley Gardens, that he intends to exhibit at the committee meeting of the Royal Horticultural Society on Tuesday next specimens of his Selected Imperial Spring Cabbage, and Ellam's Dwarf Early variety. It would be of advantage to determine the relative earliness of sorts if others would show specimens of their favourite early kinds.

— **THE NATIONAL CHRYSANTHEMUM SOCIETY.**—A fully attended meeting of the General Committee of this Society was held at the "Four Swans" Inn, Bishopsgate Street, E.C., on Monday, January 26, the President, E. SANDERSON, Esq., in the chair. Among the more important items of business that came under the consideration of the committee was Colonel MALLARD's proposal to offer special prizes for undressed Chrysanthemums. The committee had made a proposition to Colonel MALLARD to the effect that his prizes should be given for the purpose of encouraging the best method of staging Chrysanthemums without cups, and that a stand of twelve incurved blooms should be required, to be distinct; that any means of setting up might be adopted, with or without boards, upon which they are generally shown; but the right of withholding the prizes is to be reserved, unless a method of general practical value be illustrated. The matter again came under consideration at this meeting, and it is expected that the conditions of the competition will be finally settled by the time the committee again meet—a week hence. The judges at the show to be held in November next at the Royal Aquarium were appointed, and also an enlarged Exhibition Committee; the Floral Committee was also appointed, and extended from eight to fifteen members. Mr. W. HOLMES, the Secretary, announced that he had had an interview with Captain HOBBSON, of the Royal Aquarium, and he had promised the use of a room at the Aquarium for the purpose of the committee. The Floral Committee will sit at 2.30 P.M., instead of in the evening, as heretofore. Mr. CULLINGFORD's offer to give the sum of ten guineas as special prizes for Chrysanthemums to be shown during the second or third week in January was further considered, and the conditions of the competition settled, as follows:—Class 1, twelve blooms of incurved flowers; class 2, twelve blooms of Japanese; class 3, twelve blooms of any other sort; class 4, a collection of late-flowering Chrysanthemums; class 5, six incurved; class 6, six Japanese. It was understood that any Chrysanthemums in good condition in the month of January should be accepted as late varieties. Mr. T. S. WARE and others offered special prizes for single Chrysanthemums, and a class was formed, as follows:—Twenty-four bunches, not less than three trusses in a bunch, and not less than twelve varieties to be shown. A few other classes of lesser importance were added to the schedule of prizes, and the committee broke up, after a protracted sitting.

— **A NEW COTTON PLANT.**—Mr. A. A. LUBER, of Macon, Georgia, has (we quote from the *Times*) been experimenting for several years to hybridise the Cotton plant that grows wild in Florida [?] with the common Ochra, and he appears to have been at last successful. The new plant retains the Ochra stalk and the foliage of the Cotton. Its flower and fruit, however, are strikingly unlike either Cotton or Ochra. The plant has an average height of 2 feet, and each plant has only one bloom. This is a magnificent flower, very much like the great *Magnolia* in fragrance and equally as large. Like the bloom of the Cotton plant the flower is white for several days after it opens, after which it is first pale pink, and gradually assumes darker shades of this colour until it becomes red, when it drops, disclosing a large boll. For about ten days this boll resembles the Cotton boll, and then its growth suddenly increases until it reaches the size of a Cocoa-nut. The lint does not appear until this size is reached. Then its snowy threads begin to burst from the boll, but are securely held in place by the Ochra-like thorns or points that line the boll. Each boll is said to produce about 2 lb. of

very long-stapled Cotton—superior to Sea Island Cotton [!]. There are no seeds in the lint—from four to six seeds, resembling those of Persimmon, being at the bottom of the boll. The new Cotton consequently, it is stated, needs no ginning, and it is thought will revolutionise the Cotton industry of the South. The Ochra, we may add, is known to botanists as *Hibiscus* or *Abelmoschus esculentus*, the pods of which are used to thicken soups, they being rich in mucilage. It is not many years since that a statement of the same kind was made with reference to a so-called hybrid Cotton raised in Egypt, between the Cotton *gossypium herbaceum* and the *Bamia*, or Ochro (see *Gardeners' Chronicle*, n. s., vii., p. 561, and vol. ix., 1879, p. 16); but we believe the hybrid character of the plant was not borne out, and the account given by the *Times* is assuredly not one that should be accepted without evidence. The size of the boll and capsule, and the quantity of Cotton as given are so large as to lead one to doubt very strongly.

— **EXTRAORDINARY TITHES: INDIGNATION MEETING.**—On Friday last four auction sales under distress for Extraordinary Tithe took place at Leeds, Kent, under the direction of the Ecclesiastical Commissioners. Altogether 114 sheep were seized to cover tithes and costs amounting in the aggregate to £146 3s. Previous to the sale notices were posted throughout the Hop growing districts, and post-cards sent to the most important farmers throughout Kent calling their attention to the proceedings, and inviting their attendance at an "indignation meeting," to be held immediately after the sale. At this meeting Mr. J. CHAPMAN proposed the following resolution:—"That this meeting agrees with the recommendation of the Select Committee of the House of Commons to the effect that Extraordinary Tithes are an impediment to agriculture, hampering new cultivation; that it is expedient that they should be abolished, and urges upon the Government to embody this recommendation in a Bill at the earliest opportunity, and calls upon the representatives of the people to give their earnest support to such a measure." He agreed with JOSEPH HUME, who, at the time of the commutation, had protested against the Extraordinary Tithe as a tax upon industry, for garden cultivation deserved to be ranked not so much as an agricultural pursuit as a manufactory, and the impost was not only unjust and cruel, but most unwise as well. With keen foreign competition and heavy rents farmers could hardly live, and if their corn crops did not pay their friends would tell them how foolish they were not to turn their attention to something else, while they knew well themselves that if they grew fruit or Hops they had more to pay in consequence. The question was not a political one, and he thought agriculturists of all classes ought to be entirely as one upon the subject. The imposition gave rise to local injustice, some parishes being free and others heavily taxed, and farmers and labourers in the latter districts were deprived of the benefit they might hope to secure from the cultivation of Hops or fruit.—The Rev. H. RYLETT supported the motion as a consumer of garden produce, and occasionally of the commodity obtained from the Hop. The taxes upon agricultural produce finally percolated down to the consumer, and the urban populations were interested in getting their food at a cheap rate, consequently they would be glad to see the burdens on land removed, but would be sure to oppose the imposition of any tax upon imported food.

— **PROLIFIC MUSHROOMS.**—Some very remarkable bunches of these were sent for our inspection by Messrs. VEITCH & SONS, Chelsea, which had been forwarded to them by Mr. BREESE, the gardener at Petworth, Sussex. The bunches, of which there were two, were fully a foot across, and comprised Mushrooms mostly of one age and size, one clump having had as many as seventy-five specimens on it. The inference is, either that the spawn was of more than usual potency, or else had been used in exceptional large masses. The Mushrooms were deficient in substance, from their inability to get enough nutriment.

— **GARDENING APPOINTMENTS.**—Mr. E. C. WHEELER, as Gardener to Major G. W. BEST, Parker House, Box'ey, Maidstone.—Mr. JOHN HILL, lately Gardener at Potter's Park, Chertsey, as Gardener to C. J. STRONG, Esq., Thorne Hall, Peterborough.



## THE VINERY.

In early started houses, when the Vines are coming into flower, it will be advisable to avoid wetting the hot-water pipes whenever they are very hot, because the effects of the steam which then arises is the cause of that disfigurement of the Grapes which is commonly called rust, that mars the appearance and reduces the value of the Grapes considerably when they are ripe. The effect is most plainly indicated on bunches which are situated in close proximity to the pipes.

### SETTING THE BLOOMS.

To obtain a good and perfect set, it will during the flowering process be advisable to gently shake the Vines occasionally, or otherwise brush the bunches over with a camel's-hair pencil, and in the case of uncertain setting kinds, to obtain the pollen from the Hamburgh bunches and fertilise them in the ordinary way. Immediately the Grapes are large enough for thinning out this operation should be done at once, leaving in all the terminal and other best developed berries in sufficient number as when swelled out to form a perfect bunch. To do this properly a knowledge of the state of the Vines is indispensable, or otherwise the operator should have an indication by example. In the case of very early Grapes required to ripen as soon as possible, large bunches should be reduced in size, and the Vines should not be overburdened.

### STOPPING.

The growths will advance quickly, therefore attend to stopping them—the side shoots at the first or second leaf above the bunch, and the laterals above the first leaf; the terminals may extend to the limit required, when they should be topped. Cease to syringe the Vines overhead when they come into flower, and a genial state should be kept up by moistening the borders and other available places in the house. The artificial heat at night should be from 60° to 65°, and 75° by day; above this point a little air should be given, and in favourable weather the heat may stand at from 80° to 90°, and be finally closed for the day at the former degree.

### THE BORDER.

As the final result chiefly depends on the condition of the roots, attention to these is indispensable. When these extend beyond the limits of the house into outside borders they must be protected from the sudden changes to which they would otherwise be exposed. I am inclined to believe this is best effected by means of long litter being placed on the border and protected from wet, &c. It is much more reasonable than to attempt to force heat downwards into a border.

### SUCCESSION-HOUSES.

In these, seasonable influences will now cause a more satisfactory state of progress, therefore avoid using means which promote growth too rapidly, and which tend rather to impair than to improve its character: 60° at night and 70° by day artificially is enough heat for the present; ventilate at 75°, and close up with sun-heat at 80°. Attend to disbudding, stopping, &c., in the same way as indicated for the early house. In later houses, where the Vines naturally break forth into growth without the aid of artificial heat, especially in the case of Hamburgh and similar kinds, the house should be fully aired at all times, except in severe weather.

### MUSCAT-HOUSES

For late work should also be subject to similar treatment, and also the latest houses, in which Lady Downe's and Alicantes are grown from which the fruit has recently been removed. All work in the way of cleaning should be accomplished as soon as possible. Let the house be thoroughly cleaned with soft-soap and water, and if the Vines be free from bug or thrips they need not be divested of their natural covering of bark, but merely washed with a little soap and water, and tied up, without that customary dressing which formerly was considered to be indispensable and now gradually is becoming obsolete.

### POT VINES.

The fact of being able to keep late Grapes in excellent condition until the middle of May does away with much of the necessity for very early forcing, as

permanently planted Vines accustomed to forcing operations, "which are by far the best," started before the middle of December, will yield ripe fruit by the time it is required; it is, nevertheless, an interesting method, and wherever practised the chief things to observe and avoid are over-cropping and giving too much heat at the roots. If a bed of fermenting leaves is used the roots should be encouraged to strike out into it both at the base and surface of the pots. The same temperatures as recommended for the early house will be applicable to these, and the watering, which is the most important point in the management at this season, should be done judiciously, and contain some stimulating agent in a mild form.

Really good pot Vines can now-a-days be readily procured, which are grown under the best conditions possible, so that propagation in private places is not much needed; otherwise now is the time to put in the eyes, individually and firmly, into small 60-pots; these should be plunged in a warm bed, where growth will soon be excited. *G. T. Miles, Wycombe Abbey Gardens.*



## Plants and their Culture.

### MISCELLANEOUS FORCING PLANTS.

AMONG these the *Deutzia gracilis* when treated as we have at times advised in previous Calendars, is to be relied upon to produce a good crop of flowers every spring. When they are nearly in flower, and until they are faded, a good supply of water at the roots is needed, as any approach to dryness there during these periods will hinder the perfect formation of the flowers. Of Lilacs, the variety known as Charles N. is a well proven kind and excellent for pot culture. For the supply of a large quantity of bloom, however, we recommend large bushes to be grown in the open ground in sufficient quantity; thus treated they would do good service each alternate season by being lifted and placed into a growing atmosphere as may be desired. *Staphylea colchica* would also be an excellent companion in pots with the Lilac, being amenable to similar treatment. *Rhododendrons* of the choicer hardy kinds had better not be introduced at present; but *R. Early Gem* would be the best to bring on in heat now. The later kinds with the *Kalmias* and *Andromedas* will give a more satisfactory return if allowed to advance more slowly. The flowers of the *Guedres Rose* (*Viburnum opulus*) will also be found more lasting, if treated in a similar manner.

### ROSES IN POTS.

The Tea-scented kinds will be the best for earliest uses, to be followed by well established plants of the hybrid perpetuals. I find that by far the best return from forced Roses is obtained when I have an odd plant or two turned out in available corners of a Peach and Nectarine house. *Hoteia* (*Spiraea japonica*) will also give better satisfaction if covered, but plunging in this case is not so necessary. Unless specially desired *Dielytra spectabilis* should be retained for later uses; early in the season, and without much sunshine the flowers will be of a flimsy character and faint in colour.

### BULBOUS PLANTS.

There are now abundance from which to choose. Of Lilies of the Valley, the single crowns will still be found the most reliable. Plunge the pots in a brisk heat and cover them with cocoa-fibre, and keep the same moist. In the forcing of these the chief object to secure is an advance for the flower-spikes before that of the foliage. From the stock of *Hyacinths* continue to introduce a few at a time into heat, keeping them near the glass to prevent the spikes being drawn up to too great a length. Choose those which from their appearance bid fair to come away the quickest.

### TULIPS AND NARCISSUS.

The early kinds of single and double Tulips will also be available, and can now be depended upon to produce good flowers of durable quality. The single

variety, *Vermilion Brilliant*, will be much more appreciated for early work when its excellent and reliable qualities become better known. The *Polyanthus Narcissus* will give better satisfaction if brought on slowly, excepting the Roman and Paper-white varieties.

### AMARYLLIS.

The spring flowering section of *Amaryllis* will soon be making a move; if, on inspection of the roots, these are found in a healthy and thriving condition, we fail to see the necessity of shaking them out of their present soil if that is not too much exhausted. A few of the stock of these handsome bulbous plants should be induced to make a move at once, retarding others, so as to prolong their flowering season. *James Hudson, Gunnersbury House Gardens, Acton, W.*

## The Kitchen Garden.

### GENERAL WORK.

A GOOD sowing of second early Peas should now be made; this will follow in well after the earliest varieties, which were sown about the second week in January. Some of the varieties which are suitable for second earlies are enumerated at p. 22. When a constant and large supply of Peas is in demand throughout the season, it is not advisable to dabble with too many varieties for general picking, but greater satisfaction will be derived from making liberal sowings of two or three varieties; that is to say, for the supply of large establishments. Where the Peas have to be packed and sent by rail to the town residence of a family, or elsewhere, it is certainly a disadvantage to have many varieties, as the pods of each must be kept separate, and this does not facilitate packing. And again, if they are kept separate in the garden, they get mixed in the kitchen. Varieties on trial, &c., can be sown by themselves, and the results carefully noted for future guidance. Peas which grow 6 feet in height should be sown as many feet apart between the rows; afterwards prick over the ground, and sow Spinach between the rows.

### ASPARAGUS PLANTING.

If new beds are to be formed this spring the ground should soon be prepared. Land insufficiently drained has probably much to do with sickly produce; as, during winter, many of the roots decay. Asparagus succeeds well on light, well-drained land, planted in single rows, and the soil not raised above its natural level, but only on land of this description should the above system be entertained. I may remark that I have some growing as just mentioned, in rows 4 feet apart, and when the grass is allowed to grow to its natural size the soil between the rows is quite hidden. Heavy wet land is the worst on which to grow Asparagus successfully, and on such it should always be treated on the bed system, 3 feet beds with three rows of plants (two if very large produce is required) in each bed, and 2 feet alleys are the most convenient size, as they can be easily weeded and the produce gathered without any treading on the beds. On very heavy land two rows of drain pipes, 1 foot beneath the plants in the beds, may be introduced with great advantage, and the expense is not much in consideration.

### LETTUCE.

Some plants of *Brown Cos* may now be set out (in a sunny position) from the autumn-sown seed bed. The plants in our bed, sown August 29 last, are nice sturdy stuff.

### HERE BEDS.

These should now be thoroughly cleared of weeds, pricked over lightly with a fork and top-dressed with short well decayed manure. Tarragon, in many soils, is better transplanted into fresh beds every season. Old Mint-beds may be treated the same. Garlic and Shallots should now be planted by simply pressing the bulbs into the soil with the hand. *G. H. Richards, Somerley Gardens, Ringwood, Hants.*

**ANTHURIUM MARGARITÆ** ×.—Under this name a cross out of *Anthurium Scherzerianum* by *A. Andreanum* is mentioned in the last number of the *Illustration Horticole*. The habit and foliage are those of *A. Scherzerianum*; the spathe is of the same shape as *Andreanum*, but of a delicate rose colour.



## SEASONABLE REMARKS ON ORCHID CULTURE.

(Concluded from p. 146.)

**CATTLEYA-HOUSE.**—There is now a good display of bloom in the Cattleya or intermediate-house, and I find the flowers develop themselves much better if the temperature be not allowed to fall below 50° to 55° as a minimum. The beautiful blooms of *C. Trianae*, for instance, are of small size, and do not open well in a temperature allowed to fall to 50° or under it, while they open well if it is between 55° and 60°. They may be removed into the warmest house, but this is not always convenient. I need not say that the flowers open much more freely if the plants are placed near the glass, and where at this season they may have the full benefit of the sun. The plants of *Cattleya gigas* and *C. Dowiana* have up to this time been kept comparatively dry and at the warmest end of the Cattleya-house. Some growers keep them comparatively cool and very dry during the resting period. I tried this plan once, and that was once too often: they will not be forced into bloom by any such treatment as that. It is not during the resting period that such shy blooming Orchids as these can be made to bloom, but during the season of growth, and the treatment must be begun at once. Let the plants be placed in a position with the leaves almost touching the glass, the temperature of the house to be about 60° as a minimum. The young growths are now starting with great vigour, as *C. gigas* seems to make the strongest growths of any of them. In July, as the bulbs are finishing up their growths, the flower-spikes will appear, and after this it requires some judgment to prevent a second growth; both *C. gigas* and *C. Dowiana* have an inveterate habit of making a second start. The recent large importations of Cattleya have done much to place the very finest species and varieties within the reach of everybody who appreciates fine flowers. The season of flowering has also been greatly prolonged. It was a very pleasant surprise to see such richly coloured Cattleya flowers of the species *C. Percivaliana* as were exhibited on January 13 last at the meeting of the Floral Committee at South Kensington. The beautiful forms of *C. Trianae* will continue in flower until *C. Mendelii* and *C. Mossiae* come in. Some of the *Coelogynes* just starting to grow may also be potted. Indeed this is a sure guide to the Orchid cultivator, if he can find time, to repot his plants as they are starting into growth, or rather just before they form a fresh lot of roots. The good old *C. cristata* and its varieties, *C. Lemoniana* and *C. alba*, are well adapted for culture in any warm house where they can be well exposed to the light and air. The handsome *Odontoglossum citrosum* is still at rest, the roots are kept so dry that the pseudobulbs begin to shrink up; this thorough resting period seems to be quite necessary to the healthy growth and free-blooming character of this species. The Cattleya-house still contains a number of plants removed for the winter season from the cool-house. The elegant *Odontoglossum citrosum* succeeds best in the Cattleya-house during the winter months, and a number of species of *Masdevallias* prefer it.

### THE COOL ORCHID-HOUSE.

In the cool-house itself there is a continual growth taking place, especially in the large section of *Odontoglossum crispum*, but the growth is not rapid, indeed it is better to keep the house cool and moderately dry for some time longer. The temperature may be about 45° or 50°, and if it is seen that the delicate white *Odontoglossum* blooms do not become spotted nor the foliage injured, the course of treatment pursued hitherto may be continued. About the end of February or early in March, any plants requiring repotting may be seen to.

### DENDROBIUMS.

Plants of the type of *D. Wardianum* and *D. crasinode* are now coming into bloom; *D. nobile* is also in flower, a succession of these can be maintained up to June with but little trouble. The plants of the deciduous species grow best, and the flowers open better, if they are suspended in baskets from the roof.

### MASDEVALLIAS.

Some growers recommend the repotting of *Masdevallias* at this time. They may be repotted now if they really require it, but this is not a good time to

divide them. The flowers are either pushing up from the base of the leaf-stalks or they have made considerable growth. In dividing *Masdevallias* it is better to pull the large plants carefully to pieces with the fingers. If a knife is used some of the roots may be severed, which is very injurious to the plants; it will probably kill some of them. This may easily be avoided, as such plants are easily divided by a very gentle pressure with the fingers.

### HARDY CYPRIPEDIUMS.

It is now a good time to repot the hardy *Cypripediums* and other Orchids of this type; some of them, such as *C. spectabile*, require peat; others, as *C. pubescens*, a little loam with the peat. *J. D.*

## THE CESTRUMS (HABROTHAMNUS).

THE genus *Cestrum* embraces some of the most beautiful of our cultivated plants, so handsome indeed

continuing throughout the whole summer, we have frequent accounts of their marvellous beauty as outdoor wall plants in many of the more genial parts of the British Isles, and by these accounts we learn that in few cases where the plants have been given a favourable situation under a south wall have they failed; it may, therefore, be concluded that the *Cestrums* are by no means excluded from our open-air garden, and that experiment will prove them to be even harder than we now believe them to be. W. E. Gumbleton, Esq., of Belgrove, Queenstown, Co. Cork, who is so well known as an acclimatist of tropical plants, had in flower last May and onward throughout the season in great beauty in the open garden, *C. Newellii*, *C. fasciculatum*, and *C. corymbosum*; at Truro, in Cornwall, *C. fasciculatum* both flowered and fruited outdoors; Mr. Ewbank, at the Isle of Wight, also flowered *C. fasciculatum* as a hardy plant; last summer *C. Newellii* was in wonderful beauty, with its dense sprays of bright crimson flowers, in Lord Annesley's garden at Castlewilliam, Co. Down, where it had been outdoors for six years;



FIG. 36.—CESTRUM ROSEUM.

are they that ever since their introduction a continued current of praise has been kept up about them as one after another they have appeared in great beauty in the different gardens where they have been grown. It is a pity, however, that such worthy plants should or the greater part be confined to botanic gardens and to large private establishments, and that, too, while thousands of enquiries have been made by those who want just such rambling and trailing plants for their conservatories. It may be that in many cases the *Cestrums* are often excluded on account of their free growth seeming to require more space than can be afforded them, but this consideration should at once be cast aside, as they are the most tractable of plants, their keeping within certain limits or occupying a high roof being quite a matter under the control of their cultivator; it is to be feared, therefore, that they are not so much grown as they would be on account of their being not sufficiently known. As climbers or as pillar plants for cool conservatory or cold greenhouse the number of plants with showy flowers available are not large enough to allow of the *Cestrums* being disregarded, but even here their usefulness does not stop, for every year, commencing about the first week in May, and

and these and others of the genus have proved themselves hardy in many parts, not only living but coming to perfection, in spite of their being often cut down in winter, flowering and fruiting well every season. The cool conservatory, however, seems the best home for the *Cestrums*, and in it they seem to be in flower or fruit all the year round, their most showy time being in the winter, when the large Grape-like clusters of rose to crimson berries lend their cheering influence to the cool houses at Glasnevin, Chiswick, Kew, Regent's Park Botanic Garden, &c. With respect to the name *Cestrum* it is now generally admitted to be the proper one for that section denominated *Habrothamnus*, as there is no botanical difference to warrant the adoption of the latter as a generic name, indeed, if we regard the much wider differences which exist in the different species of other genera it would be something like splitting hairs to allow the name to hold good, although that section has most of the showier kinds in it, and the name—*Habros*, gay, and *thamnus*, shrub—would need but little excuse were it not that the scientific side of the question rendered it desirable that the name *Cestrum*, by right of priority, should be retained and applied to those introductions of 1842-3-4, to which the



name *Habrothamnus* was given. Further strengthening this view of the case, and connecting the rose-coloured with the old *Cestrum* that beautiful shrub, *Cestrum roseum* (H. B. K., *Nov. Gen.*, iii., 197), the subject of our illustration (fig. 36) may be cited, as it was named and described long before the name *Habrothamnus* was given, indeed, it seems to be the same plant as that grown in some gardens as *H. corymbosus*. It is a Mexican species, and with its

cases where better forms are obtained by unhybridised seeds the name of the parent will precede the distinctive title of the seminal variety.

The following selection is ranged in the order of merit as showy garden plants, commencing with the best:—

*Cestrum (Habrothamnus) Newellii*.—A garden variety, which received a First-class Certificate at the Royal Botanic Society, May 24, 1876, and a First-class Certifi-

*C. (H.) purpureum* of Van Houtte seems only to be a darker form of *C. fasciculatum*.

*C. (H.) elegans* is perhaps the most generally known, as it is one of the best of the dark rose-coloured kinds and also a good fruiter. The Glasnevin plant is marvellously beautiful with its berries hanging like bunches of small Grapes every winter.

*C. (H.) elegans variegata*.—A variety of the preceding, with prettily variegated leaves. If any have a love for variegating plants they have only to get this and graft



FIG. 37.—*CESTRUM FASCICULATUM*. (SEE P. 184.)

profusion of rosy flowers and bright coloured fruits it is one of the best of the family either for indoor or out. No one who has studied the different species of *Cestrum* can fail to come to the conclusion that many of them are seedling forms of the leading kinds only, many of the greenish flowered varieties having a strong affinity to *C. foetidissimum*, and at least three of the red ones being suspiciously near to *C. fasciculatum*. That they are liable to vary from seed is proved by that beautiful form *C. Newellii* (*Habrothamnus*), raised by Mr. Newell of Royston Hall, Downham Market, which should induce further efforts in that direction, but it is to be hoped that in all

cate at the Royal Horticultural Society, June 7, 1876. Flowers in dense sprays, bright reddish crimson, fruits crimson. Hardy in many places.

*C. (H.) roseum* (see fig. 36).—Flowers bright rose, fruits dark crimson. Hardy in mild districts.

*C. (H.) corymbosum*.—Introduced by Low of Clapton, 1843. Flowers in dense thyrses, rose coloured, very like *C. roseum*. Hardy in Ireland, Isle of Wight, &c.

*C. (H.) fasciculatum*.—This may be regarded as the type of the inflated tubed, small petalled varieties (fig. 37). It first flowered with Messrs. Lucombe, Pince & Co., of Exeter, in 1843, and proves to be one of the best and hardiest of the carmine flowered showy fruited species.

other species on it, and all the kinds may easily be variegated by the communication from the stock to the scion or *vice versa* it more convenient.

*C. (H.) Hartwegii*.—A bright rosy-crimson variety; also of the *C. fasciculatum* section.

*C. (H.) Hartwegii pubescens* differs mainly from the preceding in having the calyx softly pubescent. Flowers bright crimson. Both are lovely varieties.

*C. aurantiacum* is deservedly at the head of the true *Cestrum*s, its bright orange flowers in winter and spring are lovely, and borne in the greatest profusion. Whoever has room for a pillar or wall plant in a cold greenhouse and has not got it should get it at once. It



came from Guatemala about 1841, and is the best of the yellow flowered species.

*C. nocturnum* (see illustration *Gardeners' Chronicle*, December 15, 1883).—This is a very free-flowering species with pale greenish-yellow flowers, its chief attraction being the delicate odour which it gives off at night. It is a native of Cuba and consequently not so hardy as those previously named.

*C. fastigiatum*.—Flowers white on sprays, leaves shiny green. Very pretty when well grown. Introduced 1815.

*C. bracteatum*.—Flowers greenish-yellow with white line in the petals. Leaves lanceolate and smooth. Flowered in the Edinburgh Botanic Garden, December, 1829.

*C. alaternoides*.—Flowers greenish-yellow, produced in bunches in the axils of the leaves. Received from Trinidad and flowered in the Glasgow Botanic Gardens in 1829.

*C. latifolium*.—Flowers white. Trinidad, 1818.

*C. foetidissimum*.—This and its probable varieties placed below it should certainly be put at the bottom of the list by reason of the bad odour which they give off. They have all greenish-yellow flowers.

*C. Parqui*.—Probably a variety of the preceding.

*C. angustifolium* and *C. laurifolium* are most likely seedling forms of *C. foetidissima*.

#### PROPAGATION AND CULTURE.

With respect to the multiplication of the Cestrum little need be said, as they are as easy to increase by cutting as the Fuchsia, and require managing for that purpose in a similar manner. Any season of the year will do, but spring is the best, for at that time plenty of sufficiently hard growth cuttings, and not flowering shoots, can be obtained, which will strike readily if placed in small pots and put on a moist shelf in an intermediate-house, or under a bell-glass in a cool-house. At any season the short growths which come out from the old wood are preferable to the points, which are often flowering growth. The Cestrum are most at home planted out as trailing or pillar plants in cold conservatories, and when so grown a judicious use of the knife after flowering can restrict them to any space allotted to them and yet quantities of flower and berries may be obtained even on the smallest plants. We have also shown that many of them are hardy in milder districts, and we should therefore recommend those who have spare plants to plant them out under a south wall and carefully tend them, giving the borders a thick dressing of leaves or ashes in winter in order to help them over that season.

As pot plants the Cestrum are very beautiful, but the largest pots which can conveniently be given them should be allowed, and whilst they are making their growth a frequent soaking of weak liquid-manure works wonders in producing bloom.

As standards in pots, grown from cuttings, run up to the required height as single stems, and then allowed to make heads, they are beautiful objects when their showers of drooping heads of flowers and fruits are on them. So grown they require pruning back annually, like a standard fruit tree in a pot, and liberally watering with weak liquid-manure while growing and until the berries colour.

## Foreign Correspondence.

#### RANUNCULUS LYALLI.

DUNEDIN, NEW ZEALAND: December 5.—I enclose herewith a view of one of our New Zealand native plants, *Ranunculus Lyalli*, grown by Mr. A. C. Purdie in our University gardens here. Mr. Purdie is an enthusiast in native plants, and a frequent correspondent of [the late] Mr. Isaac A. Henry and other Edinburgh botanists. The first of these plants was brought by me to Dunedin from the MacAndrew range of mountains, altitude 3300 feet, situate on the west side of Dusky Sound, Otago, in December, 1867, just seventeen years ago. It is found in different parts of the province of Otago on mountain tops over 2000 feet in elevation, and passes among the settlers as the Shepherd's Lily; it is also plentiful on Mount Cook, and is called Mount Cook Lily by the residents around, and has been brought to Dunedin since from several of these localities. Whether this particular plant is descended from my original stock, many plants of which were raised from the seed, or from some other source, cannot be determined, and is a matter of secondary consideration.

Mr. Purdie has succeeded in producing the finest specimen I have ever seen, and it is peculiar from the

size of the flowers (nearly 4 inches diameter), the semi-double character, the substance and form of each individual petal, the number on the stalk (twelve, not all in bloom at one time), and the colour, which is a dazzling white. The plant is deficient only in the number and size of its petiole leaves. Plants hitherto cultivated with us were single, and thin in the petal, and the colour a sort of bleached white.

It is a remarkable sight to see this plant growing in its native habitat in patches, away up amidst the snows of winter, almost the only representative of vegetation—at least, such was the case when I first got it. Attempts have been made to grow it in Britain, but I am not aware if success has continued to attend them, and shall be glad to know if such is the case. *Jas. McIndoe.*

## HOME CORRESPONDENCE.

**Plants Adapted for Living Rooms.**—Though your correspondent "W. M. S." facetiously refers to a probable "Jeames" as being a member of his establishment—a fact suggestive that he may be the possessor of glass structures—we are, nevertheless, left in the dark as to whether this be the case or not; yet such a consideration has great bearing on the question at issue. With plant-houses, whether in town or country, whence relays of fresh healthy plants are obtainable periodically as needed, there is no difficulty in maintaining a perfect display with an immense variety of plants. If no plant-houses exist, the plants that are adapted for permanent indoor culture are somewhat limited in number. The following comprise some of the best Palms for this purpose:—*Latania borbonica*, *Kentia Balmoreana* and *K. australis*. Continuing to quote from your correspondent's list, *seriatim* *Anthurium* and *Pothos* are not likely to succeed; *Dracæna australis* is excellent, and a better house plant than *Cordyline indivisa* does not exist. Ferns comprise *Didymochloa trunculata*, *Pteris tremula*, *P. cretica*, *P. cretica albo-lineata*, *Platynerium alcorni*, *Asplenium flaccidum*, *Phlebodium sphaerodocarpum*, *Blechnum corcovadense*, *Cissus*, *Ivy*, and *Philodendrons* do not appear to succeed for any length of time; *Hoya carnosa*, with proper treatment, tolerably well. *Coffea arabica*, or the Coffee of commerce, is not at all adapted. *Bambusa* succeed moderately well; to ensure success, however, a very regular system of treatment must be undertaken, and all should be grown on the small shift, or small pot system. The air-warmth will suffice well; and now I will explain the regular system I suggest. Small pots are advised, both for convenience and appearance, and also because they are better for maintaining the plants in good health during the winter. As with plants maintained in health in glass structures, so also such as are in dwelling-rooms must receive their periodical "shifts" or change of soil. We may be said at this date to be commencing the year, and assuming that all such subjects are root-bound in small pots, they should be potted towards the end of the month of February. Proper soils are indispensable, and each plant must be potted firmly and neatly. Should another pottling be requisite during the year it must be given before the end of the month of July. By this means the roots will be plentifully formed before the growing season ends, so that undue root-waterings will not be needed then. Air-giving is important, and leaf sponging and syringing indispensable. The latter is easily given by taking the plants into the bath-room or pantry. During active growth, especially during the months of April, May, and June, artificial manures in liquid form are very necessary. Probably the handiest inodorous form, and one very efficient, is "Flor-vita." *William Earley, Ilford.*

**Mushrooms at High Temperatures.**—I have forwarded two samples of Mushroom, with which I intended sending a more lengthy article describing my method of culture, but as time is not at my command at present I should be glad if you would favour me with an opportunity at a future date of placing before your readers my notes as to the decided advantage of spawning at a high temperature compared with results obtained by the general rule of spawning at 80° to 85°. In sample No. 1, in which the Mushrooms are large and firm, averaging 6 inches in diameter, is seen the produce of a bed that was spawned on December 6, 1884, of 103° Fahr.

From this bed I gathered 12 lb. of Mushrooms on December 25. The bed is 9 feet long and 4 feet wide, and up to the present time (January 28) 200 lb. have been picked from it, some much larger than those sent. In sample No. 2 the produce is very much smaller, the bed having been spawned at 80° Fahr. three days later than the bed above-mentioned. From this bed up to the present only 20 lb. have been gathered, the spawn being quite similar, and the bed equal in size to the other, and in the same Mushroom-house. *Stephen Davis, Enderby Hall, Leicester.*

**Amateur Dealers.**—I am glad to see this subject coming to the front, and I hope it will be thoroughly discussed, and if "discussion" will be of any service to the market garden trade, I for one will throw in my mite towards suppressing the now existing practice of selling surplus produce from private gardens. In many cases I believe it is not the gardener's fault that the produce is sold. I have myself politely objected to my employers on several occasions to sell surplus produce, but have been very quickly told if I did not choose to do so plenty of others would. Now, what are gardeners to do? [Carry out the instructions of their masters.] Most gardeners condemn the practice, yet it is not worth their while to throw themselves out of employment because they object to sell their master's goods. What I should like to see is a law made to compel every nobleman or gentleman keeping gardens as a luxury to take out a £10 license before they could sell any surplus produce, for I believe if they were taxed as market gardeners are they would require us to sell more than we do. Most gardeners, where help is not over-abundant, will say that they have quite enough to do without preparing things for sale, and in large gardens there are generally labourers who would be glad of a few vegetables if to spare, and in some instances their distribution would cause a better feeling between master and man. *A Young Head Gardener.*

**New Potatoes.**—Mr. W. Barrett, of the firm of Messrs. J. & A. Barrett, market gardeners, Leckhampton, Cheltenham, writes as follows:—"It has surprised me that no one has written, either to the *Gardeners' Chronicle* or *Gardeners' Magazine*, a line or two in favour of Midsummer Kidney Potato. With us it was ripe fully a fortnight earlier than Myatt's Ashleaf, with a much heavier crop of sound and handsome tubers. Chancellor has done well with us, handsome, sound, and a very heavy crop: from 1½ lb. we got 5 stones. This fine variety appears to resist the disease well; White Prime Minister, planted alongside of it, and both without manure, were almost all diseased, though it gave an enormous crop. The Dean is a picture to behold, and as to its table quality, on our gravelly soil it is perfection indeed." *R. D.*

**Marguerites as Bedding Plants.**—These plants were grown in the past season with various other plants intermixed, and I found the following combination to give the most satisfactory results, viz., yellow *Marguerite Etoile d'Or*, planted 2 feet apart in a large bed, alternated with *Salvia patens*, and edged with pink *Pelargonium Master Christine*. The Daisy was pegged down till the *Salvia* got well ahead, then all were allowed to grow into a mass, the result being a most charming bed, which remained until very late in the autumn. White *Marguerite*, *Coronaria frutescens*, planted farther apart than the yellow, was mixed with *Lobelia fulgens* Queen Victoria, and edged with *Ageratum Lady Jane*, was a very effective combination. The above can be planted out about the middle of May. The *Salvias* are best propagated from cuttings taken from old roots. Started in a gentle heat early in April they grow very fast, and if struck earlier they are liable to get drawn. Seed is very uncertain in germinating, but cuttings strike easily, and at that time the *Marguerites* may also be struck. The *Lobelia* is hardy, and only needs transplanting; a stock of it is readily raised from seed. *W.*

**Broccoli.**—Those who have to provide a daily supply of vegetables all the year will find Veitch's Self-protecting Broccoli one of the best (if not the best). From the beginning of December up until now we have been cutting fine white heads, and being so well protected it takes a sharp frost to touch them. By making two sowings at intervals of a fortnight, we intend another year to try and prolong the



season of cutting. Being a rather strong growing one it should not be planted too close, the individual heads are not so fine, and if sharp weather should set in, the plants do not stand the frost so well as those that have had plenty of air and light all through the season. *A. H.*

**Sulphur Fumes as an Insecticide.**—The merits of sulphur as an insecticide have been long known, as it has been in use for many years as a remedy against red-spider; but till I applied it for destroying scale and moss on fruit trees, I had never heard of its being burnt for such a purpose, which it may be, with the greatest safety, any time through the winter before the buds break, and it will save all the time and labour many expend in painting over the branches, as sulphur fumes will kill every parasite, and make the bark look bright and clean after. So pleased am I with its effect that we now make a practice of going round the walls and giving the trees a dose, when the air is still, as soon as we have pruned, and not only does the sulphur clear the bark, but it kills the mossy growth on the face of the bricks, and makes them look as if they had been scrubbed, so powerful is the influence of the fumes where they pass up. Having scale on some of our Peach trees in the house we fumigated them, and it is gratifying, now that the shoots are being tied, to find every scale losing its hold, thus showing how satisfactorily the sulphur has done work, which would have taken a man days, or even weeks to accomplish; and even if the trees had been painted the chances are that some portions would have been missed, whereas the sulphur fumes penetrate every crevice, and allow one to start after with a clean bill of health. It is not much sulphur that is required, as a pound will suffice for a large house. The way to use it is to have a little lighted charcoal or red-hot cinders placed in three or four small flower-pots, distributed along the pathways of the house, when equal portions of the sulphur should be thrown in each, and an exit made as quickly as possible, leaving the lights and ventilators all closed till the following morning. I need hardly say that there must not be any plants in the house, except hard-wooded deciduous ones, while the fumigating is going on, or they will present a sorry figure after, as every leaf will shrivel up immediately, for their tissues will perish. *J. Sheppard.*

**Eucharis amazonica.**—When I took charge of these gardens six and a-half years ago I found among other things a few pots of Eucharis; they were in the stove, stood on inverted pots in a bed of cocoa-nut fibre. The latter was not very fresh, and had become very wet, I suppose through the constant use of the syringe. The leaves were small, yellow-looking, and of poor substance. Having had to do with plants in a few good establishments, I thought I was clever enough to get these Eucharis into good condition in six months, and accordingly set to work, and had them carefully cleaned and repotted into well-drained pots of suitable size, putting the flowering bulbs (or rather those I expected to flower) by themselves, and the little ones the same. The soil used was of the best description, and the plants were plunged in a bed of leaves in the Cucumber-house. In course of time I examined the roots, fully expecting to find them running towards the side of the pot, but to my surprise I found they had not made a start, so I left them a little longer, and on looking some days after I found no progress had been made. My next trial was to shake out one of the best-looking pots of bulbs, and thoroughly wash them in clean rain soft water, carefully preserving what few roots there were, and potting singly in soil of various sorts, thinking perhaps some at least would grow. They had every attention in the way of temperature, moisture, ventilation, and shading, indeed every thing that the foreman could do was done to try and save them. I had no fear but they would come right in time, but on again looking at them I found that the lower part of the bulbs was going rotten, the leaves (what few there were) began to get a lot of yellow spots about, and I began to wonder where my Eucharis flowers were coming from for Christmas decoration. As time went on Christmas came, but no Eucharis. I was not pleased with the failure, and thought I would try again. I did try, and failed, tried and failed, till I hadn't a live bulb to try to make livelier; the whole lot died in about two years—never having given us a single

flower for all our labour. Thanks to one of your most able correspondents (who if he reads this will accept my hearty thanks), who is not only a grower and writer, but a giver of good things, we have the best stock of Eucharis it has been my fortune to see for many years, all raised from a pot of clean bulbs carried by Mr. Brown, of the Model Farm, Mill Hill, Hendon, six miles from the station to this place about four years ago. I may add that it is my opinion that too hard forcing has ruined a good many Eucharis. *G. Merritt, The Hoo Gardens, Welwyn.*

— I would recommend all who have plants of the above affected with the so-called disease, to give them a chance to recover. On taking charge of these gardens last April I found about thirty 9 and 8-inch pots of Eucharis in a very unhealthy state, and in reply to my inquiries my predecessor assured me they had produced no flowers for some considerable time. On shaking them out I found the pots full of bulbs, but all more or less covered with the red spot I have heard so much about. I had them thoroughly cleaned, cutting the roots well back, saving every bulb—large and small—selecting three sizes and making in all one hundred 9, 8, and 7-inch pots, thoroughly drained, placing a few crushed bones on the top of crocks, which were covered with good tough fibrous loam. I took special care in preparing the soil, warming and making it moderately dry before using. The compost consisted of two parts good loam, one part peat, a good share of well decomposed cow manure, a little leaf-soil, a plentiful supply of coarse silver-sand, finely broken crocks, with a dash of soot. All was well mixed together, and the bulbs were potted moderately firm, and, with the exception of syringing, I withheld water entirely for a month, placing them on the front stage of a large lean-to house, directly under a Stephanotis trained to the roof, using no plunging material (the temperature ranged from 65°—75° by day and 55°—60° by night). For the first month they made but little progress, only a few sickly-looking leaves covered with the dreaded red spot were seen; but on examination I found they were making some healthy roots. I then thoroughly soaked them, after which they gradually began to improve. I used plentiful supplies of manure-water every third watering. This was made from cow-manure and soot, and occasionally a small quantity of guano was added. Each leaf they made appeared more healthy, and my hopes began to revive. About the middle of August I again withheld the water for a month, after which I saw no reason why they should not produce some flower. I again commenced to water, using plenty of stimulants, and my hopes were not in vain, for I soon observed now and then a spike pushing through, but with slight traces of the spot, and as the flowers expanded were more or less deformed. I have kept them at work since, and each week they have improved, giving a good supply of bloom of good quality. I enclose for your inspection specimens of foliage and bloom from plants that a few months ago were badly diseased. *Edwin Beckett, The Gardens, Aldenham Park, Elstree, Herts.* [Very fine blooms and foliage. *ED.*]

— Notwithstanding all that has appeared in the *Gardeners' Chronicle* for the last few weeks respecting the Eucharis, not one correspondent has given his opinion, or what he thinks might be the cause of its failure. All give their experience and treatment of the plant, and some conclude that it is subject to a disease unknown to gardeners. As my plants for two years previous to 1884 failed in a similar manner as described by several correspondents, I am induced to give what I think is the chief cause. Both years in question I examined the plants in the autumn, which was the time they began to look sickly, and both times I found most of the roots and the soil in a saturated condition. The thought at once struck me that it was owing to too much water. The beginning of last March I turned the whole of the plants out of the pots, at the same time shaking every particle of soil from the few remaining roots. I then sized the bulbs and potted in pots of different sizes, the number of bulbs in a pot according to its size—the compost being two parts fibry loam, one part peat, a small quantity of decayed cowdung, with a sprinkling of charcoal and sand. The plants were then placed in a day temperature of 70° to 75°, according to the weather, and 10° lower at night. Strict injunctions were given to use the watering-pot sparingly—in fact, to err rather on the side of dryness than otherwise. The plants soon

commenced to make fresh roots in the new soil, and, pushing up a new growth, soon began to put on a healthy appearance. I narrowly watched my plants, likewise the watering, throughout the year, and now, instead of the miserable-looking plants of the previous two winters, they are in a healthy condition, with large leaves, and giving me a good supply of fine flowers. The treatment of the plants being precisely the same, with the exception of watering, as other years, I feel fully convinced that too much water was the cause of the failure. Again, "W. B." says in both of his communications, "that his plants were in a healthy condition until removed to a house, and under a Stephanotis, where they were saturated from the syringe, and watered too." To me this is further proof that too much water is the cause of the so-called disease. *H. F.*

**Cucumber Growing.**—According to Mr. Bishop's wish, p. 123, I have again consulted the article of Mr. Longshaw, p. 726, where (according to my understanding) his primary object is to know if any one has proved himself equally successful, or more so, as a grower. Secondly, and very much secondly, the return per plant. Surely Mr. B. does not for one moment seriously contend that the return per plant will be accepted by your readers, as valuable information, unless gauged by space occupied. Mr. L. gives the measurement with number of plants and returns. If his object was to know only the return per plant, without space occupied, then why so exact as to figures? And in looking at Mr. B.'s reply, p. 759, I cannot help thinking it was given to show his success as a grower, based on measurements. He says Mr. L.'s "enormous quantity" of Cucumbers and "plants" must be taken into consideration with "the quantity of glass," and then gives your readers the length and span of his little house with return of his twenty-four plants, overlooking, no doubt, result of figures worked out. Cucumber growing in a vinery is quite outside the present issue, and only adopted to utilise space until demanded for the Vines altogether. There may be two classes of successful growers, but first and foremost would be those for *£ s. d.*, as Mr. L. undoubtedly is, and class 2 may be termed growers for exhibition. Cucumber plants, like Grape Vines, can be grown to cover areas according to fancy, but I still contend the question most affecting growers is the return per square yard. Mr. Smith, at p. 791, gives a return per plant in a house 9 feet by 11. If his figures are correct I imagine it is the greatest success that ever was or that ever will be. But perhaps his accuracy in figures was lost in the anxiety to bring under notice his pet variety. While on this topic I would call the attention of your readers to the article (p. 79) "Culture of Cucumbers." Mr. Ward recommends a house running east and west, whereby I think he catches the full force of the sun when not so much wanted, and loses its good effect morning and evening. Light and heat are equally needed, and the great variations of the sun's action would be reduced by running houses (about) north and south. *F. B. T.*

**Celeriac.**—Having seen a paragraph in the *Gardeners' Chronicle* (p. 154) with reference to Celeriac, its cultivation and its uses, "M. W." in his remarks seems to infer that this vegetable is confined chiefly to the Continent, and is there used in soups, salads, &c. I beg to inform "M. W." that this vegetable is not confined altogether to the countries he names, as I have grown it here many years as a vegetable. It is prized here as being one of the best winter vegetables, and is sent to the dinner-table served up in white sauce, and in other ways. *W. Gallop.* [It is greatly to be regretted that it is not more used in this country, as it is very easily grown, can be readily stored away in large quantities, and is available for use for the greater part of the year. *ED.*]

**Filberts in Flower.**—The somewhat sharp frosts followed by rain experienced during the last days of the month of January just passed, accompanied with a great change of temperature, have shown how exceptionally precocious are the buds upon trees generally. One short week ago the catkins upon Filberts were short, hard-rolled, and colourless, albeit very abundant; to-day (January 31) they have all enlarged, are a beautiful golden colour, diffusing their pollen abroad; and the female flowers, bright, shining scarlet, though so minute, are also abundantly displayed. *William Earley, Ilford.*



## Florists' Flowers.

### SEASONABLE NOTES ON HARDY FLORISTS' FLOWERS: THE AURICULA.

ABOUT the first week in February the whole collection should be carefully looked over. It is the time for surface-dressing the plants. This used to be considered an important part of their culture, and a large portion of the soil was removed, its place being taken by some very rich compost. I have often observed when potting the plants as late as May or June that very few roots have grown into this top-dressing; indeed, at the time they are in flower no new roots have worked into it. Acting on the assumption that surface-dressing is unnecessary, I have scarcely done it at all, and the plants have progressed quite as well as those surface-dressed. This is perhaps the best time for removing off-sets. If they are carefully potted, one off-set in the centre of a small thumb-pot, in fine sandy soil, they speedily form roots, and soon grow into nice little plants, which will, under good culture, form flowering specimens for next year. This is also a very good opportunity to remove greenfly by brushing it off, as each plant requires to be handled and examined at any rate. Those who intend to exhibit should remove the early flowering varieties, such as Pizarro, Acme, Glory, &c., to a frame behind a north wall. The late kinds, such as Silvia, John Simonite, Richard Headley, &c., must be placed in the warmest position in the Auricula-house. After this time it is better not to allow the plants to get frozen. The hot-water pipes will keep out the frost in the Auricula-house, and the frames in severe weather must be double matted.

### THE CARNATION AND PICOTEE.

In a month the show varieties should be repotted. They are now in large and small 60-sized pots; from these they are transferred into 7, 8, or 9-inch pots. Two plants should be placed in the 8 and 9-inch pots, and one in the 7-inch ones. The potting soil ought to be prepared at least a month before using it. If it can be prepared two or three months previously it is all the better, as the manure mixed with the soil becomes so much more thoroughly incorporated. In potting press the compost in rather firmly, but I do not care, as some do, to ram it in with a stick. When the plants are potted I take them back, and place them in frames until well established. A fourth part leaf-mould and as much decayed stable-manure is an excellent potting soil when mixed with twice its bulk of good turfy loam. The plants suffer from the attacks of greenfly, but no other insect pests seem to trouble them at this season. It is now quite time to see to the propagation of the perpetual flowering kinds by cuttings taken off and rooted in a little bottom-heat; they succeed in frames, or, better still, in a propagating-house. If they are put into a hot-bed the moist heat will keep them fresh until roots are formed. If they are to be rooted in a forcing-house it is a good plan to lay a square of glass over them—it is readily supported by the labels in the pots; the object of this is to keep the moisture about the cuttings; if they are allowed to dry up much injury is caused to them, and many will die. They will form roots in two or three weeks, and should at once be potted separately in small pots. The old plants are still producing a few flowers where they are stimulated by a little heat. The seedlings planted out in beds do not seem to require any attention, except to keep the ground quite free from weeds.

### THE GLADIOLUS.

If the weather is fine plant out the first batch of bulbs to flower early. The seedling bulbs (corms) may all be planted out at this time. If they are the produce of seed sown about the end of March or early in April, the corms will vary in size from a Pea to a Hazel-nut. By planting them out early, they have a better opportunity to form strong flowering plants by the flowering season in August. A seedling corm, not larger than a Marrow Pea, will produce, by the end of August a flowering plant 3 or 4 feet high. Draw drills for them about the same depth as would be required for Peas; place some sand in the bottom of the drill. Plant the seedlings 6 inches apart, drop some sand over each, and fill up the drill

with good light sandy loam. Some of the corms of large size, named kinds, that may be starting to grow, may be potted singly in 4 and 5-inch pots, the pots to be plunged in frames up to the rims. These should be planted out in the open ground in April, unless it is intended to flower them in pots; if the latter, they must be shifted into 6 and 7-inch pots. Ground on which Gladioli have to be grown should be well worked, fork it over frequently when the surface is rather dry. *J. Douglas, Great Gearies.*



## Notices of Books.

**Ye Narcissus or Daffodil Flowere**, containing hys Historie and Culture, &c.; with a Complete Liste of all the Species and Varieties known to Englyshe Amateurs; Illustrated with Wood Engravings, and to be sold by Barre & Sonne over in King Street, Nos. 12 and 13, in the Parish of Saint Paul, in ye Convent Garden, nigh to ye Strande, Westminster.

Under this somewhat affected imitation of antique mode of speech, betraying at once its unreality by the mention of species and varieties, and its use of words of the nineteenth century, we have a reprint of Mr. Burbidge's lecture on the Narcissus, with additions. This forms a preface to Mr. Barr's "Supplementary Catalogue," itself an expansion of the catalogue published under the auspices of the Daffodil Conference. The varieties are grouped under the sections Corbularia, Ajax, Ganymedes, Queltia, Eu-Narcissus, Aurelia. The names adopted are those sanctioned by the Daffodil Conference, which did good work, and would have done better still by expunging all Latin names except those representing the original wild types. Numerous small woodcuts illustrate the principal types.

Thanks in no stinted measure to the efforts and devotion of Mr. Barr the public taste for these elegant flowers is likely to increase, and the consequent utility of this catalogue will increase. In the coming spring we are sure to have abundant displays of these charming flowers, and the success of the last Daffodil Conference was such that a second is proposed. "Ye Narcissus" is coming to the fore, and those who would keep pace with his march must be posted in the information contained in this little treatise, which, we must add, is not a trade list.

### The Gardeners' Year Book. (171, Fleet Street.)

This very useful annual enters upon the second quarter century of its existence with every sign of healthy maturity. In addition to the usual calendar matter, tables, &c., we find a detailed catalogue of the new plants of the year, articles on various diseases of plants, lists of select fruits, flowers, and vegetables. The woodcut illustrations add but little to the value of the book.

### Student's Elements of Geology. By Sir Charles Lyell, Bart. 4th edition. By P. Martin Duncan. (Murray.)

This admirable little handbook to practical geology has been revised and edited by Professor Martin Duncan in such a manner that while the old has been respected much has been added to bring the work up to date. In an appendix is a descriptive list of the principal minerals, the character of which, however, it is impossible to learn from books; and there is a table of all the families of animals and plants found in a fossil state in Britain, with indications of their relative abundance in the various strata. No better treatise for students' use has been published.

## Obituary.

### PROF. BENJAMIN SILLIMAN.

PROF. BENJAMIN SILLIMAN, of Yale College, died on January 14. Prof. Silliman was the son of Prof. Benjamin Silliman, whom Edward Everett styled the "Nestor of American science." Born on December 4, 1816, at New Haven, where his father then resided as Professor of Chemistry in Yale College—a chair afterwards filled by the son—he graduated at Yale College at the age of twenty-one. Prof. Silliman was for many years Secretary of the American Association for the Advancement of Science, and, as such, edited the annual report of its proceedings. He contributed many papers to scientific associations, and was a most acceptable lecturer in his special line. He has passed away in his sixty-ninth year.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, FEBRUARY 4, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRICAL DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 30 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 30 years.	Dew Point.		
Jan. 29.	29.34	—0.43	52.0	36.5	15.5	46.2	+7.9	42.4	87	S.W. 0.02
30.	29.11	—0.66	50.0	43.5	6.5	47.1	+8.7	44.4	91	S.W. 0.08
31.	28.98	—0.79	48.0	39.5	8.5	42.3	+3.8	41.1	97	S.S.W. 0.29
Feb. 1.	29.18	—0.59	46.3	39.5	6.8	42.7	+4.1	40.1	99	S.W. 0.24
2.	28.99	—0.78	53.0	36.0	17.0	45.9	+7.3	39.4	79	S.W. 0.02
3.	29.12	—0.65	51.0	39.0	12.0	44.0	+5.2	41.6	91	W.S.W. 0.01
4.	29.18	—0.59	47.5	35.0	12.5	40.9	+2.6	39.3	94	S.S.W. 0.28
Mean	29.13	—0.64	49.8	38.4	11.4	44.2	+5.6	41.2	90	S.W. 0.04

Jan. 29.—Dull day and night, rain in evening.

30.—Rain falling at 9 A.M., dull day and night.

31.—Heavy rain falling at times, dull day and night, thunder and lightning at 7 P.M.

Feb. 1.—Dull morning, rain till 11 A.M. Fine afternoon, rain from 8 P.M.

2.—Fine morning, dull afternoon and night.

3.—Fine morning, sun shining, dull day and night, rain falling at 5 P.M.

4.—Very fine morning, dull afternoon and night, rain in evening.

LONDON: Atmospheric Pressure.—During the week ending January 31, the reading of the barometer at the level of the sea decreased from 30.17 inches at the beginning of the week to 29.83 inches by 1 P.M. on the 27th, increased to 29.88 inches by 9 A.M. on the 28th, decreased to 29.25 inches by 5 P.M. on the 30th, increased to 29.32 inches by 9 A.M. on the 31st, and was 29.07 inches by the end of the week.

The mean reading of the barometer for the week was 29.68 inches, being 0.42 inch lower than last week, and 0.26 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 52°, on the 29th; the highest on the 25th was 40°. The mean of the seven high day temperatures was 47° 3.

The lowest temperature was 25° 9, on January 25; on the 30th the lowest was 43° 5. The mean of the seven low night temperatures was 35° 1.

The greatest range of temperature in one day was 16°, on the 26th; the smallest was 6° 5, on the 30th. The mean of the seven daily ranges was 12° 2.

The mean temperatures were—on the 25th, 32° 9; on the 26th, 36° 7; on the 27th, 44° 3; on the 28th, 43° 6; on the 29th, 46° 2; on the 30th, 47° 1; on the 31st, 42° 3; of these the 25th and 26th were below their averages by 4° 9 and 1° 2, the rest were above by 6° 2, 5° 4, 7° 9, 8° 7, and 3° 8 respectively.

The mean temperature of the week was 41° 9, being 10° 1 higher than last week, and 3° 6 below the average of the week.

The highest reading of a thermometer with black-



ened bulb in vacuo placed in the full rays of the sun was 89°. The mean of the seven readings was 69.9.

The lowest reading of a minimum thermometer with its bulb placed on grass was 19°, on the 26th. The mean of the seven readings was 28°.1.

**Rain.**—Rain fell on five days, to the amount of 0.44 inch, of which 0.29 inch fell on the 31st.

**ENGLAND: Temperature.**—During the week ending January 31 the highest temperatures were 56°, at Leeds, 55° at Cambridge, 54° at Liverpool; the highest at Brighton was 48°, at Wolverhampton 51°.2, at Bolton 51°.3. The general mean was 52°.9.

The lowest temperatures were 23°.2, at Cambridge, 25°.9 at Blackheath, at Wolverhampton 26°.2; the lowest at Truro, 44°, at Plymouth 42°.5, at Bristol 34°. The general mean was 30°.9.

The greatest ranges were 31°.8, at Cambridge, 28° at Leeds, 26°.1 at Blackheath; the smallest ranges were 9°.5, at Plymouth, 10° at Truro; 16°.1 at Brighton. The general mean was 22°.

The mean of the seven high day temperatures was highest at Truro, 52°, at Plymouth 50°.4; and was lowest at Wolverhampton, 45°.5, at Brighton and Sunderland 46°. The general mean was 47°.8.

The mean of the seven low night temperatures was highest at Truro, 46°.6, at Plymouth 45°.7, at Bristol 42°.2; and was lowest at Blackheath, 35°.1, at Wolverhampton 36°.6, at Bolton 36°.8. The general mean was 39°.3.

The mean daily range was greatest at Blackheath, 12°.2, at Cambridge 11°.3, at Bolton 10°; and was least at Plymouth, 4°.7, at Truro 5°.4, at Brighton 6°.2. The general mean was 8°.5.

The mean temperature was highest at Truro, 49°, at Plymouth 47°.8, at Bristol 45°.8; and was lowest at Wolverhampton, 40°.7, at Sunderland 41°.1, and at Bolton 41°.5. The general mean was 43°.3.

**Rain.**—The largest falls were 1.64 inch at Bolton, 1.50 inch at Bolton, 1.42 inch at Truro; the smallest falls were 0.39 inch at Sunderland, 0.44 inch at Blackheath, 0.49 inch at Cambridge. The general mean fall was 0.91 inch.

**SCOTLAND: Temperature.**—During the week ending January 31, the highest temperature was 52°.3, at Leith; at Perth the highest was 45°.8. The general mean was 49°.1.

The lowest temperature in the week was 30°, at Perth; at Aberdeen the lowest temperature was 34°.2. The general mean was 31°.9.

The mean temperature was highest at Leith and Paisley, 42°.2; and lowest at Dundee, 38°.9. The general mean was 41°.

**Rain.**—The largest fall was 3.85 inches, at Greenock; the smallest fall was 0.46 inch, at Aberdeen. The general mean was 1.21 inch.

JAMES GLAISHER, F.R.S.

**SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE** in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, February 2, 1885; issued by the Meteorological Office, 116, Victoria Street, London, S.W.:—The weather has been in a very unsettled and rainy condition over the whole kingdom. Densely clouded skies have been reported generally, but in most places—especially in the west and south-west—there have been a few brief intervals of warm sunshine. Thunder and lightning were experienced over our southern counties late on January 31, and again at some of our western stations during the evening of February 2.

The temperature has been much higher than for many weeks past. Over eastern, southern, and central England it has exceeded the normal value by 7°, in Ireland 3°, and in Scotland from 2° to 4°. The maxima, which were recorded either on January 29 or February 2, varied from 54° to 56° over Ireland and the greater part of England to 51° in "Scotland, W.," and 47° in "Scotland, N." The minima, which were recorded at most stations on the first day of the period, ranged from 31° in "Scotland, E." and "England, E.," to 37° in "England, S.," and "England, S.W.," and to 40° in the "Channel Islands."

The rainfall has been a little less than the mean in the north and east of Scotland, but more elsewhere, the excess over central and southern England being very considerable.

Bright sunshine values show a great deficiency in

nearly all districts, the percentages of the possible duration varying from between 4 and 11 over Great Britain to 22 in "Ireland, S.," and 28 in "Ireland, N."

**Depressions observed.**—During the whole of this period the distribution of pressure over north-western Europe has been cyclonic, the barometer being highest over France, with depressions travelling northwards or north-north-eastwards along our western and north-western coasts. Some of these disturbances were unusually deep, the barometer in the centre of that of January 31 showing a reading of about 28.3 inches. Strong southerly to south-westerly winds consequently prevailed over our islands, and on several occasions, especially in the west, they reached the force of a moderate to strong gale.

### Answers to Correspondents.

**BOOK.**—*Wilmet's Most Delightful Voyage in the World*; published by Richards, Glanville & Co., 114, Fenchurch Street, E.C.

**CHIMNEY.**—*J. S. B.* The most simple and efficacious method you could adopt to do away with the nuisance you complain of would be to reverse the pipes and have the joints filled with good cement (Roman, if possible), or red-lead and spun-yarn tightly caulked; there would then be no possibility of the nuisance continuing.

**CHRYSANTHEMUM.**—*A. J. B.* *Chrysanthemum frutescens* Comtesse de Chambord; colour yellow.

**GUMMING OF CUCUMBERS.**—*B. D. E.* Various remedies are advocated for arresting the progress of "gumming," the following have proved the most successful, viz.:—Carefully scrape away the affected part, being careful to injure the woody part of the stem as little as possible, then place some clean, sharp sand round the part scraped, and over that some nice fresh turf; and if the disease is not gone too far, the plant will emit fresh roots, and "callus" over. Dusting with powdered charcoal, or flowers of sulphur, has also been tried with varied success.

**EDELWEISS.**—*J. U.* This was figured in our columns, and has repeatedly been noticed in our pages by M. Corveon and others.

**GARDEN PLANS.**—*A Subscriber.* Any good landscape gardener would furnish you with designs for a garden. If you require merely a design for flower-beds, a nurseryman in your own locality would supply them.

**GRAPES.**—*W. T.* It is Mrs. Pince's Black Muscat, not so highly coloured nor so large as it should be under culture. There is no better late Grape grown. Shanking is due to a variety of causes; either the foliage has been injured, or in some way prevented from performing its proper functions, or the roots have got into a bad condition.

**INTRODUCTION OF NEW PLANTS.**—*A. V. G.* *Amasonia punicea*, J. Veitch & Sons; *Aphelandra Margaritacea*, M. Linden, Ghent; *Clerodendron illustre*, J. Veitch & Sons.

**MALFORMED CINERARIAS.**—*W. B. S.* A frequent occurrence, and not confined to Cinerarias alone; the flowers that are produced later on will no doubt come more perfect; it seems to be caused in most instances by excessive vigour.

**NAMES OF PLANTS.**—*F. L.* *Cœlogyne cristata*.—*G. H.* Berries of common Juniper.—*J. H. H.* 1, a Gesnera, not recognised; 2, *Franciscæa laurifolia*; 3, *Amaryllis reticulata*; 4, *Xylophylla latifolia*; 5, *Reidia glaucescens*.—*A. J.* *Cypripedium Spiciferum* magnificent, but not a good sample of the variety.—*A. F. G.* The *Odontoglossum cirrosus* was a good specimen of the species, with a broad distinctive labellum. The other flower is *Epidendrum ciliolare*.

**NEWSPAPER, "PLANTERS' GAZETTE."**—*G. S.* 6, Little Tower Street, E.C.

**OCHEA.**—*M. H.* This name belongs to a species of *Hibiscus* (*H. esculentus*), or *Abelmoschus esculentus*, growing in Egypt, and many parts of India, and the tropics generally. The long pods, or seed-vessels, contain an abundance of mucilage, whence the pods are used to thicken soups and in curries, &c.

**PEACH-BUDS FALLING OFF.**—*Constant Reader.* The shoots show a generally diseased condition of the tree, but whether it can be traced to old age, or to persistent gumming, or to something being wrong with the roots we cannot say. As young trees are growing close by in a healthy state we should think the tree is unhealthy, and would be better destroyed.

**POPULUS TREMULA.**—*G. A. R.* Yes, it is indigenous to Britain. See our answer in Notices to Correspondents last week.

**SEEDLING APPLES.**—*J. L. B. J.* A very fine looking fruit, and of good quality.

**STRAWBERRY LEAVES.**—*B.* The brown spots are due to the presence of a minute fungus (*Sigmæa fragariae*). No remedy is known, but sometimes a change of soil will cause the disappearance of the malady.

**TUFA.**—*F. H.* We cannot give the name of any Tufa quarry. See our advertising columns.

**WOODLICE.**—*S. B. T.* Going suddenly with a strong light into the dark places frequented by them, and

pouring boiling water over them from a long-spouted can, is a remedy as good as any. Carbolic acid and chloride of lime are very obnoxious to some insects that possess acute olfactory powers. Perhaps these might answer if sprinkled about.

### CATALOGUES RECEIVED.

**T. PERKINS & SONS,** Northampton—Vegetable and Flower Seeds, and Nursery Stock.

**W. REID,** Aberdeen—Garden, Flower, and Agricultural Seeds.

**CARDNO & DARLING,** Aberdeen—Vegetable and Flower Seeds.

**HARE & HAUSLER,** Sittingbourne, Kent—Garden, Vegetable, and Flower Seeds.

**R. H. VERTEGANS,** Edgbaston—Vegetable and Flower Seeds and Roses.

**R. FOWLER,** Bedale—Vegetable and Flower Seeds, and Amateurs' Guide.

**J. COCKER & SONS,** Sunnypark, Aberdeen—Vegetable and Flower Seeds.

**T. DAVIS & Co.,** Wavertree Nursery, near Liverpool—Kitchen Garden and Flower Seeds, &c.

**J. W. MACKAY,** 23, Upper Sackville Street, Dublin—Seeds and Amateurs' Guide.

**SAMUEL YATES,** Manchester—Vegetable and Flower Seeds.

**JAMES DON,** Nottingham—Vegetable and Flower Seeds, Bulbous Roots, &c.

**E. J. JARMAN,** Chard, Somerset—Flower and Vegetable Seeds.

**J. BACKHOUSE & SON,** York—Alpine Plants, Hardy Perennials, and Florists' Flowers.

**G. WHITE,** Paisley—Florists' Flowers, Herbaceous and Bedding-out Plants.

**RALPH CROSSLING,** Penarth, South Wales—Vegetable and Flower Seeds.

**STRIKE & HAWKINS,** Stockton and Middlesborough—Vegetable and Flower Seeds.

**JAMES MEREDITH,** Warrington—Vegetable and Flower Seeds.

**GROENEWEGEN & Co.,** Amsterdam—General Catalogue.

**VILMORIN-ANDRIEUX & Co.,** Paris—Seeds of Trees and Shrubs.

**COMMUNICATIONS RECEIVED.**—Bruce Findlay (next week).—Robertson Munro.—J. R. J.—H. L.—H. H.—E. J.—F. A. P.—H. Evershed.—T. B.—E. Bonavia.—R. A. J.—J. F.—James MacN.—A. S. W.—G. H.—H. H. D.—J. T. R.—W. T. D.—G. Paris.—H. H. R.—Vermont.—C. V. R.—J. D.—A. D. M.—M. H.—J. T., New York.—J. A., Christchurch, New Zealand.

DIED, lately, at Shirburn-on-Sea, Mr. THOMAS LAZENBY, nurseryman and florist, late of York, aged seventy-one years.

## Markets.

### COVENT GARDEN, February 5.

No alteration this week, with the exception of St. Michael Pines, which are easier, a large cargo having arrived. Grapes steadily rising. *James Webber, Wholesale Apple Market.*

#### FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.				
Apples, ½-sieve ..	1	6	4	Lemons, per case ..	12	0	18	0	
— Nova Scotia and ..				Pine-apples, Eng. lb. ..	1	0	2	0	
— Canadian, barrel ..	12	0	21	0	— St. Michael, each ..	2	6	8	0
Cobs, per 100 lb. ..	50	0	55	0	Pears, French, doz. ..	3	0	9	0
Grapes, per lb. ..	2	0	5	0					

#### VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.			s. d. s. d.		
Artichokes, Globe,	..	4 0 6 0	Lettuces, Cab., doz.	1 6 0	
per doz.	..		Mint, green, bunch.	1 6 0	
A-paragus, English,	..		Mushrooms, p. basket.	1 0 2 0	
per bundle	..	3 6 10 0	Onions, per bushel.	4 0 0	
— French, bundle	15 0 20 0		— Spring, per bun.	0 6 0	
Beans, Eng., per 100	3 0 0 0		Parsley, per bunch.	0 4 0	
Beet, per doz.	..	2 0 0 0	Peas, per lb.	..	1 0 0 0
Cabbages, per doz.	..	1 6 2 0	Potatoes, new, per lb.	0 9 0	
Carrots, per bun.	..	0 6 0 0	Radishes, per doz.	..	1 0 0 0
Cauliflowers, Eng-	..		Rhubarb, bundle	..	0 6 0 0
lish, dozen.	..	2 0 4 0	Salsify, per bun.	..	1 0 0 0
Celeriac, per root	..	0 4 0 0	Seakale, per punnet	2 0 2 6	
Celery, per bundle.	..		Small saladings, per		
Cucumbers, each	..	1 0 2 6	punnet	..	0 4 0 0
Eodive, Eng., dozen	..	1 0 0 0	Spinach, per bushel	..	4 0 0 0
Garlic, per lb.	..	0 6 0 0	Tomatoes, per lb.	..	1 0 2 6
Herbs, per bunch	..	0 2 0 4	Turnips, bun.	..	0 5 0 0
Horse Radish, bun.	3 0 4 0				

#### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.		
Abutilon, 12 bunches	2	0	4	Marguerites, 12 bun.	6	0	9
Arum Lilies, 12 blms.	4	0	8	Mignonette, 12 bun.	6	0	9
Azalea, 12 sprays	1	0	1	Narcissus, Paper			
Bouvardias, per bun.	1	0	1	white, 12 sprays	2	0	2
Camellias, per doz.	2	0	0	— French, 12 bun.	6	0	12
Carnations, 12 blms.	1	0	3	Pelargoniums, per 12			
Chrysanth., large, 12				sprays	1	0	2
blooms	2	0	4	scarlet, 12 sprays	1	0	1
Cicorarias, per bun.	1	0	1	Poinsettia, 12 blooms	3	0	9
Cyclamen, 12 blooms	3	0	9	Primula, double, bun.	1	0	1
Epiphyllum, 12 blms.	4	0	6	— siensis, 12 bun.	4	0	6
Eucharis, per doz.	4	0	6	Roses (indoor), doz.	2	0	6
Euphorbia jacquini-				— French, per doz.	1	0	3
flora, 12 sprays	3	0	6	Tropæolum, 12 bun.	2	0	4
Gardenias, 12 blms.	18	0	30	Tuberose, per doz.	2	0	4
Heliotropes, 12 sp.	0	6	2	Tulips, 12 blooms	1	0	1
Hyacinths, Roman,				Violets, 12 bun.	1	6	2
12 sprays	1	0	1	— French, bunch.	2	0	2
Lapageria, white, 12				— Parme, French,			
blooms	2	0	3	per bunch	6	0	7
— red, 12				Wallflower, 12 bun.	4	0	6
blooms	1	0	2	White Jasmine, bun.	0	6	1
Lily-of-Val., 12 sprays	1	0	2				



## PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-24 0	Ficus elastica, each 1 6-7 0
Arbor-vitæ (goldeo), per dozen .. 6 0-18 0	Foliage Plants, various, each .. 2 0-10 0
— (common), dozen 6 0-12 0	Geolita, 12 pots .. 12 0-18 0
Arum Lilies, dozen 9 0-15 0	Heaths, var., 12 pots 12 0-30 0
Azaleas, per dozen .. 18 0-45 0	Hyacinths, per doz. 6 0-9 0
Begonias, per doz. .. 6 0-12 0	Lily-of-the-Valley, 12 pots .. 18 0-36 0
Bouvardia, dozen .. 9 0-18 0	Marguerite Daisy, per dozen .. 8 0-15 0
Cinerarias, per doz. .. 9 0-12 0	Myrtles, per doz. .. 6 0-12 0
Cyclamens, per doz. 9 0-24 0	Narcissus, 12 pots .. 12 0-25 0
Cyperus, per dozen 4 0-12 0	Palms in variety, each .. 2 6-21 0
Dracæa terminalis, per dozen .. 30 0-60 0	Pelargoniums, scarlet, per dozen .. 4 0-6 0
— viridis, per doz. 12 0-24 0	Poinsettia, per doz. 9 0-15 0
Epiphyllum, doz. .. 18 0-24 0	Primula stoeckii, per dozen .. 4 0-6 0
Erica, various, doz. 9 0-18 0	Solacums, dozen .. 9 0-12 0
Eucalyptus, various, per dozen .. 6 0-18 0	Tulips, dozen pots .. 8 0-10 0
Evergreens, in var., per dozen .. 6 0-24 0	
Ferns, in variety, per dozen .. 4 0-18 0	

## SEEDS.

LONDON: Feb. 4.—There was but little business doing on the seed market to-day, the attendance being small. The demand for field seeds, usual at this season of the year, still hangs fire; meantime holders, considering the extremely moderate rates current, remain firm. All descriptions of seeds are consequently this week without variation in value. Spring Tares, being in short supply, more money is asked for same. There is a very dragging sale for bird seeds, at Monday's currencies. Feeding Linseed continues steady. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

## CORN.

At Mark Lane on Monday prices were lower all round. The sales of both English and foreign Wheat showed 1s. to 2s. decline for the week, and at this reduction transactions were of merely retail extent. Flour was quoted 1s. per sack lower, and equally difficult to sell. Malting Barley remained quoted nominally the same as on the preceding Monday, grinding sorts 3d. to 6d. lower. Flat Maize was 7d. down, Oats on the week receded 3d. to 6d., Beans and Peas went down 6d. per quarter.—On Wednesday there was very little enquiry for either English or foreign Wheat. Flour continued dull. Barley, Beans, and Peas were unaltered in value, but there was only a retail trade passing. Rather easier rates were accepted for flat Maize ex ship, whilst Oats were nominally unaltered.—Average prices of corn for the week ending Jan. 31:—Wheat, 34s. 6d.; Barley, 32s. 1d.; Oats, 20s. 6d. For the corresponding period last year:—Wheat, 37s. 9d.; Barley, 32s. 6d.; Oats, 19s. 6d.

## CATTLE.

At Copenhagen Fields on Monday increased depression was experienced in every department. On prime cattle prices gave way 4d. per 8 lb., and then sales were difficult to close. Sheep met an equally dull and irregular sale at 2d., in some case 4d. reduction. Quotations:—Beasts, 3s. 8d. to 4s. 6d., and 4s. 10d. to 5s. 4d.; calves, 3s. 8d. to 5s. 8d.; sheep, 4s. 4d. to 5s., and 5s. 2d. to 5s. 6d.; pigs, 3s. 8d. to 4s. 4d.—Thursday's cattle trade was a shade better than on Monday. Both beasts and sheep were held for more money; calves were quiet and pigs dull.

## HAY.

Tuesday's Whitechapel Market report states that there was a very dull trade, with smaller supplies. Quotations:—Clover, prime, 85s. to 102s. 6d.; inferior, 46s. to 73s.; prime second cut, 85s. to 105s.; hay, prime, 76s. to 90s.; inferior, 30s. to 65s.; and straw, 22s. to 35s. per load.—On Thursday there was a short supply and trade very quiet with prices unaltered.—Cumberland Market quotations:—Clover, best, 90s. to 105s.; inferior, 60s. to 84s.; meadow hay, best, 84s. to 88s.; inferior, 60s. to 80s.; and straw, 29s. to 34s. per load.

## POTATOS.

The Borough and Spitalfields Markets reports state that there was a good supply and steady trade for best samples. Quotations:—Scotch Regents, 90s. to 100s.; Kent ditto, 70s. to 80s.; Champions, 50s. to 60s.; Magnum Bonums, 60s. to 80s.; and Victorias, 70s. to 90s. per ton.

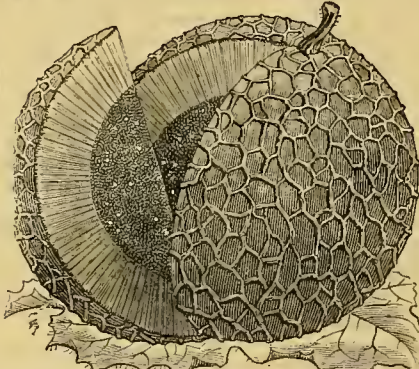
## COALS.

The following are the prices current at market during the week:—Broomhill West Hartley, 14s. 6d.; Ravensworth West Hartley, 14s. 9d.; East Wylam, 15s. 6d.; Walls End—Tyne (unscreened), 11s. 3d.; Hetton, 17s.; Hetton Lyons, 15s.; Lambton, 16s. 6d.; Wear, 15s.; Caradoc, 17s.; Hartlepool, 16s.; East Hartlepool, 16s. 3d.; South Hartlepool, 15s. 3d.; Tees, 17s.; Harton, 15s.

**Government Stock.**—Consols closed on Monday at 100 to 100½ for delivery, and 100½ to 100¾ for the account. On Tuesday prices for delivery were as on the preceding day, and 100½ to 100¾ for the account. Wednesday's closing figures were 100½ to 100¾ for delivery, and 100½ to 100¾ for the account. The final figures of Thursday were, 99½ to 100 for delivery, and 100 to 100½ for the account.

## HIGH-CLASS VEGETABLES.

## WEBBS' WOODFIELD MELON.

THE BEST GREEN-FLESHED MELON  
1s. 6d. and 2s. 6d. per packet, Post free.

From Mr. JOHN McKINLAY, *Gardener to the Right Hon. Lord Foley*.—"Your Woodfield Melon is a free setter, thin-skinned, beautifully netted, and of delicious flavour."

From Mr. E. SIMPSON, *Gardener to the Right Hon. Lord Wrottesley*.—"Webbs' Woodfield Melon is an excellent sort; thick flesh, of first-rate flavour, and good setter; very desirable."

## WEBBS' EMPEROR CABBAGE.

The BEST CABBAGE in CULTIVATION  
6d. and 1s. per packet, Post-free.

Extract from the "*Journal of Horticulture*," of May 24.—"Our largest piece of Spring Cabbage measures 70 feet x 50 feet, and here we have many sorts growing—the best of all these at the present time is Webbs' Emperor. J. MUIR."

## SAVE 20 PER CENT.

Our exceptional position as the largest Seed Growers in the Kingdom enables us to offer Pure Vegetable and Flower Seeds at very moderate prices, which, on comparison, will be found some twenty per cent. lower than those of other leading Houses.

## WEBBS' SPRING CATALOGUE.

Post-free 1s.—Gratis to Customers.

*Webbs' Sons*

THE QUEEN'S SEEDSMEN,

WORDSLEY, STOURBRIDGE.

SUTTON'S  
PURE  
FARM SEEDS.PRICES FOR  
FEBRUARY and MARCH.

## SUTTON'S UNADULTERATED CLOVERS.

	Per pound—s. d.	s. d.
SUTTON'S Selected RED or BROAD..	0 7	to 1 0
" " WHITE or DUTCH ..	0 10½	to 1 4
" " ALSIKE ..	0 9½	to 1 3
" " YELLOW TREFOIL ..	0 3½	to 0 7
" " COW GRASS or PERENNIAL RED ..	0 9½	to 1 2
SUTTON'S GIANT HYBRID COW CLOVER ..	0 9½	to 1 3
SUTTON'S Selected GIANT PERENNIAL WHITE ..	1 2	to 1 6

## SUTTON'S CLEANED RYE-GRASSES.

	Per bushel—s. d.
SUTTON'S GIANT EVERGREEN ITALIAN ..	7 0
" IMPROVED ITALIAN ..	6 0
IMPORTED ITALIAN ..	7 0
PERENNIAL RYE-GRASS ..	6 0
PACEY'S RYE-GRASS ..	6 6
EVERGREEN RYE-GRASS ..	7 0
ANNUAL or COMMON ..	6 0

## MANGEL WURZEL.

	Per pound—s. d.
SUTTON'S BERKS PRIZE YELLOW GLOBE ..	0 10
" SELECTED YELLOW GLOBE ..	0 8
" OXHEART YELLOW GLOBE ..	1 3
" SELECTED ORANGE GLOBE ..	0 8
" MAMMOTH LONG RED ..	0 10
" GOLDEN TANKARD ..	1 0
" YELLOW INTERMEDIATE ..	0 10
" GIANT LONG YELLOW ..	0 10
" IMPROVED RED INTERMEDIATE ..	0 9
STRATTON'S RED GLOBE ..	0 9

## SWEDES.

	Per pound—s. d.
SUTTON'S CHAMPION ..	0 9
SUTTON'S KING ..	1 3
" QUEEN ..	0 9
" PURPLE-TOP STUBBLE ..	0 9
" IMPROVED HARDY WHITE ..	0 10
OTHER SORTS ..	0 9

## YELLOW-FLESHED TURNIPS.

	Per pound—s. d.
SUTTON'S FAVOURITE PURPLE-TOP ..	1 3
" ALL-THE-YEAR-ROUND GREEN-TOP ..	1 3
OTHER SORTS ..	9d. to 1 0

## WHITE-FLESHED TURNIPS.

	Per pound—s. d.
SUTTON'S IMPERIAL GREEN GLOBE ..	0 9
" PURPLE-TOP MAMMOTH ..	0 9
" RED PARAGON ..	0 9
OTHER SORTS ..	8d. to 0 9

	Per pound—s. d.
KOHL RABI ..	1 9 to 5 0
CATTLE CABBAGE ..	1 6 to 4 0
" CARROT ..	1 0 to 2 6
LUCERNE ..	1 2 —
FURZE or GORSÉ ..	1 3 —

SUTTON'S  
FARMERS' YEAR BOOK

Will shortly be ready, and a copy forwarded Gratis and Post-free on application.

*Sutton's Sons*

Seedsman by Royal Warrant to H.M. the Queen and H.R.H. the Prince of Wales, READING.



## LAING'S BEGONIA

SEED.

GOLD MEDAL STRAIN, from our Prize Plants. New crop now harvested. Sealed packets.  
CHOICE MIXED, from single varieties, 1s. and 2s. 6d. per packet; 5s. extra large packets. Double varieties, 2s. 6d. and 5s. per packet.  
COLLECTIONS, 12 named varieties, separate, 7s. 6d.  
6 named varieties, separate, 4s.  
LAING AND CO., Seedsman, Forest Hill, S.E.

**NIPHETOS ROSES.**—Extra fine Plants, in 5-inch pots, fit for immediate forcing, per dozen, 9s.; per 10s. 6s.  
F. STREET, Heatherside Nurseries, Farnborough Station, Hants.

**TURINAX ELEGANS.**—For Sale, a magnificent plant, 12 feet high, 12 perfect leaves, in grand condition.  
HANS NIEMAND, Royal Nurseries, Edgbaston, Birmingham.

New Vegetable Seeds.

**JEFFERIES' LITTLE QUEEN COS**  
LETTUCE, per packet, 6d. and 1s. The most distinct Lettuce ever sent out. Very early, very compact, and good flavour.

Mr. WARD, Gardener to W. H. Budgett, Esq., Stoke House, Bristol, says:—"It is without exception the best Lettuce I have ever grown. It is of good flavour, crisp, and stands longer than any Lettuce without running to seed."

For other Novelties see New Seed CATALOGUE, post-free on application to  
JOHN JEFFERIES AND SONS, Royal Nurseries, Cirencester.

Caladiums.

**E. G. HENDERSON AND SON'S**  
SUPERB COLLECTION. Fine bulbs. Post-free. 12 distinct and beautiful varieties, 6s. and 12s.; 12 choice and rare varieties, 21s.; 12 new and golden-leaved varieties, 42s.; 50 choice collection, 50 varieties, 63s.

**ACHIMENES.**—12 distinct varieties, 1s. 6d.; 12 do., 3 corms of each, 4s.; 12 do., 6 corms of each, 7s.; 12 for exhibition, 12 corms of each, 15s.; 100 corms in 50 varieties, 21s.; 100 corms in 25 varieties, 15s.

**GESNERAS.**—12 varieties, 5s.  
**GLONINIA.**—12 strong bulbs, 6s.; 12 rare and beautiful, selected for exhibition, 10s. 6d. and 21s.

**BEGONIAS.**—Strong bulbs, beautiful collection, 21s.; 12 unnamed, from choice strain, 6s. 9s.

**ONE THOUSAND BEAUTIFUL BULBOUS ROOTS** for the Flower Garden. A revised selection for present planting 21s.; half the collection, 11s. 6d. Lilies, Oxalis, Belladonna Lily, Crocusa aurea, Narcissus, Commelina, Watsonia, Marvel of Peru, Gladiolus, Tritelaria uniflora, Schizostylis coccinea, Ranunculus, Starch and Tasseled Hyacinths, Colchicum, Helleborus, Jonquils, Spathyranthes, Scilla, white, blue, and red; Snowflake; Iris, Spanish, English, and German; Orlithogalum, Poppy-flowered Star and Mountain Anemones, Lily of the Valley, Solomon's Seal, Star of Bethlehem, Alliums of sorts, Peacock-eyed Iris and Snakehead Iris, the Dracopis Arum and white blotched leaved Arums, Amaryllis, Jacobaea Lily.  
Pine-apple Nursery, Maida Vale, London, N.W.

## LOVEL'S STRAWBERRY PLANTS.—

GREENHOUSE, 5s. per 100, 40s. per 1000.

GARDEN, 2s. 6d. per 100, 20s. per 1000.

Sample and Pamphlet, post-free, 4d.

W. LOVEL AND SON, Strawberry Growers, Driffeld.

## GARDEN REQUISITES.

COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack; 5 sacks 22s.; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton, 10 2-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &amp;c. Write for Free Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.

Notice.

COCOA-NUT FIBRE. — Reduced price.

The same as supplied to the Royal Horticultural Society of England. Truck-load, loose, of 2 tons, 20s.; 4 tons, 35s. Larger quantity contracted for. In sacks:—Ten, 8s.; twenty, 15s.; forty, 25s., bags included. All free on to the following Railways:—Great Western, Great Northern, London and North-Western, Great Eastern, Midland; other lines, 5s. extra per truck. Cash with all orders. Established 1872.

J. STEVENS AND CO., Cocoa-nut Fibre Merchants, "Greyhound Yard," and 153, High Street, Battersea, S.W.

12-oz. Sample Packets, free by post, 12 stamps.

FIBROUS PEAT FOR ORCHIDS, &amp;c.—

BROWN FIBROUS PEAT, best quality for Orchids Stove Plants, &c., 66s. per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bag, 5s.; 5 Bags, 22s. 6d.; 10 Bags, 45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per Bag. SILVER SAND, Coarse or Fine, 52s. per Truck of 4 tons.

WALKER AND CO., Farnborough Station, Hants.

GENUINE GARDEN REQUISITES, as

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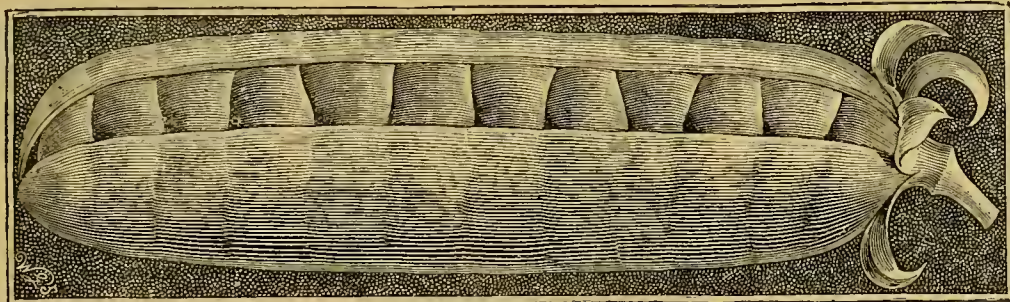
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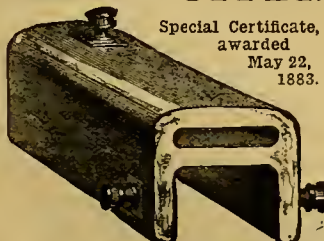
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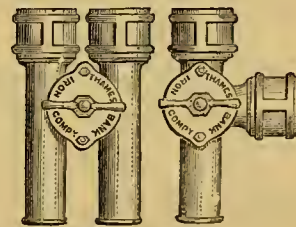
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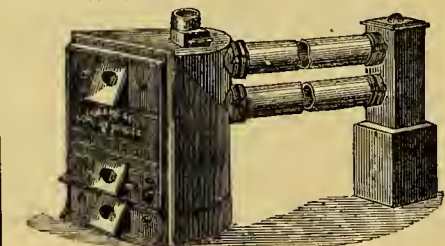
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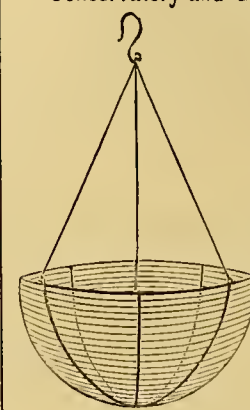
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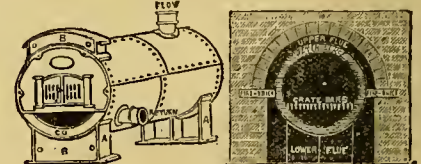
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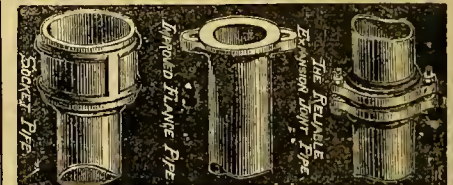
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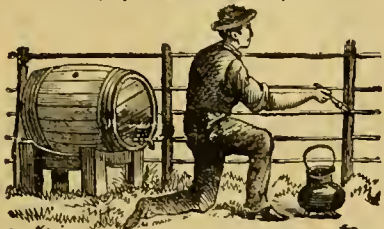
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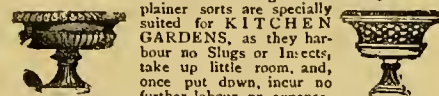
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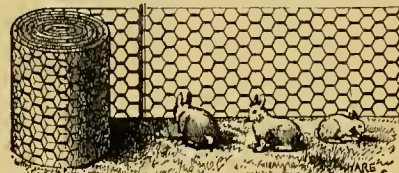
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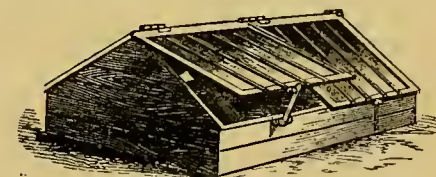


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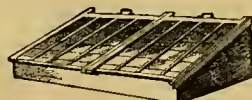
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**TO GARDENERS.**—Wanted, a Situation, by a young man (age 19) in a good establishment, under Glass. Bothy preferred. Five years' good character.—G. H. BECKETT, The Gardens, Ossington Hall, Notts.

**TO GARDENERS.**—Advertiser (age 20) seeks a Situation, in the Houses, in a good establishment.—Six years' experience. Can be highly recommended.—G. H. F., Laughton Villa, Sunninghill, Ascot, Berks.

**TO GARDENERS.**—S. PULLMAN can recommend an intelligent, respectable youth (age 17½). Four years under a Foreman.—The Gardens, Frampton Court, Dorchester, Dorset.

**GENERAL HAND, in Market Nursery.**—A young man (age 20) seeks a situation as above. Experienced in Wholesale Cut Bloom Department, and accustomed to Potting, Tying, &c. Willing and industrious. Excellent references from present employers.—Apply, stating wages offered, to C. G. H., Mr. Barter, High Street, Upper Mitcham, Surrey.

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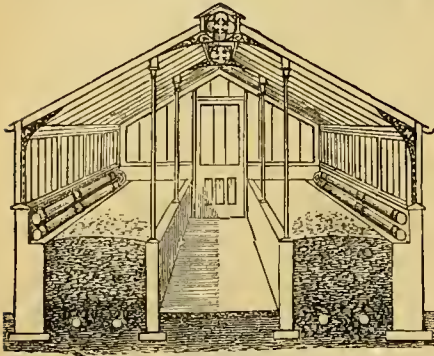
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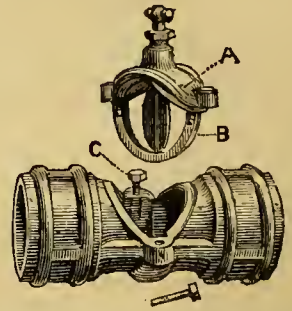
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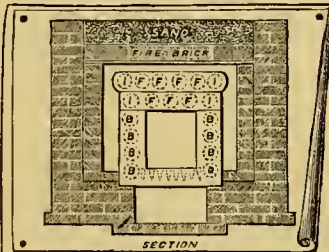
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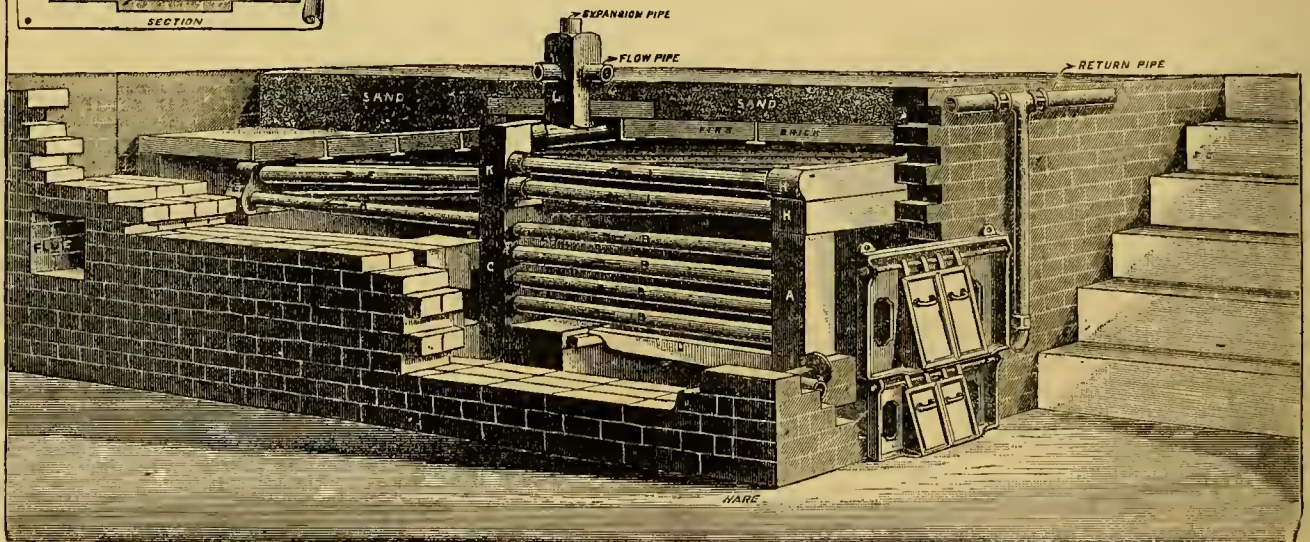
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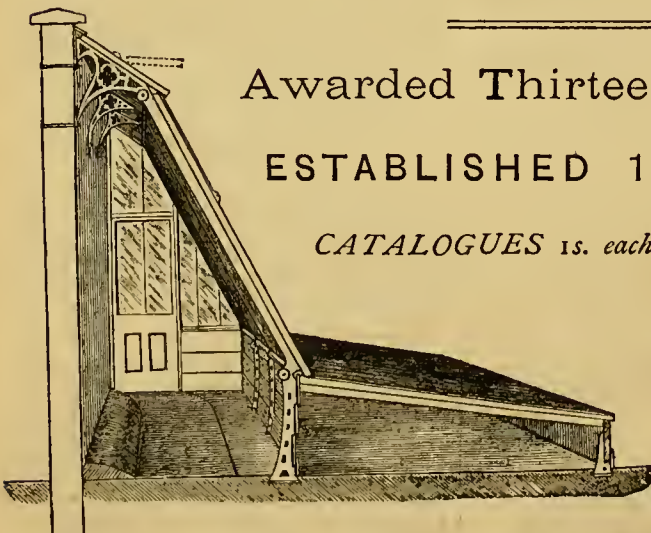
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# THE GARDENERS' CHRONICLE.

Established 1841.

No. 581.—VOL. XXIII. { NEW SERIES. } SATURDAY, FEBRUARY 14, 1885.

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Tuesday Next.

2000 **ODONTOGLOSSUM ALEXANDRÆ**, from the best localities.

**MESSRS. PROTHEROE AND MORRIS** will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, February 17, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., 2000 **ODONTOGLOSSUM ALEXANDRÆ**, imported some months since and all starting into growth, from the localities whence come the finest varieties. Also fine imported plants of the large flowered variety of **ODONTOGLOSSUM VEXILLARIUM**, **ODONTOGLOSSUM LUTEOPURPUREUM**, variety from Antioquia, **CATTLEYA GIGAS**, &c.

On view morning of Sale, and Catalogues had.

Tuesday Next.

**ODONTOGLOSSUM ALEXANDRÆ.**

**HUGH LOW AND CO.** referring to the Advertisement inserted above, beg to notify that for a considerable time past they have had a very careful and experienced collector, Mr. George T. White, engaged in visiting the localities whence come the finest varieties of **ODONTOGLOSSUM ALEXANDRÆ**. Large quantities have been received from time to time, which have been retained until the plants started into growth, so that buyers will not run the least risk. The 2000 offered have already made fine young growth, they are all in pots, and are in every respect a most promising lot of plants.

Clapton Nursery, London, E.

Wednesday Next.

**LILIUM AURATUM, ROSES, and PLANTS** from Belgium.

**MESSRS. PROTHEROE AND MORRIS** will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT**, February 18, at half-past 12 o'clock precisely, 10,000 very fine Bulbs of **LILIUM AURATUM**, just received from Japan, in splendid condition; a consignment of **AZALEAS, PALMS, DRACENAS**, and other **PLANTS** from Belgium; 400 Standard and other **ROSES** from a well-known English Nursery; 2000 Berlin crowns of **LILY of the VALLEY**, 2000 Double African **TUBEROSES**, 1000 **GLADIOLI** of sorts, a fine assortment of the best varieties of Hardy English-grown **LILIES**, Double White **PRIMULAS**, and various other **PLANTS and BULBS**.

On view morning of Sale, and Catalogues had.

Wednesday Next.

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**MESSRS. PROTHEROE AND MORRIS** will **SELL** by **AUCTION**, at their Central Sale Rooms, on **WEDNESDAY NEXT**, 10,000 exceedingly fine Bulbs, just received from Japan in splendid condition.

On view morning of Sale, and Catalogues had.

Deal, Kent.—Important Clearance Sale.

By order of the Executors of the late Mr. W. H. Newing.

**MESSRS. PROTHEROE AND MORRIS** are instructed to **SELL** by **AUCTION**, on the Premises, The Field, Middle Deal, and St. Andrew's Nurseries, close to St. Andrew's Church, Deal, on **WEDNESDAY**, February 18, at 12 o'clock precisely, without reserve, the whole of the thriving **NURSERY STOCK**, comprising 200 Border Shrubs, in fine condition for removal; **HOLLIES, LAURUSTINUS, ARJULIAS, LAURELS**, 5000 fine **EUONYMUS**, Ornamental Trees, Fruit Trees, **ROSES**, and an assortment of **Deciduous Shrubs**.

May now be viewed. Catalogues may be had on the Premises of Messrs. MERCER, EDWARDS and CO., Solicitors, 79 and 80, Queen Street, Deal; and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

N.B.—The Two **NURSERIES**, with the Glass Erections, **TO BE LET**, on most advantageous terms, either separately or together. Full particulars of the Auctioneers.

Friday Next.

**WHITE LÆLIA ANCEPS.**

**MESSRS. PROTHEROE AND MORRIS** have received instructions from Messrs. Shuttleworth, Carder & Co., to **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, February 20, at half-past 12 o'clock precisely, a grand importation of **WHITE LÆLIA ANCEPS**, including many magnificent masses with 200, 300, and 400 Bulbs. Also **ODONTOGLOSSUM CRISPUM (ALEXANDRÆ)** of the finest type, in large masses and splendid condition, **ONCIDIUM KRAMERIANUM**, **CATTLEYA TRIANÆ**, **LÆLIA MAJALIS**, **L. AUTUMNALIS**, **EPIDENDRUM NEMORALE**, &c. Also established **MADEVALLIA CHIMÆRA**, **M. RACEMOSA**, **CROSSI**, **M. TROCHILUS**, **M. HARRYANA**, and **M. SHUTTELEWORTH**.

On view morning of Sale, and Catalogues had.

Flowering Orchids.—Special Sale.

**MESSRS. PROTHEROE AND MORRIS** beg to announce that their next **SPECIAL SALE of FLOWERING ORCHIDS** will take place on **TUESDAY**, February 24, and they will be glad to receive Entries by the 17th inst.

Aspley Guise, Beds.

**UNRESERVED CLEARANCE SALE**, by order of Mr. W. Handscomb, Senr., who is retiring.

**MESSRS. PROTHEROE AND MORRIS** will **SELL** by **AUCTION**, on the Premises, The Mount Pleasant Nursery, Aspley Guise, about 1½ miles from Woburn Sands and Ridgmont Stations, London and North-Western Railway, on **WEDNESDAY**, February 25, at 12 o'clock precisely, the whole of the valuable **NURSERY STOCK**, comprising large quantities of Conifers in variety, an assortment of choice American Plants, 2000 fine Limes, clean grown trees; Fruit Trees, **ROSES**, Spring Cart, Tools, and Effects.

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N.B. The valuable **FREEHOLD ESTATE**, of 2 Acres in extent, with a commanding frontage to the High Road, to be **SOLD**. Apply to the Auctioneers, as above.

Wood Green, N.

CLEARANCE SALE.—TO FLORISTS AND OTHERS.

**MESSRS. PROTHEROE AND MORRIS** are instructed to **SELL** by **AUCTION**, on the Premises, The Lordship Nursery, Wood Green, N., on **FRIDAY**, February 27, at 12 o'clock precisely, the **BENEFICIAL INTEREST** in the **LEASE of the NURSERY**, comprising about 30 Acres of Land, with brick-built Dwelling-house and Stable; there are eleven Greenhouses, all heated by hot-water, and in good working condition, which will be included in the purchase. After the Sale of the Lease will be offered in Lots, without the least reserve, the whole of the well-grown **STOCK**, including 9000 **Adiantums**, **Pteris**, 1000 **Palms** and **Dracenas**, 150 store boxes of Ferns, containing about 7000 good plants; Carpet-bedding Plants, and large quantities of other Stock; Capital **MARVANS**, &c.

May now be viewed. Catalogues and full particulars of the Nursery may be had on the Premises, or of the Auctioneers, 67 and 68, Cheapside, E.C.

Warminster, Wilts.

Re J. Wheeler.—In Liquidation.—IMPORTANT SALE of VALUABLE FREEHOLD PROPERTIES.

To Nurserymen, Builders, and Others.

**MESSRS. PROTHEROE AND MORRIS** (in conjunction with Messrs. Harding & Sons) are instructed to **SELL** by **AUCTION**, at the "Red Arms" Hotel, Warminster, **TUESDAY**, March 17, at 3 o'clock precisely, by order of the Trustees, the valuable **FREEHOLD NURSERY GROUNDS**, with comfortable **DWELLING-HOUSES, OUT-BUILDINGS and OFFICES**, extensive **HOTHOUSE and GREENHOUSE ERECTIONS**, **PITTS, &c.**, and the **GOODWILL** of the Old-established **BUSINESS**; also several productive **GARDENS**, possessing choice **FREEHOLD BUILDING SITES**, the whole conveniently situate in the Town of Warminster, near the Railway Station, and only three hours' journey from London. Offering an excellent opportunity to Nurserymen requiring a thoroughly genuine Old-established Business and others desirous of securing Land in the best part of the Town for Building Purposes. The purchaser or purchasers of these Properties will have the great advantage of securing, at unreserved Auction prices, any of the Trees and Shrubs growing in the Grounds at the extensive **SALE of NURSERY STOCK**, commencing **WEDNESDAY**, March 4.

Particulars and Conditions of Sale may be had on the Premises, at the place of Sale, of Messrs. SPARKES and POPE, Solicitors, Exeter and Crediton; of Messrs. CHILTON and GREEN-ARMYtage, Solicitors, Bristol; of Messrs. WAKEMAN and BLACK, Solicitors, Warminster; of Messrs. HARDING and SONS, Auctioneers, Exeter and Warminster; and of Messrs. PROTHEROE and MORRIS, Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

Warminster, Wilts.

Re James Wheeler.—In Liquidation.—GREAT CLEARANCE SALE of about 40 ACRES of NURSERY STOCK.

**MESSRS. PROTHEROE AND MORRIS** (in conjunction with Messrs. Harding & Sons) will **SELL** by **AUCTION**, on the Premises, the various Nurseries situate at or near Warminster, on **WEDNESDAY**, March 4, and following days, at 12 o'clock precisely each day, without the least reserve, the whole of the valuable **NURSERY STOCK**, extending over 40 Acres, including an enormous number of Trees and Shrubs of young growth, and an extraordinary stock of large Conifers, Evergreen and Deciduous Shrubs, invaluable to Noblemen, Gentlemen, and others largely engaged in planting. The Stock includes 5000 Green **HOLLIES**, 1 to 2 feet; 3600 English **Yews**, 2½ feet; 30,000 Common and Caucasian **Laurels**, 9 inches to 3 feet; 7000 **Portugal Laurels**, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 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of over 1200 Species and Varieties free on application.  
LARGE CATALOGUE (Price 1s.), containing 75 Illustrations of Ferns and Selaginellas, valuable "Hints on Fern Culture," and other useful and interesting information.

W. & J. BIRKENHEAD,  
FERN NURSERY, SALE, MANCHESTER.

## Specialties for 1885.

### ILLUSTRATED LIST

Of Choice New Seeds for Gardeners  
and Amateurs.

Sent free to all Customers.

E. J. JARMAN,

The People's Seedsman,  
CHARD, SOMERSETSHIRE.

Martin's

President

Cauliflower

1s. 6d.

per packet.

WILLIAM E. MARTIN, Seed Merchant, Hull.



CUTBUSH'S MILL-  
TRACK MUSHROOM  
SPAWN.—Too well known to require  
description. Price 6s. per bushel  
(15 extra per bushel for package), or  
6d. per cake; free by Parcels Post, 12.

None genuine unless in sealed pack-  
ages and printed cultural directions  
enclosed, with our signature attached.  
WM. CUTBUSH AND SON  
(Limited), Nurserymen and Seed  
Merchants, Highgate Nurseries, N.

## ANTHONY WATERER

Invites attention to the following LIST of  
well-grown and properly rooted NURSERY  
STOCK:—

HOLLIES, Common Green, 3, 4, 5, 6, 7, 8 to  
" laurifolia, ditto. [10 feet high.  
" Hodgins, 3, 4, 5 to 8 feet.  
" myrtifolia, ditto.  
" Scottica, 3 to 8 feet.  
" Yellow-berried, atlatlareuse and others.  
" Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.  
" Waterer's splendid plants, 3, 4, 5, and 6 feet, 8 to 15 feet  
in circumference.  
" Golden Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of  
beautiful specimens.  
" Perry's Weeping Holly, on straight stems, with beautiful  
heads, ten to fifteen years' growth, hundreds.  
" new Golden Weeping, a large number of very beautiful  
plants.  
BOX. Green and Variegated, 3, 4, 5, 6 to 7 feet, many thousands.  
YEWs, Common, 3, 4, 5, 6 to 10 feet, thousands.  
" Golden, of all sizes up to 10 feet. We have many  
thousands as Pyramids, Globes, Standards, in point  
of variety and size unequalled.  
" Irish, 5 to 10 feet, hundreds. [thousands.  
CUPRESSUS ERRECTA VIRIDIS, 3, 4, 5, 6 to 8 feet,  
" Lawsoniana lutea, 3, 4, and 5 feet, hundreds of beautiful  
specimens.  
THUIOPSIS DOLABRATA, 3, 4, and 5 feet, hundreds.  
RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to  
10 feet. The plants are covered with buds.  
AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and  
5 feet high, thousands.  
JUNIPERS, Chinese, 7, 8, and 10 feet high.  
" Chinese Golden, 3 to 6 feet.  
JUNIPERUS VIRGINIANA GLAUCA, 3 to 5 feet.  
ABIES CANADENSIS, 4 to 7 feet, hundreds.  
" DOUGLASII, 3 to 5 feet, thousands.  
" GLAUCA, 2 to 4 feet, hundreds.  
" ORIENTALIS, 4, 5, 6 to 10 feet, hundreds.  
" HOOKERIANA, 3 to 5 feet.  
" PARRVANA GLAUCA, 1½ to 2 feet, hundreds.  
PICEA CONCOLOR, 2 to 4 feet, hundreds.  
" GRANDIS, 5 to 7 feet.  
" LASIOCARPA, 3 to 5 feet, hundreds.  
" MAGNIFICA, 2 to 3 feet, hundreds.  
" NOBILIS, 1½ to 3 feet, thousands.  
" NORDMANNIANA, 6, 7, to 10 feet.  
" PINSAPO, 6 to 10 feet, hundreds.  
" PUNGENS, 1½ to 2 feet, thousands.  
PINUS CEMBRA, 6 to 8 feet.  
CEDRUS DEODARA, 6 to 9 feet, hundreds.  
LIBANI (Cedar of Lebanon), 3 to 5 feet.  
THUJA OCCIDENTALIS LUTEA, 3 to 6 feet, hundreds.  
THUIOPSIS BOREALIS, 3 to 5 feet, hundreds.  
RETINOSPORA OBTUSA AUREA, 3 to 6 feet, hundreds.  
" PISIFERA AUREA (true), 3 to 6 feet.  
" PLUMOSA AUREA, 3 to 5 feet.  
" Knap Hill Nursery, Woking Station, Surrey.

## Purchasers of Vegetable Seeds



Are reminded that the  
ONLY  
"PRIX D'HONNEUR,"  
AMSTERDAM, 1884,  
Was AWARDED to



## CARTERS' PURE VEGETABLE SEEDS.

237 & 238, HIGH HOLBORN, LONDON.  
Illustrated Catalogues Gratis and Post Free.

## Come and See.

Our Seedlings, Just Raised.

GOLD MEDAL.

## CANNELL'S BEGONIA SEED.

We simply mention the following to show that we  
exhibited the finest seedling last year:—  
FIRST-CLASS CERTIFICATE for the best WINTER-  
FLOWERING ever exhibited.  
FIRST-CLASS CERTIFICATE for the best BEDDING  
ever exhibited.  
FIRST-CLASS CERTIFICATE for the best DOUBLE  
ever exhibited.  
FIRST-CLASS CERTIFICATE for the best and largest  
most distinct SINGLE-FLOWERING, and many  
others, ever exhibited.

Seed, 2s. 6d. and 5s. per packet.

Send for the Best Illustrated Catalogue.

## DAHLIA ROOTS.

For years we have been awarded the highest honours by the  
Royal Horticultural Society for the best and most complete  
Collection, and to show the satisfaction that our Pot Roots give  
we simply append the following.

100 Roots, in splendid varieties, for £1 5s., our  
selection.

Mr. F. W. EVERETT, The Gardens, Penrhos, Holyhead,  
February 4, 1885:—"Many thanks for the beautiful Dahlia  
bulbs I received quite safely. I shall not forget where to send  
when I want any more."

H. CANNELL & SONS,  
THE HOME of FLOWERS, SWANLEY, KENT.

## NOVELTIES in SEEDLING POTATOS.

FIDLER'S ENTERPRISE.—Cross between American  
Purple and Royal Ashleaf. Raised by Mr. Elliott, and  
offered for the first time this season. Was awarded Two  
First-class Certificates. *Gardener's Magazine* says:—"A  
distinct and beautifully coloured kidney, making few chas,  
and incapable of coarseness, heavy cropper, and of excellent  
table quality." Price, per pound, 1s. 6d.; 7 lb., 10s.

FIDLER'S SUCCESS.—White fleshed, cross between  
Beauty of Hebron and Myatt's Prolific. Two First-class  
Certificates. Early as the Ashleaf, but much superior in  
quality and of more handsome appearance. Price, per  
pound, 6d.; 7 lb., 3s.

FIDLER'S PROLIFIC.—Sent out last season, is an  
excellent table variety, has given the best satisfaction  
wherever tried. Tubers are flatish and rounded like those  
of Snowflake. Price, 6d. per pound; 7 lb. for 3s.

FIDLER'S VICTORY.—Late variety, of excellent  
quality, perfectly free from disease. Price, 1s. 6d. per peck;  
4s. per bushel.

Full description CATALOGUE of all kinds gratis and  
post-free on application to  
C. FIDLER, Potato Grower, READING.

## BIDDLES & CO.,

THE PENNY PACKET  
SEED COMPANY,

LOUGHBOROUGH, LEICESTERSHIRE,

Supply 3000 varieties of FLOWER SEEDS, in Packets,  
at One Penny each, including the choicest sorts, viz.:—  
Asters, Balsams, Calceolarias, Cyclamens, Pansies,  
Petunias, Phlox Drummondii, Primulas, Salvias, Stocks,  
Verbenas, &c. All seeds being of the best quality in  
small quantities, the packets must be regarded as  
economical, not cheap. We recommend our various  
collections of twelve varieties for 1s.

All kinds of VEGETABLE SEEDS, of best quality,  
by weight, and also in Penny Packets.

Send for CATALOGUE, gratis (500 Illustrations).  
Save expense and buy a large selection in small packets.

50,000 GLADIOLUS BRENCHELYENSIS  
to be sold off at 5s. per 100—grand bulbs.



# THOMSON'S VINE AND PLANT MANURE.

This Manure is now solely manufactured by us, on our Premises here, and can be had through all Nurserymen and Seedsman, or direct from us.

We will be happy to forward Descriptive CIRCULARS, in reply to applications, containing terms, &c.

*Intending Purchasers are requested to see that they obtain the Manure manufactured by us.*

**WM. THOMSON & SONS,**  
TWEED VINEYARD, CLOVENFORDS, GALASHIELS, N.B.  
February 11, 1885.

## TUESDAY NEXT.

**2000 ODONTOGLOSSUM ALEXANDRÆ,**  
*FROM THE BEST LOCALITIES.*

**MESSRS. PROTHEROE AND MORRIS** will **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **TUESDAY NEXT**, February 17, at half-past 12 o'clock precisely, by order of Messrs. **HUGH LOW & CO.**, 2000 **ODONTOGLOSSUM ALEXANDRÆ**, imported some months since, and all starting into growth, from localities whence come the finest varieties.

Also fine imported plants of the large-flowered variety of **ODONTOGLOSSUM VEXILLARIUM**, **ODONTOGLOSSUM LUTEO-PURPUREUM** VARIETY from **ANTIOQUEA**, **CATTLEYA GIGAS**, &c.

*On view morning of Sale, and Catalogues had.*

## TUESDAY NEXT.

**ODONTOGLOSSUM ALEXANDRÆ.**  
**HUGH LOW & CO.,**

Referring to the Advertisement inserted above, beg to notify that for a considerable time past they have had a very careful and experienced Collector, Mr. **GEORGE T. WHITE**, engaged in visiting the localities whence come the finest varieties of **ODONTOGLOSSUM ALEXANDRÆ**.

Large quantities have been received from time to time, which have been retained until the plants started into growth, so that buyers will not run the least risk. The 2000 offered have already made fine young growths, they are all in pots, and are, in every respect, a most promising lot of plants.

**CLAPTON NURSERY, LONDON, E.**

## FRIDAY NEXT.

**WHITE LÆLIA ANCEPS.**

**MESSRS. PROTHEROE AND MORRIS** have received instructions from Messrs. **SHUTTLEWORTH, CARDER & CO.**, to **SELL** by **AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, February 20, at half-past 12 o'clock precisely, a grand importation of **WHITE LÆLIA ANCEPS**, including many magnificent masses, with 200, 300, and 400 Bulbs.

Also **ODONTOGLOSSUM CRISPUM (ALEXANDRÆ)**, of the finest type, in large masses and splendid condition; **ONCIDIUM KRAMERIANUM**, **CATTLEYA TRIANÆ**, **LÆLIA MAJALIS**, **L. AUTUMNALIS**, **EPIDENDRUM NEMORALE**, &c. Also **ESTABLISHED MASDEVALLIA CHIMÆRA**, **M. RACEMOSA CROSSI**, **M. TROCHILUS**, **M. HARRYANA**, and **M. SHUTTLEWORTHII**.

*On view morning of Sale, and Catalogues had.*

## GRAPE VINES.

A FINE STOCK of WELL-RIPENED, SHORT-JOINTED **CANES**

For Fruiting in Pots or Permanent Planting.

Prices and List of Varieties on Application.

**WILL TAYLER,**  
**OSBORN NURSERY, HAMPTON, MIDDLESEX.**

**CABBAGE PLANTS**, Early Rainham and Enfield Market, 2s. 6d. per 1000, best stock in the country; Red Dutch for Pickling, 5s. per 1000; **BRUSSELS SPROUTS** and **SAVOY**, 4s. per 1000; Brown Cos and Hamersmith **LETTUCE**, 5s. per 1000; Veitch's Autumn Giant **CAULIFLOWER**, 20s. per 1000; Connover's Colossal **ASPARAGUS ROOTS**, fine, 3-year old, 20s. per 1000; 2-years old, 14s. per 1000; **SEAKALE**, for planting out, 3s. 6d. per 100, will give any man satisfaction that buys it; **ONION SEED**, Bedfordshire Champion, 4s. 6d. per lb.; white Spanish, 3s. per pound.—all new and genuine. Terms cash.

**RICHARD WALKER**, Market Gardens, Biggleswade, Beds.

**VINES—VINES—VINES.—**  
**STRONG FRUITING CANES**, 4s. 6d. each.  
**STRONG PLANTING CANES**, 3s. each.  
All the best varieties in cultivation.

**CALDWELL AND SONS**, The Nurseries, Knutsford, Chester.

**FOR SALE**, a few Bushels of **MCLEAN'S WONDERFUL PEA** and **MYATT'S ASHLEAF POTATO**. Special low offer for Cash.  
**GEO. BOLTON**, Nurseryman, Wyddial, Buntingford, Herts.

## EDELWEISS.

The Star-shaped Everlasting of the Alps.

## LAVATERA ARBOREA VARIEGATA.

The Variegated Tree Mallow.  
A grand plant, 8 feet in height, with large variegated foliage.

## MENTZIELIA BARTONIODES.

The Tassel Flower, bright yellow.

## CALTHA PALUSTRIS.

The Golden King-Cup.

## LUPINUS ARBOREUS.

The Yellow-flowered Tree Lupin.

## MIGNONETTE GOLDEN QUEEN.

Very compact, good pot variety. Flowers tipped with yellow.

## MIGNONETTE CRIMSON QUEEN.

Same habit as above. Flowers tipped with crimson.

## MIGNONETTE PYRAMIDALIS gigantea

Very large Flowers.

## MIGNONETTE MILE'S SPIRAL.

Largely used for Pot culture.

## MYOSOTIS PALUSTRIS semperflorens.

The Finest Forget-me-not. Constant bloomer. Rich blue.

## PANSY REDDISH STEEL-BLUE.

With red and white edge.

## PANSY PURPLE, with White edge.

## PANSY PURPLE, with Yellow edge.

## PANSY PLUM-VELVET,

Very handsome, rich colour, Very free bloomer, with crimped edge.

Seeds of all the above Choice Specialties now ready.—For prices per ounce or per pound, see our Wholesale Seed CATALOGUE, free on application.

**WATKINS & SIMPSON,**

SEED AND BULB MERCHANTS,

**EXETER STREET, STRAND, W.C.**



## GENUINE SEEDS



**JAMES VEITCH & SONS,**  
ROYAL EXOTIC NURSERY,  
CHELSEA, S.W.

**AQUILEGIA,  
VEITCH'S NEW HYBRIDS.**

Comprising many new, beautiful, distinct, and pretty sorts of various shades, of which a coloured plate appeared in *The Garden*, October 18, 1884.

Per packet, 1s. 6d.

**NEW CAMPANULA,  
CALYCANTHEMA ROSEA.**

A new bright rose-pink variety; a most attractive and desirable addition to our hardy border plants, owing to its pretty colour and free blooming habit, the flowers literally hiding the plant.

Per packet, 1s. 6d.

**IMPATIENS SULTANI.**

*First-class Certificate, Royal Horticultural and Royal Botanic Societies.*

Remarkable for its profuse and continuous flowering and the gorgeousness of its flowers, which are of a brilliant rosy-scarlet colour. Decorative alike for the Stove, Greenhouse, Conservatory, or for Summer Bedding.

Per packet, 1s. 6d.

**MIGNONETTE, CRIMSON KING.**

A new, distinct, and most desirable variety for pot culture, throwing up numerous stout flower-stalks, terminated by extremely broad spikes of delightfully scented bright red flowers.

Per packet, 1s. 6d.

**BRUSSELS SPROUTS,  
VEITCH'S EXHIBITION.**

Unequaled for exhibition or for general use. The stems are entirely covered from top to bottom with large, firm, solid sprouts, which are of remarkably fine quality.

Per packet, 1s. 6d.

**NEW CAULIFLOWER,  
VEITCH'S PEARL.**

The best main crop variety for general use, pure white heads of fine texture, medium size, and finest quality; perfectly distinct, and very desirable.

Price per packet, 2s. 6d.

**CABBAGE LETTUCE,  
VEITCH'S PERFECT GEM.**

*First-class Certificate, Royal Horticultural Society.*

A most distinct, compact-growing variety, of a rich deep green colour, forming very early a close solid heart, beautifully crisp, juicy, and tender, and of excellent flavour.

Per packet, 1s. 6d.

**NEW TOMATO,  
HACKWOOD PARK PROLIFIC.**

*Two First-class Certificates, Royal Horticultural Society.*

The finest Tomato in cultivation for exhibition or main crop, enormously prolific, handsome large smooth fruit of bright scarlet colour; flesh firm and solid, of finest quality, excellent flavour.

Per packet 1s. 6d.

**NEW VEGETABLE MARROW,  
PEN-Y-BYD (the best in the world).**

*First-class Certificate Royal Horticultural Society and First-class Certificate International Exhibition, Dunce.*

This new, most distinct, and exceedingly prolific variety is by far the best of Mr. Muir's hybrids, and superior to any yet in commerce; the fruit, averaging about 6 inches in diameter, is of handsome globular form, creamy-white in colour, of finest table quality, and particularly delicate flavour.

Per packet, 1s. 6d.

**VEITCH'S NEW POTATOS FOR 1885.  
M.P. and MISS FOWLER.**

Each awarded First-class Certificate International Potato Exhibition, October, 1884; and also received the Highest Awards for cropping and table quality, from the Royal Horticultural Society, 1884.

**M.P.**

A grand round white variety, of dwarf, stout growth; an enormous cropper and thorough disease-resister; tubers all of most useful table size, and the quality is all that can be desired.

Per lb., 1s. 3d.; per 4 lb., 4s. 6d.; per 7 lb., 7s. 6d.

**MISS FOWLER.**

A handsome late white kidney, very heavy cropper; tubers of moderate size, very even, and of finest table quality.

Per lb., 1s. 6d.; per 4 lb., 5s. 6d.; per 7 lb., 8s. 6d.

For full particulars of the above and other Choice Vegetable and Flower Seeds and Potatoes, see CATALOGUE, forwarded Gratis and Post-free on application.

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

**DREADNAUGHT.**—The best paying Cucumber for Market, and finest Black Prickly Cucumber grown. We have grown mostly of the Telegraph type, and find Dreadnaught make 30 per cent. more in the market. 1s. per packet.

POPE AND SONS, Seedsmen, 120, Market Hall, Birmingham Nurseries, King's Norton.

**NEW WHITE PLUME CELERY** (Henderson's).—Seed direct from New York, 6d. per packet, free by post.

CATALOGUES free on application.  
POPE AND SONS, Seedsmen, 120, Market Hall, Birmingham Nurseries, King's Norton.

**ELLAM'S DWARF and EARLY MARKET CABBAGE.**—The two best Cabbages for Autumn or Spring. 6d. per packet, free by post.

CATALOGUES on application.  
POPE AND SONS, Seedsmen, 120, Market Hall, Birmingham Nurseries, King's Norton.

**TOMATO.**—The best flavour and finest for private use, Vick's Criterion. True selected seed, imported from America, free by post, 6d. per packet.

POPE AND SONS, Seedsmen, 120, Market Hall, Birmingham Nurseries, Birmingham.

**SHALLOTS.**—Price per Cwt. or Ton on application to  
WATKINS AND SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, W.C.

**Wholesale List of Vegetable Seeds.**

**H. AND F. SHARPE** will be pleased to forward their WHOLESALE LIST of Home Grown VEGETABLE SEEDS to those who have not yet received it. It comprises all the best varieties in cultivation, and the quality of the seeds is exceptionally good.  
Seed Growing Establishment, Wisbech.

**G. STEVENS, F.R.H.S., St. John's Nursery, Putney,** is now Booking Orders for his New CHRYSANTHEMUMS, which will be sent out in April next:—

**WHITE PERFECTION**, beautiful single, very free and compact grower, acknowledged to be the finest of this class of Chrysanthemums. First-class Certificate, National Chrysanthemum Society, 1884. 2s. 6d. each.

**TERRA-COTIA**, single, beautiful bright colour, very free and compact grower, fine for Conservatory decoration. First-class Certificate, National Chrysanthemum Society, 1884. 2s. 6d. each.

**MAGENTA KING**, a beautiful sweet-scented Anemone pompon, with a very high centre, and of a very bright colour, a very great acquisition to this class of Chrysanthemums. First-class Certificate, National Chrysanthemum Society, 1884. 2s. 6d. each.

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Cash with order.

CHRYSANTHEMUM CATALOGUE two stamps.

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ASH, 4 to 6 feet.

BIRCH, 3, 4 and 5 feet.

SPRUCE, 2½, 3, 4, and 5 feet.

SPANISH CHESTNUT, 3, 4, and 5 feet.

LARCH, 4 to 6 feet.

All stout and well rooted.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

**GRAPES THIS YEAR.**  
FRUITING CANES, 7s. 6d. and 10s. 6d. each.  
PLANTING CANES, 3s. 6d. to 7s. 6d. each.

Leading kings, perfectly ripened without bottom-heat.

DUKE OF BUCCLEUCH, grafted, 15s. each.

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

**ASPARAGUS.**—True Giant, 2, 3, and 4-yr. Fine sample 100 or 2000, with price, on application.  
JAMES BIRD, Nurseryman, Dowham.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.

**H. AND F. SHARPE'S Wholesale Price** LIST of the above-named Seeds is now ready, and may be had on application. It comprises all the very finest varieties of 1884 growth.

Seed Growing Establishment, Wisbech.

**New Kidney Potato**

**BIRD'S DOCTOR BOB.**—This is the earliest Kidney variety in existence; a very heavy cropper, as many as sixty tubers of all sizes have been counted at a root. It is a seedling from Early King. After a trial of several years it has never taken disease. Eyes very shallow; a good cooker, and fine flavour. 5s. per stone.

JAMES BIRD, American Nurseries, Downham Market.

**DAHLIA TUBERS.**—A large quantity of pot Roots in fine condition, in all the leading varieties, including Shows, Fancies, Cactus, Pompons, and Singles.

DESCRIPTIVE PRICE LIST on application to

THOMAS S. WARE, Hale Farm Nurseries, Tottenham, Middlesex.

**HOUSE'S PERFECT MARROW PEA.** Pronounced by competent judges to be the finest Pea ever eaten. Prizes 301. and 20s. per Forty Pods will be given at the Royal Horticultural Society's Show in July. Sold in packets, post-free for fifteen penny stamps.

JOHN HOUSE, Eastgate Nurseries, Peterborough.

To Noblemen and Others Planting, &c.

**FOR IMMEDIATE SALE**, 10 magnificent Specimen WELLINGTONIA GIGANTEA, over 6 feet high, in perfect health, shape and foliage—such handsome trees seldom seen; to good Silver Variegated Japanese MAPLES, from 4 to 8 feet high (grafted), and about 20 fine shaped Purple BEECH—all moved within the last year. Also 5 immense Specimens of ADIANTUM CUNEATUM, over 30 inches through—these are fit for high competition.

The above, the property of a Lady, are for Immediate Disposal. Price, &c., address by letter only to R. GARDNER, care of T. Smith, 15, Wine Office Court, Fleet Street, London, E.C.

**MR. LAXTON'S  
SPECIALTIES FOR 1885.**

For particulars with Prices of—

**NEW PEAS—**

EVOLUTION, LORD BACON, and EARLIEST OF ALL;

**NEW RUNNER BEANS—**

THE CZAR and GIRTORD GIANT

**NEW LONGPOD BEAN—**

JOHN HARRISON;

**NEW POTATO—**

WHITE-SKINNED BEAUTY OF HEBRON;

**BEST ONION—**

SANDY PRIZE WHITE SPANISH;

**NEW TOMATOS—**

OPEN AIR, and THE CARDINAL;

**NEW GREENS—**

GILBERT'S CHOU DE BURGHLEY and UNIVERSAL SAVOY;

**BEST ASPARAGUS—**

EARLY PURPLE ARGENTEUIL;

**NEW APPLES—**

SCHOOLMASTER, &c.;

**NEW STRAWBERRIES—**

KING OF THE EARLIES, and THE CAPTAIN;

**NEW ROSES—**

BEDFORD BELLE, and GIPSY;

**NEW SWEET PEA—**

LAXTON'S INVINCIBLE CARMINE;

*The stocks of several of which are limited and are fast selling out—*

APPLY TO—

Thomas Laxton, Seed Grower, Bedford.

**THE NEW RASPBERRY**

LORD BEACONSFIELD (a Seedling).

The finest Raspberry and best cropper ever known. First-class Certificate, Royal Horticultural Society, 1883. Strong Canes, 15s. per dozen, £5 5s. per 100; 4 feet Fruiting Canes, 9s. per dozen, £3 per 100. Usual allowance to the Trade.

A. FAULKNER,

INKPEN, HUNGERFORD.

**A SPECIALTY.**

Rhododendrons and other American Plants Grown in Sandy Loam.

A superb Collection of all the leading varieties in cultivation. Also thousands of RHODODENDRON PONTICUM and HYBRIDS for Plantations and Coverts.

A Sample Dozen of well-budded Plants of the best varieties for 24s.

Larger Sizes, from 30s. to 42s. per dozen.

Priced LISTS on application.

**JOHN CRANSTON,**  
KING'S ACRE, HEREFORD.

**SEEDS,  
VEGETABLE, FLOWER, and FARM,**

*Carefully Selected,*

AND FROM WHICH MAY BE EXPECTED

**THE BEST RESULTS**

EVER YET ATTAINED.

**ILLUSTRATED LIST,**

Containing Copious, Interesting, and Reliable Information, Free.

**RICHARD SMITH & CO.,**  
SEED MERCHANTS and NURSERYMEN,  
WORCESTER.





# B. S. WILLIAMS'

PRIZE STRAINS OF  
**FLORISTS' FLOWERS.**  
POST-FREE.

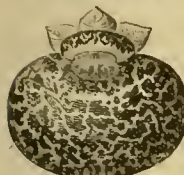
Sold only in Sealed Packets bearing my Trade Mark. The quality of all is alike; the difference in price applies to the quantity of seed put into the packets.



## WILLIAMS'

Prize Strain of  
**BEGONIA HYBRIDA**, finest mxd.,  
per packet, 1s. 6d.  
**BEGONIA HYBRIDA**, Tuberous  
rooted, for bedding, per packet  
1s. and 2s. 6d.

Saved from Strains which have  
taken First Prizes wherever ex-  
hibited.



## WILLIAMS'

Prize Strain of  
**CALCEOLARIA**  
(Herbaceous, finest mixed),  
Per packet, 1s. 6d. and 2s. 6d.  
This fine strain has been selected  
from the dwarfest and most distinct  
types, and will be found unequalled  
for size of flowers and brilliancy of  
colours.



## WILLIAMS'

Prize Strain of  
**CINERARIA**  
(extra choice, mixed),  
Per packet, 1s. 6d. and 2s. 6d.

A superb strain of very dwarf branch-  
ing habit and strong constitution, con-  
taining a great variety of colours.



## WILLIAMS'

**PRIZE COCKSCOMB.**  
The finest in cultivation.  
HAS GAINED NUMEROUS FIRST  
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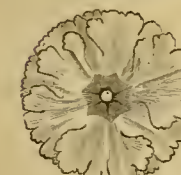
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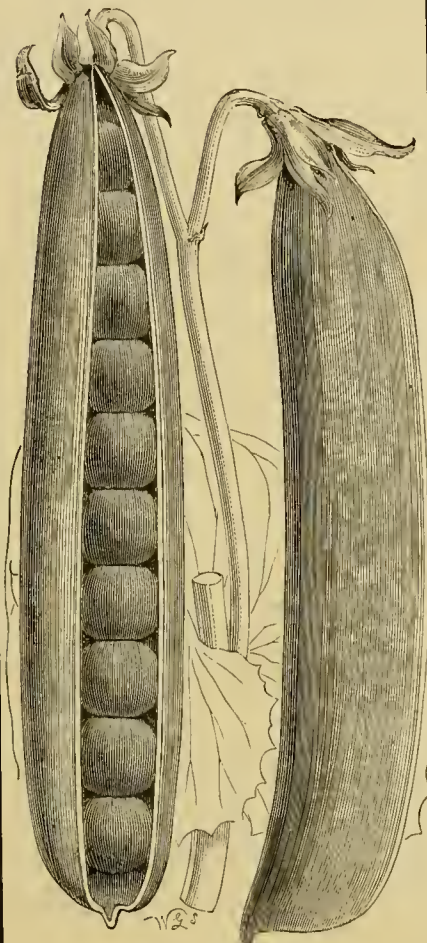
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THE

# Gardeners' Chronicle.

SATURDAY, FEBRUARY 14, 1885.

## MEMBLAND.

THE fine country residence of E. C. Baring, Esq., is situated on the confines of the South Devon coast, about midway between Salcombe and Plymouth, and eleven miles from the stations of Ivybridge and Plymton. The route chosen to reach it was from Ivybridge, a pretty little town, a fine view of which is obtained from the skeleton bridge spanning a deep valley, and over which runs the Great Western Railway. This valley, through which flows the River Erme, is followed for some miles; it is bounded by bold and grand slopes thickly planted with Oak, equalling many of those for which the River Dart is so famous. Passing on through the well-wooded park of Flete, the route taken now being through private property, another estate, called Pamphlete, is passed through, where one cannot help being struck by the way in which Pinus insignis stands out conspicuously in the plantations, evidently confirming the opinion of those who advocate its planting for the seacoast, for here at a considerable height and in exposed situations it tops the Larch and Austrian Pine.

Here the River Erme has assumed wide dimensions, being within a short distance of the sea. Along its course delightful views are continually presenting themselves, many of which have been selected by some of our eminent landscape artists. As we near the coast a good stretch of open country is traversed. Being now on the property of Mr. Baring, and being several hundred feet above the sea, occasional glimpses of the ocean and of a portion of the rocky coast are obtained. A lodge recently erected—substantial, elaborate, and original in design—indicates the entrance to the park; a circuitous drive, with a gradual descent, leading from the sea coast, brings one to the house. Benefiting by the experience of adjoining estate proprietors, Pinus insignis has been extensively planted, and on the right side of the drive now mentioned it has been planted at a distance of 40 feet apart the whole length. Picea Nordmanniana and other Pinuses are planted between; these are eventually to be cut away as the P. insignis increases in growth.

Membland may be said to be only in its infancy, judging from the preparations for planting, the cutting and laying out of new drives, &c., although much work has already been accomplished within the last few years. It has only of late years passed into the hands of the present proprietor, who seems to be quite alive to the manner by which the natural surroundings may be made still more interesting and enjoyable by judicious planting.

Before entering upon an account of the garden, which concerns us most, I will refer to one very grand feature of Membland—this is a drive 8 miles in length, commencing from the lodge referred to, and which leads immediately on to the summit of the high cliffs at a height of from 400 to 600 feet above the sea. The drive is



continued on the sides of the cliffs for the whole distance mentioned, winding in and out, following the course of the rugged coast. It had frequently to be cut through solid rock to attain the necessary gradations. Almost immediately upon entering the drive are the ruins of Revelstone Church, roofless and covered with Ivy, and without any sign of cultivation or habitation saving a small plot of land half an acre in extent, which is in the occupation of some distant fisherman probably. It was stocked with Cabbage, which, perhaps, would be the only vegetable in a cottager's point of view that could be grown there. Possibly at some remote period a village existed here, but now not a vestige remains other than the ruins of the church. As the course of the drive winds in and out, often abruptly, a faint outline of its course is visible for miles, either rounding some high and prominent point or round the huge recess formed by the connection of two large promontories. In many places the rocks are very precipitous, and dangerous for horses not well under command. The charm experienced in being able to traverse the sides of the cliffs with ease is greatly enhanced by the seething and foaming of the waves beneath, unceasing in their battle with the projecting rocks, the water assuming a beautiful malachite hue. Among the distant views to be obtained during its course, as we are in Bigbury Bay, on the left, at starting, is seen Bolt Head and Bolt Tail off Salcombe. Burt Island—a huge rock in the foreground—stands about halfway. Away to the south are seen the woods on the summit of Mount Edgcombe, and a long stretch of the rocky coast of Cornwall. In the offing is visible the new Eddystone Lighthouse—a mere speck on the horizon. During the progress of the formation of this drive, it was rendered necessary on many occasions during severe gales of wind to withdraw all hands, it being impossible to withstand the gales that visit this coast.

On the termination of the coast drive, the return journey is made along the course of the River Yealm, a short river, but with bits of scenery as beautiful and picturesque as can be found on any of our rivers. The land slopes very abruptly to its waters, having the village of Norse on the eastern and Newton on the western side, each with its village church standing out prominently half way up the steep slope. The drive is continued on through this valley, at the termination of which, on very elevated ground, is situate Membrand House, from which we started.

Large additions have been made by the present owner to the old building, the improvements and additions being in the same style of architecture as the old portions (see fig. 40, p. 213). From the west end a very extensive view is obtained of the valley just mentioned, the bold slopes on either side being well wooded, with the tower of Newton Church conspicuous in the landscape, having for a background the distant hills in Cornwall. Although the house is situate so near the sea yet no glimpse of it can be seen from it. The ground gradually declines from the coast inwards, the house being situate on this decline, with a thick belt of Oak and other trees, entirely blocking out the ocean view, and affording protection from the southern and south-easterly gales. The north and east sides are now thickly planted with trees, as it lies exposed to the cold winds from Dartmoor, the hills of which are distinctly seen from this point. The pleasure grounds around the house are not extensive, neither are they required to be, the natural surroundings being themselves of sufficient attraction for those who love and enjoy rural scenery. The lawn in front is one bold slope of grass only bounded by a ha-ha fence: trees and shrubs are nearly dispensed

with in this instance, and wisely so, the bold scenery of hill and valley near and far requiring no aid from dressed grounds and small Coniferae to enhance its grandeur. The walls, pillars, and porticos are covered with Ivy intermingled with *Ampelopsis Veitchii*, *Lonicera fragrantissima*, and other climbers, and beneath the terrace walls large plants of *Fuchsia Riccartoni* were flowering splendidly. From the west end the ground declines rapidly into the valley, and here are situate the kitchen garden and the numerous glass structures. Between this garden and the house a small plantation of trees has been made, and though the views from the windows of the mansion are carried directly over the garden, yet it is effectually hidden by the trees and partly by the sudden declination of the ground. The gardener's house is one of a block of buildings at the back of these trees, thus commanding a view of the entire garden and a lovely valley beneath. *D. C. Powell.*

(To be continued.)

## New Garden Plants.

*CATTELEYA BICOLOR WRIGLEYANA*, nov. var.

I PROPOSE this name for a lovely variety with grey-green sepals and petals and a dark purple lip. The flower at hand has its apex white. It is well known that the typical *Cattleya bicolor*, Lindl., first described from a sketch prepared by Baron Descourtil, has tawny sepals and petals. I would not look to the number of flowers for marks of distinction, as the quantity depends upon the strength of the growth. *Cattleya bicolor* is very often two or three-flowered. My herbarium contains inflorescences with as many as six flowers. I never saw peduncles with eight or ten flowers. I have this fine variety several times. Never was it so bright green as in the last instance, when it came from Mr. Edwin G. Wrigley, Howick House, Preston, Lancashire. It is a great satisfaction to dedicate it to this gentleman, *H. G. Rehb. f.*

*LÆLIA ANCEPS (Lindl.) LEUCOSTICTA*, nov. var.

This has long white or whitish-rosy markings on the darker rosy sepals and petals. They are usually either broad linear, or triangular, or short elliptical. I had something near the flower at hand a long while ago from Mr. Burbidge, Trinity College Garden, Dublin. What is now at hand was sent by Mr. F. Sander. It is from Mr. Greenfield, Beechwood Park, Dunstable. *H. G. Rehb. f.*

*LÆLIA ANCEPS BLANDA*, nov. var.

It becomes alarming to note how many varieties appear of this old species, which from 1835 till 1868, when the glowing Dawsonia appeared on the scene, offered only the var. *Barkeriana* (1837). Now we suffer from *embarras de richesse*. This variety has sepals and petals white with a rose hue. The median nerves of the sepals are lightest green. The anterior lacinia of the lip is emarginate, blunt, wholly coloured with the warmest purple. The angles of the side lacinia are rosy, with rows of purple dots. Mid area sulphur coloured, with numerous very dark shining elevated brownish-purple stripes. It would be *Lælia anceps Calvertiana* were it not for this rich mid area and those curious rows of dark streaks of single spots on the side lacinia, which make one think of var. *Veitchii*. *Lælia anceps Percivaliana* has only the apex of the lip purple, and the side lacinia have no such lines of spots on their angular parts. It came from Mr. F. Sander, who received it from W. Cobb, Esq., Silverdale, Sydenham. *H. G. Rehb. f.*

*AGAVE WIESENBERGENSIS*.—In this newly-described species the tuft of leaves measures 55 cm. across, the individual leaves 20 cm. long by 6 cm. broad, and 1½ cm. thick, oblong-lanceolate mucronate, remotely spine-toothed at the margin. The flowers are in clusters along the side of a long flower-stalk, the individual flowers are erect, tubular, 6-parted, 30 mm. long. The plant is figured by Dr. Wittmack in the *Garten Zeitung* for January 15.

## ASPLENIUM GERMANICUM.

VARIOUS views have been put forward with respect to the origin of *Asplenium germanicum* by those who have disputed its claim to rank as a species. Thus it has been considered by some to be a hybrid, and by others to be a mere variety, and each party is split into two subdivisions. Of those who suppose it to be a hybrid one division has attributed its derivation to *Asplenium Ruta-muraria* and *A. septentrionale*, and the other to *A. septentrionale* and *A. trichomanes*. Of those who regard it as only a variety some have considered it as the offspring of *A. Ruta-muraria*, and are able to bring the authority of Linnaeus, and to point to the "cuneatum" variety of *Ruta-muraria* as supplying a connecting link, in support of this view; whilst by the remainder it has been set down as a variety of *A. septentrionale*. The latter is the opinion held by Dr. Lowe, but his reasons for coming to this conclusion seem to me, so far as they are set forth on p. 80, scarcely sufficient.

These appear to be based primarily upon the fact that veritable fronds both of *septentrionale* and of *germanicum* were produced by one plant, and secondarily upon the fact that there were also intermediate forms. Now if it were indubitable that this was only one individual plant I do not see how the argument could be resisted, but from the circumstances of the case it would be well nigh impossible to shut out the chance of error in determining this point. In most places where *germanicum* occurs it will be found associated with *septentrionale*. Growing, as they do, side by side, it is only to be expected that instances such as those mentioned by Dr. Lowe would not be very unusual in which the two Ferns would be so intimately united, and their fronds so intermingled, that it would be almost impracticable to separate or distinguish between the two plants, both of which send up their fronds in the same densely-growing and thickly-tufted fashion. Consequently extreme caution would be necessary in drawing any conclusion merely from the circumstance that the two distinct kinds of fronds sprang from what appeared to be but one root. "Intermediate forms proving their common origin" would then be required to decide the question as to whether in such case there were really two plants or only one. And here, I think, Dr. Lowe's evidence falls short.

The specimens illustrated (fig. 15, p. 80) seem to me not to be intermediate forms, but to belong—the right-hand one to *Asplenium germanicum*, and the left-hand one to *A. septentrionale*. From a figure one can judge only of the form of the frond, and there may perhaps be some intermediate characteristics of colour and texture evinced by the fronds which a figure cannot indicate. Any one who has observed the two species growing wild must have noticed the light green colour and thin texture of the *A. germanicum* fronds, and been struck with the marked difference in these two points between the two *Aspleniums*. As the roots which Dr. Lowe brought home are doing well, perhaps next season he will kindly give further information as to the growth and development, whether normal or otherwise, of the fronds.

It has been alleged, as one of the strongest arguments against *A. germanicum* being entitled to take rank as a distinct species, that it is never to be found growing in any considerable quantity together, but only in few or solitary plants associated generally with *A. septentrionale*. As Newman says, "No botanist has ever recorded the discovery of a colony of *germanicum*." If any one should be fortunate enough to discover such a colony it might not be desirable, in the interests of the Fern, to point out its locality too definitely, but it would be very desirable to have some record of the discovery. Mr. Britten, in *European Ferns*, states that *A. germanicum* is found abundantly in many localities in the Tyrol, and in Silesia, where neither *A. trichomanes*, *A. septentrionale*, nor *A. Ruta-muraria* occur. If any of your readers could supply any additional testimony on this point it would be very welcome. There is an interesting note in the number of the *Journal of Botany* for July, 1883, p. 209, on the occurrence of *A. germanicum* in Hong Kong, completely out of the reach, so far as is known, of *A. septentrionale*, the nearest habitat for which Fern appears to be in Northern India or Afghanistan.

There is a good deal of variation in the forking and size of the fronds of *A. septentrionale*, but I am not aware whether any distinct variety has been raised or



found. Of *A. germanicum* two varieties are recorded—one, named "acutidentatum," was raised by the late Mr. R. Sim, of Foot's Cray, and a figure of the same is given in *Nature-Printed British Ferns*. The other is mentioned in Messrs. Stansfield's *General Fern List*, No. 8, p. 23, and thus described:—"Variety with remarkably broad pinnules, from St. Goar, in Germany." Some sixteen years ago I found, near Argeles, in the Pyrenees, a plant of this Fern, fronds of which were identified with Messrs. Stansfield's variety by Mr. Sim. Here is an instance, from two places wide apart, of a form of *A. germanicum* characterised by a larger and more vigorous growth, and showing the species in perhaps its most perfect development, and the tendency of its divergence from the ordinary type is not in the direction of any approximation to *A. septentrionale*, but rather otherwise. I have the plant still in cultivation, and enclose a few fronds herewith.

I have found the common form of *A. germanicum* in several places in the Pyrenees and in Switzerland, and also in the district about Gastein, in Austria, and in all these cases the neighbourhood abounded with *A. septentrionale*. Pretty much the same position and conditions are necessary to both, but *A. septentrionale* is the harder and more vigorous of the two. It is capable of adapting itself to a much greater range of elevation, its habit of growth is more spreading and extending, and wherever it is at all plentiful fine plants in large tufts can usually be found.

From my observation of both Ferns in their wild state I should be inclined to think that where the two happen to grow together, and become crowded in a limited space, the strong probability is that *A. germanicum* will be overgrown and choked by its sturdier companion. If this supposition be correct it may serve to afford some explanation of the scarcity and solitariness of *A. germanicum* as generally found. Can it be that in former times it was more abundant than now; that gradually the weaker was to some extent ousted by the stronger; and that therefore the present representatives of its race are to be regarded as survivors of that struggle for existence which is ever going on in vegetable as well as in animal life? *W. O'Brien, Merriem, co. Dublin.*

## UNFRUITFUL TREES.

How often one sees and hears of trees that are unfruitful, and Apples and Pears especially so. Now this should not and need not be if proper means were employed to remedy it. Nothing is more disappointing than year after year to expect fruit and get none, or of such poor quality as hardly to be fit for use. Some trees are no doubt too old, and would be better replaced by young ones, but others, both standard and trained, can be brought into a fruitful state, and the treatment will often entirely cure canker, which no doubt is caused by poverty in a great many instances. Very generally this unfruitfulness is caused by the roots getting down into the subsoil for moisture in dry seasons, and when there, as they do not find any of the elements that are necessary for building healthy growths, the tree gets into an unhealthy or an unfruitful state, often making wood at the expense of the fruit-buds. This must not be taken to be always the case because some trees seem to run all to fruit-buds and yet do not ripen their fruit.

Young trees can be lifted and brought into a fruitful state by bringing the roots nearer the surface, but trees that have stood in one position, for twenty years or more, cannot be lifted entirely, or if they were lifted they would hardly recover from such severe treatment. What is necessary to do in such cases is this. Cut away the roots that have a tendency downwards. The way to proceed with this operation (and I have practised it myself on a great number of trees and found it bring about the desired result) is to open a trench on both sides of the tree (if a standard), 6 feet from the stem, 3 feet wide and about 6 feet long, parallel to each other, removing the soil from the trenches to the depth of 3 feet, taking care not to injure the roots that lie horizontally; then work towards the stem with steel forks and remove the soil as the work proceeds until within 18 inches of the stem, tunnel the remainder, and sever the tap or perpendicular roots about 2 feet from the surface, cutting the upper portion of the roots smoothly with a knife and removing as much of the remaining part as possible: then proceed to fill in the trench,

making it firm beneath the ball of earth. If some manure can be worked into the upper 18 inches of soil it will encourage fresh roots and greatly assist in stimulating the energies of the tree. This pruning will check rank growth and consequently direct the energies of the tree to the formation of fruit-buds.

Trees on walls must be done from one side only, removing all downward-stretching roots quite back to the wall. Trees that produce nothing but bloom are easier dealt with: Pear trees especially are liable to get into that state; they make no wood, nor in my opinion do they perfect their fruit-buds. The best way to operate upon them is to thin out the head of the tree about a third of its branches if a standard, and to give it a dressing of rich manure. Trees treated in this way, and which have not had any fruit for years previously, fruited well the next year. A great deal of good can be done to trained trees by the removal of spurs, thereby causing fresh ones to push. In the case of some sorts it is necessary to cut them all back to the main shoot, and the trees of some kinds refuse to bear fruit on old spurs or limbs; pertinaciously obstinate is Gansel's Bergamot Pear, and some others that fruit best on a system of moderate extension. This is work that can be carried on at almost any time from the beginning of September until the end of February, frosty weather excepted. *A. Waterman, Preston Hall Gardens.*

## A FEAST OF CHINESE PRIMROSES.

No heading could be more appropriately placed at the commencement of this paper than the one I have employed. In the Portland nursery of Messrs. Sutton & Sons, at Reading, there can be seen at the present time a collection of Chinese Primroses of a singularly varied and interesting character, representing varieties raised and put in circulation during the past few years, and also novelties, the result of careful crosses—some of them specially striking and instructive as showing how much can be accomplished by intelligent, patient, and persistent cross-breeding. The visitor sees house after house of Primulas, finely grown, and flowering in the best manner; but unless he can avail himself of a pleasant chat with Mr. James Martin (Messrs. Sutton & Sons' clever foreman) he quite fails to understand how and by what means many of the charming novelties he sees have come about. Much thought and years of patient work have been employed, not a cross has been attempted but it has been fully recorded; the pedigrees of all the most useful varieties are kept, nothing appears to be left to mere chance, though something of this appears in the results which must be attributed to that natural sportiveness which is characteristic of not a few popular flowers.

Messrs. Sutton & Sons have from time to time put several new varieties of Primulas into commerce, such as Reading Scarlet, rich bright red; flowers of good size, handsomely fringed, and thrown well above the foliage. Pearl, white, the flowers large and beautifully fringed; habit very good, the flowers very numerous, and standing in the form of a pyramid above the leaves. Ruby King, of a rich deep ruby-crimson hue; flowers of fine form, well fringed, and numerous produced; they are pale in colour when they first open, but become more intense and richer in tint with age. Reading Blue, a type so improved here that it has developed into the darkest blue we have yet seen; the flowers large, finely fringed; clear lemon eye, very free, and the blossoms thrown well above the foliage. It is probable that, for some few years to come, blue Primulas will be found sportive in character, but it is a strain that will become definitely fixed in course of time. The foregoing have palmate, or the old type of foliage. In addition to these selected varieties, there are Superb White, Superb Red, Princess Beatrice, delicate rosy-lilac, bordered with white; Marginata, lilac, bordered with white and grey; Florence, bright brick-red, &c., but they fall behind those named for distinctness and novelty of character, though all very good. Of Fern-leaved types there are the old white and red forms—in excellent character it must be admitted; and the following, obtained from distinct crosses:—Snowdrift, a pure white variety that preserves its purity until the end; it is remarkably free and successional, and when in the height of bloom charming in the extreme; it is

also very early, and by means of a later sowing can be had in flower for a considerable time. Gipsy Queen is quite new; the flowers come nearly pure white, but as they age become suffused and spotted with deep rose; they are large and finely fringed. One singular peculiarity possessed by this type is the deep russety brown or dark Beet-like foliage, which is in striking contrast to the flowers. It is a very desirable novelty. Rosy Queen is older in point of time, and, like all Messrs. Sutton & Sons' new types, it has a close and compact pyramidal habit, and is very early; the colour of the flowers delicate salmon-rose; large and well formed. It will be remembered that the older types of Fern-leaved Primulas had long leaves, foot-stalks and leaves both being so long that they hid the flowers from view. The blade of the leaf in Messrs. Sutton & Sons' varieties is only half the length formerly seen, and the foot-stalks are correspondingly short.

It is held by Mr. Martin that there are four essential points necessary to a good Primula, viz., habit of growth, size of flower, substance, and colour. Those who remember the strains of Chinese Primulas of twenty years ago will acknowledge what an advance has been made with these qualities in Primulas. It is worthy of note that in all cases the darkest palmate foliage makes an excellent habit. It has also been observed that in the case of pink and carmine-coloured flowers the eye is clearest, and the purer the clear lemon colour the better is the effect. What is the origin of the Fern-leaved character in Chinese Primulas? Mr. Martin claims it as a result of high culture; he remarks that one seldom sees sickly Fern-leaf types, and affirms that impoverished Fern-leaf plants will degenerate into palmate foliage. Broadly put, the Fern-leaf character has been evolved out of the palmate or old type of foliage, and among the progeny which represents Messrs. Sutton & Sons' latest crosses some can be seen in which the character of the foliage is intermediate between the two. One cross was exhibited in which the dark coloured Rosy Queen had been carried over to the delicate coloured Gipsy Queen, with its peculiarly dark foliage, and the dark flowers had resulted without the slightest change of foliage. In seeking certain definite results the fertiliser finds that the more opposite in character the two subjects he operates upon the longer is the time required to produce them.

The following novelties so obtained were seen in the best condition:—A beautiful and distinct double crimson variety, large and full, very fine, and having dark palmate foliage; a double carmine of similar colour and character of foliage, much paler in tint, very bright and effective; a double variety with Fern-leaf foliage of the Prince Arthur type; a charming double white Fern-leaf, of the purest white, and specially attractive; a variety provisionally named *oculata lutea*, with an unusually large clear lemon eye, and a margin of pale rose, which may, perhaps, be made the progenitor of a distinct section; another, with a large white star-like centre, having a broad margin of pleasing deep rosy-pink, and dark foliage, which must be regarded as a new departure; a variety with a clear Picotee edge, white, distinctly margined with delicate pink; and it is remarkable that the best form of this came from a Reading Blue and another; new type, the deep pink flowers blotched with white; a large lemon centre, and dark Fern-leaved foliage. From a clear single white has come a semi-double deep red, very rich in colour, and admirable in habit. A semi-double lilac-coloured variety is being crossed on to a good blue in the hope of attaining a double blue variety.

In looking over these new breaks, the eye is attracted by two types of a singularly eccentric appearance. One is a mossy or Parsley-leaved Primula, of Continental origin, at first with flowers of the poorest character, but considerably improved by patient fertilisation; and another Continental type with dark foliage and entire cordate leaves at the termination of long dark stems. This, too, has been much improved in flower and habit, and one has this season produced rich ruby-crimson coloured flowers, large, stout, and well fringed. Whether these curious freaks will ever have a commercial value remains to be seen, but among the crosses so carefully made at Reading nothing is overlooked, the one aim being to obtain as much variety as possible both in flower and foliage, the latter always in association with blossoms characterised as much as possible by the four points mentioned as essential to a comparatively perfect Primula. *R. D.*



## INDIAN NOTES.

MILLINGTONIA hortensis belongs to the Bigoniaceae, and is one of the finest trees of India. Even when comparatively young, with a stem about 12 or 14 inches in diameter, it grows to 40 or 50 feet high, and as straight as an arrow, while at its widest part it is not often more than 8 or 10 feet across. Like the Lombardy Poplar and Cypress in Europe, it is one of those trees which Nature has placed in the hands of the landscape gardener to enable him to vary the monotony of trees with a round head. The head of this Millingtonia is cylindrical, with foliage of the deepest green. The leaves are upwards of 18 inches long, imparipinnate, with a tendency to become decompound; the leaflets at the base and extremity of the pinnæ being larger than the intermediate ones. The inflorescence is terminal, and in loose compound panicles, with drooping, long, and narrow-tubed white flowers, which become subsequently slightly tinged internally with purple. The corolla is divided into five parts, and has a Jessamine scent. It has the rudiment of a fifth stamen, I suppose to indicate its relationship to the five-stamen section of plants. This beautiful tree flowers in November, when many other trees are turning of a yellowish green, and are beginning to shed their leaves. It rarely seeds. I have been in India since 1857, and although in Lucknow there are many "Neem Chameli" trees, as natives call the Millingtonia, I have only seen one tree bearing seed, and that sparingly, and only on its eastern aspect. The seed is contained in a Siliqua-like pod, about a foot long.

The Millingtonia is one of those trees expressly made by Nature for avenues, and as a matter of course it is rarely or never used for such a purpose! An avenue with three rows of Millingtonia trees on each side would be worth going a long distance to look at. It would thus have space not only for a carriage-road, but also side-ways for horses and pedestrians. As it grows straight upwards to a great height it would not spread over the road, nevertheless it would give plenty of shade on either one or other side, except perhaps for half-an-hour at mid-day, and that if the avenue were due north and south. Its not giving branches which would cover the road, as in a tunnel, is, I think, a great advantage in India—and, indeed, in all hot countries. The shade over a road during sunshine is grateful enough, but in the hot weather after sundown, when the open country has become comparatively cool, all roads overshadowed by trees remain for hours suffocatingly hot, owing to the trees obstructing the radiation of the heat absorbed by the road during the day. It is enough to pass from the open ground to that under trees to feel at once a great rise in the temperature. During the hot weather at night no one thinks of sleeping under a tree. On the open "maidan" it is cool, and sleep is possible, while under trees the air remains as hot as an oven.

The wood of the Millingtonia hortensis is soft and loose-textured, and almost worthless excepting as an inferior firewood. I was thinking that a combination avenue of tall trees, such as the Millingtonia, and some pretty round-headed tree, such as the Erythrina tuberosa, planted alternately, or three of one kind and one of the other, or *vice versa*, would make a novel and most charming thing. This tree is propagated either by cuttings or root-buds which are thrown up in the surrounding ground, especially of older trees. These root-buds serve, instead of seed-buds, to save it from extinction. E. Bonavia, M.D., Etawah.

## SATYRIUM NEPALENSE.

THE genus Satyrium had always been considered to be confined strictly to Africa, until from material obtained from the collection of Buchanan Hamilton in 1824, D. Don, in *Prodr. Fl. Nep.*, p. 26, published this curious and handsome species, giving the habitat as Sikkim, 7000—12,000 feet. In 1838 two other well-defined Indian species, *S. Wightianum* and *S. ciliatum* appeared, and three years later Achille Richard named three others, which he received from the Nilgherry collection of Perrottet, viz., *S. Perrottetianum*, *S. albiflorum*, and *S. pallidum*, but these Dr. Lindley considered were not botanically distinct from the varieties previously named. *S. nepalense* is easily recognised by its large coloured bracts and purple flowers. Our illustration

(fig. 38) gives—a, front view of flower; b, side view; c, back view; d, column; e, side view of the same; f, pollen masses; d, e, f, being enlarged.

The Satyriums, both African and Indian, grow well together if properly treated; and some day or other, when some of our clever Orchidists, who seem only to have to turn their attention to any genus in order to bring out its full beauty, can find time to arrange a low house of the same temperature as the Odontoglossum-house, but somewhat drier, for the reception of terrestrial Orchids, we shall see the golden, crimson, yellow, purple, and white spikes, with their numerous flowers, which travellers often tell us of, and our stray specimens exhibit, and then their beauty and fragrance will be appreciated. The Satyriums are all terrestrial Orchids, with tuberous or Orchis-like roots, the flower-spikes proceeding from the centre of the crown of leaves, which cap the last-made tubers.

After flowering they want a restricted supply of water for a month or so, but should not be allowed to get too dry, as the formation of the next season's root-growth soon begins; it is, therefore,

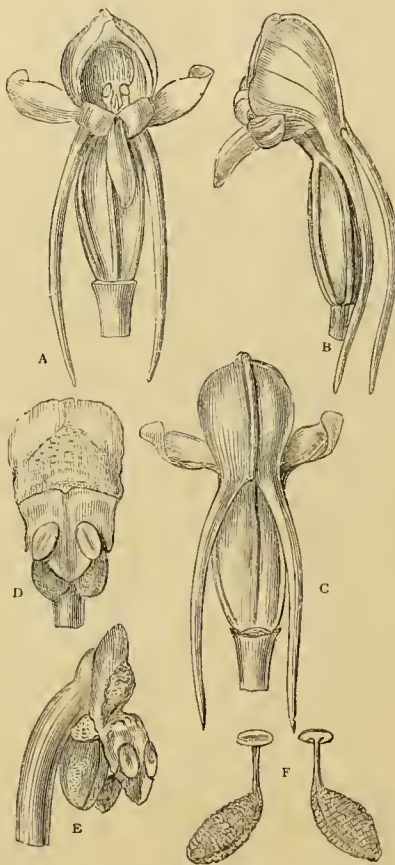


FIG. 38.—FLOWER OF SATYRIUM NEPALENSE.

A, Front view of flower; B, Side view; C, Back view; D, Column; E, Side view of same; F, Pollen-masses.

the best time to repot them soon after flowering, the material used being all sandy peat, or two-thirds sandy peat and one-third loam. James O'Brien.

## NOTES ON THE CULTIVATED ASTERS.—IX.

(Continued from p. 142.)

SUBGENUS V. CALIMERIS.—Bracts of the involucre subequal, uniform in texture throughout. Ray-flowers fertile, spreading. Pappus shorter than the achene, of few rigid bristles. Connects Aster with Boltonia.

47. *A. Thomsoni*, Clarke; Hook. fil., Fl. Ind., iii., 253. *Calimeris flexuosa*, Royle.—Stems hairy, erect, simple or branched, 1—3 feet long. Leaves large, thin, sessile, broadly ovate, acuminate, hairy, coarsely toothed, the lower 3—4 inches long, 1½—2 inches broad. Heads few, arranged in a lax corymb, sometimes solitary. Involucre broadly campanulate, ½ inch in diameter; bracts sub-

equal, lanceolate, acute, greenish. Expanded heads 1½ inch in diameter; ligules 30—40, whitish, ½ inch long. Achene clavate, hairy, ½ inch long; pappus white, shorter than the achene, composed of a few rigid unequal bristles.

Temperate region of the Western Himalayas. Our Kew plant was given us lately by the Rev. C. Wolley Dod. A very distinct and interesting species. *Calimeris incisa*, DC., which is common in gardens, and was classified by Fischer in Aster, is now placed by Benth in Boltonia. It has a very small paleaceous pappus.

SUBGENUS VI. GALATELLA.—Bracts of the involucre without any leafy tips. Ray-flowers sterile and reflexing irregularly. Leaves narrow and rigid, usually distinctly gland-dotted. Achene and pappus as in Orthomeris. This subgenus is confined entirely to the temperate regions of Europe and Asia. All the species are very closely allied to one another, and authorities differ widely as to their number and limitation. In a garden they catch the eye by the untidy irregular way in which the ligules reflex. Galatella has been usually kept up as a genus, but is merged in Aster by Benth and Hooker.

48. *A. acris*, Linn. *A. linifolius* and *hyssopifolius*, Linn. *A. punctatus*, W. and K. *A. dracunculoides*, Besser. *Galatella linifolia*, *hyssopifolia*, punctata, insculpta, pauciflora and biflora, Nees. *G. dracunculoides*, DC.—Stems firm in texture, terete, scabrous, stiffly erect, 1½—2 feet long. Leaves crowded, sessile, ascending, lanceolate, entire, acute, firm in texture, densely gland-dotted, the lower 1½—2 inches long, ¾—1 inch broad, obscurely 3-nerved. Heads very numerous, arranged in a dense panicle with corymbose branches. Involucre campanulate, ½ inch in diameter; bracts pauciserial, lanceolate, firm in texture. Ligules 8—10, bright lilac, ¼—½ inch long, reflexing irregularly. Achene densely persistently silky, slightly flattened; pappus copious, flexuose, whitish, nearly ¼ inch long.

The form as above described is the *Galatella punctata* as understood by Nyman, which he limits geographically to France and Italy. From this *G. insculpta*, Nees, of Hungary and Russia, differs mainly in its broader, more distinctly 3-nerved leaves, and the Siberian and East European *G. dracunculoides*, DC. (*G. pauciflora*, Nees), by its smaller heads and fewer ligules. *Aster linifolius* and *hyssopifolius* of Linnaeus, were both described by him under some misapprehension as American species. The former is a variety of the present species, with very narrow one-nerved leaves, and few very short ligules.

49. *A. canus*, Waldst. and Kit., Pl. Hung., t. 30. *Galatella cana*, Nees. *G. canescens*, Cass.—Stems erect, 2—3 feet long. Leaves sessile, lanceolate, entire, coated on both sides with persistent silvery tomentum, beneath which the glandular dots are hidden, entire, distinctly 3-nerved from base to apex, the lower 1½—2 inches long. Heads numerous, arranged in a dense panicle with corymbose branches. Involucre campanulate, under ½ inch diameter; bracts lanceolate, green, firm in texture. Ligules 8—10, bright lilac, ½ inch long. Achene densely silky, rather flattened; pappus copious, dirty white, ½ inch long.

Hungary, Moravia, Slavonia, and Servia. A very distinct species, well represented in the Kew herbaraceous ground.

50. *A. dahuricus*, Benth. *Galatella dahurica*, DC.—Stems stiffly erect, 2—3 feet long; leaves lanceolate, sessile, acuminate, copiously gland-dotted, the lower 1½—2 inches long, distinctly three-nerved. Heads numerous, arranged in an ample panicle with corymbose branches. Involucre campanulate, ½ inch diameter, well imbricated; bracts green, multiserial, lanceolate. Ligules twenty or more, pale lilac, ¼—½ inch long. Achene densely pilose, little flattened; pappus ½ inch long, white, flexuose.

Central Siberia eastward to Amurland. A near ally of *acris*, from which it mainly differs by its larger heads and more numerous ligules.

51. *A. trinervis*, Desf. *A. acris*, Willd. *Galatella acris*, Nees. *G. rigida*, Cass.—Stems scabrous, 1½—2 feet long. Leaves lanceolate, very firm in texture, very obscurely if at all gland-dotted, distinctly three-nerved, the lower 1½—2 inches long. Heads in a dense corymbose panicle. Involucre ½ inch diameter; bracts lanceolate, rigid in texture. Ligules 8—10, lilac. Achene and pappus as in *A. acris*.

South of France. Differs mainly from *acris* by its almost undotted leaves. The Siberian *G. Hauptii*, Lindl., of which *G. fastigiata*, tenuifolia, and squarrosa are scarcely more than mere forms, differs mainly



from the narrow-leaved forms of *acris* by its undotted leaves.

Subgenus VII. *LINOSYRIS*.—Differs only from *Gala-tella* by the ray-flowers being entirely absent.

52. *A. Linosyris*, Bernh. *Chrysocoma Linosyris*, Linn. *Linosyris vulgaris*, Cass.—Stems scabrous, stiffly erect. Leaves crowded, ascending, linear, 1-nerved. Heads many, in a dense corymbose panicle. Involucre campanulate,  $\frac{1}{4}$  inch in diameter; bracts pauciserial, lanceolate, acute. Ligules entirely absent. Achenes hairy, rather flattened; pappus  $\frac{1}{8}$  inch long, of copious white ciliated bristles.

Spread all through Europe from Britain to the Caucasus. There are about half a dozen other species

elsewhere; on all occasions staging specimens of a high order of merit; but the plants appearing in our illustration were universally regarded as the best he had ever placed in an exhibition tent. So much were the committee of the Bath show pleased with the specimens that they engaged the services of a photographer to make a picture of them on the spot; but after being two hours making the attempt, no satisfactory result occurred. After the plants were taken back to Clyffe Hall, they were photographed as seen in the illustration. Some idea of their height and dimensions can be realised by a comparison with the stature of Mr. Lye, who is standing by his plants and who is of average height. It should be mentioned, that previous to being photographed they

duced. Four of these are dark varieties, viz., Bountiful, Charming, Elegance, and the Hon. Mrs. Hay—the latter one of the oldest, but one of the freest, and scarcely without an equal for its great freedom of bloom. The remaining five are light varieties, viz., Lye's Favourite, Harriet Lye, Star of Wilts, Pink Perfection, and Beauty of the West.

The specimens figured average from two to five years of age. It is really marvellous what Mr. Lye can do with a *Fuchsia* in two years, and lest it might be supposed that he has plenty of glass accommodation and can keep his plants under glass continuously, it is due to him it should be stated that he is very deficient in house accommodation, having but two small houses, in one of which (a cold house) he winters his



FIG. 39.—MR. LYE'S FUCHSIAS.

of this subgenus in Siberia. It will be noted that the three subgenera dealt with in this instalment of my paper all belong exclusively to the Old World. *J. C. Baker.*

(To be continued.)

### LYE'S FUCHSIAS.

THE group of *Fuchsias*, an engraving of which appears at fig. 39, represents a collection of nine specimens raised and exhibited by that well-known cultivator, Mr. James Lye, of Clyffe Hall Gardens, Market Lavington, at an exhibition held in Bath in September last, and which received the 1st prize in the premier class for that number of plants. For many years past Mr. Lye has exhibited *Fuchsias* at exhibitions held at Bath, Trowbridge, Devizes, Calne, Chippenham, and

had travelled by road from Market Lavington to Bath and back, a distance of 52 miles, in addition to having been exhibited two days. They returned to their home apparently little the worse for wear, which immunity from harm is no doubt owing to the admirable system of tying adopted by Mr. Lye. It is sometimes said that the act of tying-in the flowering shoots in this manner gives the plants a somewhat severely formal appearance, but there is an abundance of healthy foliage and a wonderful profusion of finely developed flowers, showing the most careful and painstaking cultivation. It is only those who are privileged to see these unrivalled plants who can appreciate them at their proper worth.

It has been stated already that the varieties figured are all of Mr. Lye's own raising, which fact attests to the value of his seedlings, many of which he has pro-

plants and brings them on until he can place them with safety in the open air in early summer. His method of treating the specimens as set forth in his own words may prove helpful to some of our readers:—"After the plants have done flowering, say about the third week in October, I cut them back into the shape best fitted to form symmetrical specimens, and keep them dry for a week or ten days, to check the bleeding of sap which follows; after that I give a little water just to start them into growth so as to make shoots about three-quarters of an inch in length, in order to keep the old wood active and living. I keep them in a cold house, and give but very little water until the first or second week in February, when I shake the old soil from the roots, and repot them into a fresh compost made up of three parts good loam, one part well decomposed manure, and one



part leaf-mould and peat, with a good bit of silver or sea-sand to keep it open. In order to make large specimens they are shifted as soon as the pots are filled with roots. About the first week in June I place them out-of-doors on a border somewhat sheltered, and syringe the plants freely every day during hot weather to keep the foliage clean and healthy. I top them back till about seven or eight weeks before I want to show them, according to the requirements of the variety, as some of them require it to be done more freely than others. I give them liquid manure, using what I get from the cows, which with some soot is put into a tub, and allowed to stand a week or ten days before using, and I give them a good dose once a week as they show signs of flowering." In order to preserve his plants from the effects of hail and very heavy rains, a rough framework is erected, and over this is stretched some floral shading, which can be readily removed when required; it also serves the purpose of shading the plants from the sun in very hot and scorching weather.

During his career as an exhibitor of Fuchsias Mr. Lye has taken nearly one hundred 1st prizes—a measure of success which fully justifies the bestowal of the title of being the Champion Fuchsia Grower of his day. R. D.

### EUCHARIS AMAZONICA.

As this subject seems to have approached a crisis in which it bids fair to be thoroughly threshed out, may I, by your kind permission, trespass on your valuable space just to offer a few remarks on this long agitated question? We have a house devoted to *Eucharis* and *Gardenias*, with climbers growing on the roof; it is a span-roofed structure, running east and west. In the centre of this house there is a bed 45 feet long by 8 feet wide, enclosed by a brick wall 3 feet high; around this bed, outside the brickwork, we have two rows of 4-inch pipes. This bed is filled with pebbles to within 6 inches of the top, to hold moisture, and on the top of this bed we have a stage 6 feet high, with five shelves, one on the top and four on either side and ends, and on this stage we stand our *Eucharis*. On either side of this novel stage we have beds with *Gardenias* planted out, and *Allamandas* to cover the south side of the roof, and *Stephanotis* to cover the north side; these are also planted out, and, I may add, the whole structure is heated by ten rows of 4-inch pipes. The *Eucharis* were shifted in April last from 24's and 16's into 12's and 8's size pots, while some of the more vigorous were put into 6's into a compost consisting of three parts turfy loam, one part fibrous peat, and one part old hotbed manure and silver-sand. After potting they were stood on the stage and received but little water at the roots until they began to push through, but were syringed overhead five and six times a day during bright weather, and the paths and every other surface being kept sprinkled a very moist atmosphere was maintained, the temperature being kept at 70° at night, 85° by day, 90° with sun-heat, and during this time the *Allamandas* formed a dense shade overhead. As soon as the *Eucharis* roots had reached the sides of the pots they were supplied liberally with soft water, and with this treatment they had by the end of June filled their pots with large white fleshy roots, and made foliage 3 feet long and 8 inches wide, of a beautiful dark green colour, without a spot or blemish of any description. At this period they were kept somewhat drier at the roots, and were syringed overhead less often; the temperature also was allowed to drop a few degrees, during which time they seemed to enjoy a comparative rest, and the first week in August the first flower-spikes appeared, about 106 in the whole batch; and since that date, by a systematic course of treatment, they have flowered five consecutive times, giving us from 100 to 250 spikes at each flowering, and from four to seven flowers on each spike, the individual flowers measuring from 4 to 6 inches across, and this same batch are again coming into flower for the sixth time in six months, and I may mention all this has been accomplished in the same house without dividing the plants into batches, dried off, or rested, as I often see recommended, and I expect another crop from the same plants at Easter, after which time they will be again dealt with as last year. The fact of the matter is this. To cultivate *Eucharis* successfully three great essentials must be observed, viz., heat, shade, and moisture. Each of these must

be given them in correct proportions, which under the varying circumstances of different gardens can only be indicated generally. They cannot withstand the direct piercing rays of the sun or a dry hot atmosphere, and they are equally unhappy in a wet and cold atmosphere. Each of the above will cause the healthiest of plants to become weak when the miserable state of things termed disease follows. I may add when our *Eucharis* were potted no respect was paid to size of bulbs; small and large were potted together in the same pot, and by way of variety some were potted covering the bulb about half way, others were buried entirely, and others were put almost hard on the crocks, and the results in each case were precisely the same. Our treatment during the past five months has been to syringe overhead three and four times a-day, weather permitting. The paths, which are of cement, are always sprinkled with water, and the atmosphere is at all times heavily charged with moisture. By these means, when carrying a crop of flowers, they are supplied at every alternate watering with weak liquid manure made of the drainings of the horse stable. The temperature is 65° at night, 70° by day, 75° with sun-heat, unless in frosty weather, when the thermometer falls below the above readings. H. H., West Brighton Nurseries.

## Orchid Notes and gleanings.

### LÆLIA ANCEPS.

THE large importations of this species being sold in London and elsewhere comprise specimens of great size, and some of them quite remarkable as to variety. Evidently the white forms are very plentiful, as a sheaf of spikes on which were the dried flowers was exhibited in Stevens' rooms last week. All of them that have yet flowered follow the original *L. anceps* Dawsoni in having coloured lines or other markings on the lip, the sepals and petals being white. Orchid fanciers will look forward to the flowering of these recent importations of the white form with great interest, as they will not only vary in the colour of the lip, but the sepals and petals will be purer, broader, longer, and differently suffused with blush, in some forms more than in others. The bulbs which some of these recently introduced *Lælias* have made in their native haunts are of uncommon size and substance. They are just right to start into growth at once with the established plants, which will also do so as soon as they have done flowering. This is a good time to repot any plants that may require it. The characteristic habit of this species is to form elongated pseudobulbs with a woody stem of some length; these stems have a tendency to push the bulbs over the sides of the pots, or upwards, amongst other old bulbs. The roots will then form outside of the compost in which the plants are potted. It is the nature of the plant to do this, and it is bad management to place peat or any other matter in contact with them. The roots have great attractions for slugs, &c., but these pests must not be allowed to interfere with them. *Lælia anceps* is not like *L. majalis*, *L. autumnalis*, and some others that will flower for a year or two and speedily degenerate. I have grown the same plants, and flowered them successfully for twenty years. A plant of this kind becomes an old and valued friend, which we look to welcome us with its lovely flowers during each recurring winter. It does best in a light position in the *Cattleya*-house, and the plants should be potted in the first place, just as *L. purpurata* or *Cattleya Mossie* is potted, with the pots filled two-thirds full with clean drainage, the remainder with good fibrous peat, sphagnum, and broken pottery with it. The newly imported plants must have a good hold of the compost, it must be pressed in firmly around the old bulbs; if the plants can be readily moved in the pots they will not be likely to do well. J. Douglas.

### CYRTOPIDIUM CARDIOCHILUM.

This interesting species is well figured in the *Orchid Album*, but the Editor states that it has gone out of fashion. It is a small genus of Orchids well worth cultivating, as the flowers are not only showy, but they are well set off by the noble growth of the plants. The flowers are also sweet-scented. The species alluded to was introduced so long ago as

1846. *C. punctatum*, introduced from Brazil in 1823, is also a very handsome plant. These Orchids should find a place in all large collection. The Editor states that the plants require plenty of pot-room, to be potted in fibrous loam and decayed manure, and to have free exposure to light, shading only when the sun is very powerful. J.

### DENDROBIUM HASELTI.

A native of Java, with erect slender stems and sheathing lanceolate leaves, from whose axils emerge short racemes of small rosy-lilac flowers with a well-marked triangular spur. The species was originally described by Blume, and is figured in the *Illustration Horticole* for January, tab. 545.

### ORCHIDS AT MESSRS. J. VEITCH & SONS.

*Saccolabium bellinum* is quaint and interesting, the ground colour of its flowers is yellow, with heavy deep maroon spots, and a fringed labellum. The advance guard of *Cattleya Trianae* is in flower, and with them are to be seen some of the later blooms of *C. Percivaliana*. The contrast between the two species is very great, especially when the pale forms of *C. Trianae* are compared with the brilliant coloured labellum and deeply tinted sepals and petals of *C. Percivaliana*. G. G.

## FORESTRY.

### WORK FOR FEBRUARY: HEDGING.

FINISH as early as possible the trimming of Thorn and other fences. Plant young hedges in ground previously well prepared by trenching. Such work would have been much better performed during autumn, as the Hawthorn is one of our first plants to start into growth. Repair old fences by planting strong bushy plants of Privet, Beech, or Thorn in the gaps. Hedges seldom receive the attention they deserve, and are too often entrusted to those who are practically unacquainted with their management. Cleaning the sides of live fences is, although usually considered of minor importance, one of the greatest aids in the promotion of a healthy useful fence, and should be annually attended to. The various railway companies are certainly to be commended for the very efficient manner in which their hedges are usually managed.

### DRAINING.

Plantation and other drains should now receive attention, and all accumulations of branches and debris should be removed from their course. Scour out, widen, and deepen woodland ditches, and, where necessary, cut new drains for the removal of stagnant water. It will be found a good plan to have the mouths of closed drains examined weekly, more especially during winter, and all obstructions removed therefrom.

### ROADS AND WALKS.

Keep these in a good, sound, passable condition at all times, avoiding ruts and surface irregularities which are anything but pleasant to foot or other passengers. Take advantage of dry, frosty weather for the cartage of stones, gravel or screenings required in their repairs. Now is a good time to construct new roads and walks, or metal such as have by heavy traffic become worn down and irregular on the surface. After applying the metalling give a slight covering of gravel or screenings—the latter is preferable, and press all firmly down with a heavy roller. The gratings of roadside drains will also require attention to prevent their becoming choked with small twigs and sediment.

### GENERAL WORK.

Prepare and stack faggots for home consumption, and when perfectly dry have them carted under cover for use as required. In the pleasure ground fork shrubby beds, peg down evergreens where their extension is desired, and replace any dead plants by others of a different kind from the nursery border. Where *Rhododendrons* are planted on poor clay soils a dressing of cow-dung and leaf-mould will not only promote rapid growth but add a decided lustre to the foliage. Levelling and ground-work improvements may also, during favourable weather, be carried on, and Furze, Briers, and other objectionable vegetation may be grubbed up and removed from the greensward. Manures previously carted should now be turned and all nursery compost heaps well mixed up before



being applied to the breadths and borders. Arboreal vegetation looks remarkably well, and has every appearance of producing strong shoots and being unusually floriferous during the coming season. Where old trees are considered worthy of preservation all dead branches should be removed therefrom, hollows or decayed places filled up or covered over to prevent the ingress of water, and a trench formed all around them and refilled with some rich loose compost. The soil close to the stem should also be thoroughly loosened and mixed with leaf-mould, or well decayed farmyard manure. Saw-mill work should be well forwarded during the present month, and a stock of charred and tarred gate and paling posts got ready for spring fencing. The latter is well worthy of attention, and may be engaged in during winter, when the inclemency of the weather prevents the workmen from pursuing their usual occupations. Collect all prunings, more especially those of the Yew, Laurel, and Box, and have them either safely disposed of or burned on the ground. Yew and Box are deadly poison to many animals when in a half withered state, as the numerous recorded cases only too plainly show. Continue to collect the refuse and debris of plantations, which, although it may not be saleable, or even pay the cost of collecting, still, to insure healthy crops of trees free from the attacks of insect pests, it is really of the utmost importance that woods be gone over annually to clear them of all fallen timber and decaying refuse.

This season, for the first time, I have seen the Corsican Pine (*Pinus Laricio*) infested by the Pine Beetle (*Hylurgus piniperda*), but it is but right to say that the trees, which had been planted the previous summer, were in a very unhealthy state at the time they were attacked. The origin of the beetle was clearly traced to decayed Pine branches that had been left about when removing blown-down timber during the previous season.

#### THINNING.

Excellent opportunities have been afforded by the open weather of the past month for the general felling of underwood, and bringing up of all planting arrears. Hardwood plantations, Oak excepted, should, as far as possible, be finished this month, before the buds begin to expand, after which they are liable to damage and disbudding by the falling thinnings. Where practicable dispose at once of all thinnings, and take advantage of dry frosty weather for the removal of timber into lots or convenient stations for loading, always bearing in mind that good roads considerably enhance the value of timber generally. The thinning of plantations should be executed gradually, and with great caution, and always proportionately to the exposure, if the remaining trees are to retain their health and vigour. Avoid over-thinning the outer lines of trees, more especially on the exposed or windward side, and look more to the benefit of the remaining timber than to the value of the produce cleared out.

#### ROOTS.

Wherever trees have been blown over, but more particularly within the policy grounds, all other work should be suspended until they are removed, as few things have a more neglected or untidy appearance than fallen trees with upturned roots, especially where visible from drives and walks. The cheapest and most effectual way of disposing of tree roots is to dig a large pit immediately behind them, and into which they will fall when severed from the trunk. Not less than 2 feet of soil should cover such roots.

#### PRUNING.

Prune branches that have become broken or twisted by the late gales, and paint the wound caused by amputation with tar or composition specially prepared for the purpose. The wound should be carefully dressed with an adze or sharp pruning-knife and made perfectly smooth previous to applying the tar or composition.

#### NURSERY.

The nursery will now claim the almost undivided attention of the forester who has had much planting on hand. By the end of the month all seedlings should, if possible, be planted and the work of the home nursery should be well advanced. In planting seedlings give plenty of room, not only between the individual plants, but the lines as well, so as to admit of plenty of room for weeding and keeping these in a proper healthy condition. For hardwoods generally 5 inches

between the plants and 18 inches from row to row will be sufficient; Larch, Scotch Fir, and Spruce may, however, be planted closer, say 12 to 15 inches between the rows, and 3 or 4 inches from plant to plant. During fine weather sow seeds of Ash, Sycamore, Beech, Elm, and Thorn in ground previously well prepared and broken up. The beds may be 3 feet in width and 18 inches apart. Plant cuttings of Elder and Poplar, the former with one eye below-ground and two above; and the latter, selected from the thick end of the last year's shoots, 6 inches below-ground and 2 inches above. In nursery management it should always be remembered that deep planting is highly injurious to trees of all sizes. Overcrowding should also be sedulously avoided, a fact that is at once apparent by the number of ill-grown, weakly plants sent out by some of our nursery firms.

#### FENCING.

Pay attention to all woodland fences, gates, tree guards, and rabbit-proof wire nettings, and where these have become damaged or broken repairs should at once be executed. At this season many of the rarer coniferous and other trees are apt to be injured by ground game; this can only be avoided by surrounding them with wire-netting, or where bare stems occur by frequent applications of Davidson's composition. Tar is also useful, but becomes a tiresome application from the frequency with which it requires renewing. The latter should never be applied wholesale, but with the utmost caution, especially to the stems of the Holly and kindred plants. The moorings of ornamental park trees, one of the fencer's duties, should, especially during stormy weather, receive careful attention at least once each week. *A. D. Webster.*

## THE PROPAGATOR.

### THE PROPAGATION AND CULTURE OF ANTHURIUMS.

(Continued from p. 83.)

ANTHURIUM ANDREANUM is a splendid plant, and for brilliant colour almost surpasses the well-known *A. Scherzerianum*, and, therefore, well deserves special attention from the gardener. From seed it can be raised in large quantities, and as success will very much depend upon its quality the seed should not be purchased, but should be raised by personal fertilisation. In fertilising a small camel's-hair brush should be brushed along the spadix from end to end and around it. This should be done three or four times at intervals of two or three days. The plants fertilised should be separated from the others, and placed together in a part of the house where they will be out of the reach of the syringe. If they throw up any leaf-growth it should immediately be pinched out, so that seed-ripening alone may be encouraged. As soon as the seed is ripe it should be gathered and cleaned. There is a glutinous substance surrounding the seeds from which they should be freed. To do this it is a good plan to take the ripe fruits between the finger and thumb, squeeze the seeds out, and thinly spread them over a sheet of paper upon which a little finely sifted dry sand should have previously been shaken. After a few hours the seeds will have become somewhat dry, and can be brushed into a small pan ready for sowing. The most convenient pans for the seeds are those of large, deep, 48-size, and well drained. These should be filled with soil composed of one-half peat, one-quarter loam, and one-quarter silver-sand, to which should be added small quantities of finely broken potsherds and well-chopped sphagnum moss, besides a little charcoal, the whole to be well mixed together, and rubbed through a  $\frac{1}{4}$ -inch sieve. The soil in the pans should be made  $1\frac{1}{2}$  inch higher in the centre than the rim of the pot, to which it should be made to slope gradually, and after the pans have been well watered the seeds can be sown lightly on the surface of the soil, but they must not be covered with it. The pans should now be placed in a cutting-case or frame upon a gentle bottom-heat; if the case be a deep one they should be placed upon inverted pots, so as to bring the seed-pans as near the light as possible. Here they must be watered with a fine rose-pot as soon as they become dry, and shaded from the strong rays of the sun, and besides this they should be ventilated for

one hour both night and morning. When the seedlings have grown an inch in height the pans should be taken from the case and stood upon the open bottom-heat. At the expiration of a few days they can be potted each into a small thumb-pot, and must again be put in the cutting-frame near the glass; they must now receive a good watering, and every night and morning sprinkled with a fine rose-pot, shading them lightly, and for ventilation the lights of the cases must be raised an inch both in front and behind, and the air should not be taken off either during the day or for the night. The plants should be treated in this manner until they are strong enough to be potted into larger pots. For a few days before the plants are taken out of the case for this purpose more and more air should gradually be given them, and before potting them they must be allowed to stand a few days upon the open bottom-heat. They can at the end of that time be potted into small 60's, and must be replaced upon open bottom-heat, and sprinkled night and morning with a fine rose-pot. When they have rooted through the soil, and have gained sufficient strength, they should be potted into large 60's, and then moved to a front platform in a good growing house. Here they must be well watered at the roots, and slightly syringed or sprinkled as before, besides being shaded from the sun, and upon every fine day liberally supplied with air. When they again require larger pots they should be potted into large 48's, and again into a larger size if necessary.

#### SOIL.

With regard to soil, at and from the time the plants are potted into small 60's the following mixture should be used:—One-half good turfy loam, one-quarter fibrous peat, and one-quarter river sand, to which should be added small quantities of chopped sphagnum moss, ballast, or finely broken potsherds, and charcoal broken into pieces of Walnut size. It should be kept in mind that, in potting, the crowns of the plants must be kept about an inch above the level of the rim of the pot. The seeding of Anthuriums is well worth doing, as the seedlings give a quantity of compact plants which often thrive better than those from cuttings. This variety can also be increased by division. To do this what is called the crown of the plant should be taken out with a sharp knife, *i.e.*, a piece of the main stem or top shoot, which should have two or three roots attached to it. Each of these pieces should be firmly potted into small 60's, placing to each pot three sticks, forming a triangle, and tying to each of the sticks one of the three principal leaves on the cutting in order to keep them firmly in the pots. A little sand should be put at the base of each piece in potting, and when they have been potted they must be well watered and placed in a cutting case or frame. To the case they must be kept well watered and shaded from the sun, and air should be given them for an hour at night and in the morning, but as soon as they have well rooted through the light of the frame should be raised an inch, and kept so both day and night for a few days before they are turned out upon the open bottom-heat. Here they should remain until they are a little hardened, when they should be potted into large 48's and put in a good growing house to be treated in the same way as the seedlings.

#### STOCK PLANTS.

The plants that have been cut down will be very valuable as stock plants, and should therefore be taken great care of. A stick should be placed in each, and the leaves looped up to it as erect as possible, and in order to prevent the exudation of sap a little dry sand should be put upon the surface of the cut for three or four days. When this has been done they should be replaced upon the bottom-heat, and if care be taken they will continue for years to throw up young growths, and as soon as these are strong enough they can be taken off and put in as cuttings.

The treatment above given can be applied to all Anthuriums of like growth, such as *A. crystallinum*, *A. magnificum*, *A. Dechardii*, *A. floribundum*, *A. hybridum*, *A. ornatum*, *A. regale*, *A. tenuissimum*, *A. Veitchii*, *A. Warocqueanum*; besides these there are a few climbing or trailing varieties which propagate very freely. The cuttings should only have one leaf and one eye, and should be put in in the ordinary way. They root freely, and will soon form good plants. *T. O.*



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Feb. 16	Sale of 5000 <i>Lilium auratum</i> , at Stevens' Rooms.
TUESDAY, Feb. 17	Sale of Valuable Imported Orchids, at Protheroe & Morris' Rooms. Clearance Sale of Nursery Stock, at Newing's Nursery, Deal, by Protheroe & Morris.
WEDNESDAY, Feb. 18	Sale of Lilies, Roses, and Plants from Belgium, at Protheroe & Morris' Rooms. Sale of Roses, Fruit Trees, Hardy Plants, and Flowering Orchids, at Stevens' Rooms.
THURSDAY, Feb. 19	Meeting of the Linnean Society. Sale of Imported Orchids from Mr. Sander, at Stevens' Rooms.
FRIDAY, Feb. 20	Sale of Valuable Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY, Feb. 21	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

THE annual general meeting of the ROYAL HORTICULTURAL SOCIETY was held on Tuesday last, in the conservatory, under the presidency of Sir TREVOR LAWRENCE. The report, which will be given next week, was taken as read and the financial account—which, *mirabile dictu*, shows a balance in favour of the Society to the extent of £28—was also passed without material comment. The manner in which the books are kept, we may add parenthetically, reflects the utmost credit on the accuracy and neatness of Mr. DOUGLAS DICK, the Financial Secretary. The most serious item in the report is the large number of resignations and of defaulters. While we regret the loss of cash that this involves, it is abundantly evident that the Society can get on very well without such less than lukewarm support, and that a smaller body of Fellows who are really interested in horticulture, and an earnest Council devoted to carrying out the legitimate objects of the Society, are much more likely to manage the Society's affairs usefully and creditably than a larger number of adherents caring nothing for horticulture proper. While, on the one hand, there has been, as every one expected there would be, a large falling off in the South Kensington element, on the other the Society has been freed from debt and freed from the incubus of keeping up the Kensington Garden. Indeed, so far from that garden, or what remains of it, being a drag on the Society, it was paid for maintaining it in order by the Health Exhibition Committee last year, and similar arrangements, satisfactory to all parties, have been entered into for the present year. So far, then, things are going on smoothly. There is an excellent Council, and the additions made on Tuesday will strengthen it materially. The improved spirit as compared with that which was evinced during the years of terror, is manifest, even in the tone and wording of the report. It is evident that the present Council appreciates the legitimate work of the Society, and endeavours, so far as circumstances permit, to carry it out. And here it is fitting and just that cordial acknowledgment should be made of the services of Lord ABERDARE, the retiring President. His Lordship claims no special merit as a horticulturist, but his rule has been eminently judicious. Elected at a time when the Society was at the very lowest ebb—in debt and difficulty, despised outside and torn by faction inside—Lord ABERDARE undertook no enviable office. Nevertheless by his courtesy, tact, and business management, he conciliated opposing parties, saw the Society through its disastrous law suits (undertaken, it will be remembered, in vindication of the honour and good faith of the Society), and now, finding the Society's affairs in a satisfactory condition and general harmony prevailing, he retires, simply because he is overburdened by the weight of other public and official duties. The Fellows at large will cordially join in the vote of thanks proposed by Sir TREVOR LAWRENCE, and seconded by Mr. GUEDALLA, in the following terms:—

"The Royal Horticultural Society desire to express to the Right Hon. Lord ABERDARE their grateful acknowledgment of the eminent services he has rendered to

them during the ten years he has been their President—services which largely contributed to the extrication of the Society from a position of serious embarrassment and difficulty. The Royal Horticultural Society greatly regret his Lordship's resignation, owing to the pressure of other engagements, of a post which he has occupied to their signal advantage."

And now, having sped the parting guest, it is a pleasure indeed to welcome the incoming President. Sir TREVOR LAWRENCE, as President of the Royal Horticultural Society, is, to all intents and purposes, the right man in the right place at the present time; and with the strong Council to back him, we may look on the prospect as encouraging. The proposed exhibition of Orchids and the Conference thereupon, will be looked forward to with the greatest interest.

We trust that speedy steps may be taken to secure adequate accommodation for the Fellows, who now have no place even to sit down in. A meeting-room is sorely wanted, and if this could be obtained temporarily, and provisionally, we could wait a little longer for the much needed offices and accommodation for the library. Surely it would be possible to find some corner in which a temporary reading room for the general use of the Fellows could be erected pending the acquisition of that more ample permanent accommodation which is so urgently needed. Reverting to the proceedings at the general meeting, it may be added, that Mr. LIGGINS and others made some comments on the Society's proceedings, and that Mr. SHIRLEY HIBBERD urged the Council to take steps to secure a larger number of exhibitors among amateurs and others unconnected with trade interests.

— THE PARKES MUSEUM.—The large and valuable collection of books in the Health Section of the library of the International Health Exhibition—consisting of about 1500 volumes—has been presented to the library of the Parkes Museum. Special arrangements have been made for the admission of students to the library and reading room.

— ROSE W. F. BENNETT.—We understand that Mr. EVANS, of Rolandsville, Philadelphia, has purchased the whole stock of this Rose, and that it will be sent out this spring by Messrs. W. PAUL & SON, of Waltham Cross. Mr. EVANS has also purchased "Her Majesty," the price for the two Roses, we believe, having been not less than £1600.

— PALERMO BOTANIC GARDEN.—We have received the catalogue of seeds offered in exchange by the Palermo Botanic Garden.

— STRELITZIA REGINA.—There is a fine plant of this species carrying the unusual number of seventeen spikes, at Cac Gwyn, the residence of T. F. MADDOCKS, Esq. This is a subject of easy culture that should be more commonly grown, the handsome bird-like flower of gorgeous colours being always striking.

— LINNEAN SOCIETY OF LONDON.—A meeting will be held on February 19, at 8 P.M., when papers will be read:—"Recent Ephemerideæ or May Flies" (Part III.), by Rev. A. E. EATON; on "Mosses of the genus *Fissidens*," by W. MITTEN, Esq.; and on the "Structure of Ambulacra of living *Diadematidæ*," by Professor DUNCAN.

— THE COMING FORESTRY EXHIBITION.—The prospectus for this Exhibition is now before the public, and those who take an interest in such matters may judge of what the promoters propose. An exhibition of this kind might be made to cover an immense field; in fact, to include virtually everything of importance wherein wood enters into the construction. After looking over the prospectus that which will most strike the reader is the improbability of there being anything approaching a complete exhibition of useful and ornamental trees and shrubs, combining the immense number of species and varieties of deciduous and evergreen kinds that will thrive in this country, and of which not a few of the deciduous sort—although they may have been long

enough in the country—are not so well known as they deserve to be. A representative group, such as a good many of the leading nurserymen in the kingdom could exhibit, would cover a good deal of ground, and at the price the executive require (18s. per yard super), would amount to a sum that, if we are not mistaken, few, if any, will be found willing to pay. The cost of exhibiting groups really representative, such as we have indicated, would be no trifling matter in itself, leaving out of account having to pay heavily for being permitted to do it.

— A NEW SEEDLING DENDROBIUM.—There is a very pretty hybrid *Dendrobium* now in flower at Messrs. VEITCH'S; it is interesting as being raised from the hybrid *D. endocharis*, which was the pollen parent, the seed bearer being *D. nobile*. The flower is best described as a pale nobile, but it retains the sweet perfume of the original parent *D. aureum* (*heterocarpum*). *Trichoglottis cochlearis* in flower is also very pretty; it has small clusters of white flowers heavily barred with crimson.

— ORCHID CONFERENCE, 1885.—The Council of the Royal Horticultural Society invite the attention of the Fellows, and of the cultivators of Orchids generally, to the Conference on Orchids, which it is proposed to hold in the Conservatory, on May 12 and 13, and at which the President, Sir TREVOR LAWRENCE, Bart., M.P., will preside. The "invitation" proceeds:—

"The cultivation and popularity of Orchids have extended rapidly of late years, owing to the singular beauty and variety of their flowers, the large and frequent importations, and the introduction, or the raising by hybridisation, of rare and beautiful novelties. The Council hope to assemble at the proposed Conference a thoroughly representative exhibition of Orchids, embracing plants in flower and in seed, and cut flowers, and illustrating the results obtained by hybridisation, the modes of growth, the methods of cultivation, and the appliances and soil used. Several of the chief growers, amateur and professional, have already promised their support. Fellows of the Society, and cultivators of Orchids generally, are invited to contribute to the Conference, so that the exhibition may be as varied and interesting as possible. In all cases, where practicable, the following information should be given, viz.—(1) Name; (2) Native country, if imported; (3) Parentage, if a hybrid. The plants will be staged in the conservatory, where the atmosphere will be especially attended to, so as to ensure in all respects the well-being of the plants. Staging must be completed by 11 o'clock A.M., and all exhibits may be removed after 6 o'clock P.M. on the second day, Tuesday, the 12th, the ordinary meeting day of the committees, will be devoted to a general examination of the various subjects presented. The doors will be open at 12 noon. On Wednesday, the 13th, the Conference will meet in the conservatory for the reading of papers and discussion, the chair being taken by the President at 10.30 A.M. precisely. Notice of intention to exhibit, with amount of space required, must be sent to Mr. BARRON, Royal Horticultural Society, South Kensington, on or before Friday, the 8th of May."

— MR. B. S. WILLIAMS has received a warrant appointing him Nurseryman to H.R.H. the Prince of WALES.

— POLITICAL FLORICULTURE.—Sir STAFFORD NORTHCOTE, speaking at Exeter recently, remarked that the present age seemed the age of the language of flowers. They knew that one flower was associated with the reputation of a statesman whose name would ever be remembered with esteem. He alluded to the Primrose and Lord BEACONSFIELD. It would be difficult to give Mr. GLADSTONE's flower, because he was more at home among trees. Mr. CHAMBERLAIN admired the Orchid, a strange imported flower which had to be nursed with tender care, could not be exposed to the climate of England, and had to be maintained by hothouse shelter. On the other hand, the Conservatives had chosen the Primrose as their flower, found everywhere, and which was a type of fresh hope, fresh determination, and fresh interest to man. The flowers were faithful to the stems, the stems to the root, the root to the rock to which the plant adhered (!), and this indicated the true spirit of the Conservatives of England. Sir STAFFORD apparently understands more about the flowers of rhetoric than he does about the flowers of the field or the garden. We deplore the association of flowers with party politics of any denomination, but if orators will use metaphor, they should take some pains to



use it correctly. We are afraid Sir STAFFORD would stand little chance of election if it depended on a jury of physiologists, florists and gardeners. But, perhaps, the worst offenders in this line are the clergy, which is the more remarkable as many of the cloth are devoted gardeners.

— NATIONAL AURICULA, AND NATIONAL CARNATION AND PICOTEE SOCIETIES (SOUTHERN SECTION). — The schedules of the above societies have been issued to all subscribers, as far as their addresses could be ascertained. There may be members who subscribed for the first time in 1884 who have not yet received them. The New Treasurer (Mr. ROLT, of 170, Hartfield Road,

have large corymbs, and are good growers. There are some new Fuchsias, both single and double, in Fleuve Rouge, Formosa, General Lewal, Indo-Chine, and La France. Some fine zonal Pelargoniums, as Capitaine Krebs, Capitaine Renard, G. Bentham, Henri Martin, J. B. Dumas; and double-flowered varieties in Bastian-Lepage, Friant, Petitjean, Prouve, Abutilon Thompsoni flore-pleno, Begonia manicata aureo-maculata. M. BRUANT, Poitiers, Vienne, France, offers a fine-habited subtropical in Verbesina Mameana, an elegant Bromeliaceous plant in Caraguata Andreana, Pitcairnia Maroni, a hybrid between P. Altensteinii (the pollen bearer) and P. corallina (the seed bearer), the colour a scarlet-crimson; Dahlia reduplicata, very distinct; Hedera helix

*Botanical Magazine*, t. 6184, and a large specimen is in cone amongst the Cycad collection in the Palm-house at Kew. Cones have also been produced there on former occasions. The large seeds are ground by the natives of Mexico and used as Arrowroot; hence the specific name.

— ALOCASIA REGINÆ is a remarkable novelty, which differs completely from the other species of the genus known in cultivation. There are so few of the Aroids which are pubescent, that if the pubescence exists in one of them that constitutes at first a very distinct character, and one of the most easy to recognise. The existence of hair on the petiole and on the lower face of the medial nerve, and of the



FIG. 40.—MEMBLAND HALL. (SEE P. 205.)

Wimbledon) has, it is asserted, applied twice to Mr. DODWELL for an account of the funds and a list of subscribers for last year, but has not yet received any reply. Under those circumstances the Treasurer would be glad to receive promises of support. This can be given in various ways. The first and best is for each subscriber to obtain a new schedule. The second would be for those interested in the success of the societies to double their subscriptions; or thirdly, to give a donation for this year, and so place the societies again on a sound financial basis. Members who have not yet received copies of schedules and a subscription form can do so by applying to Mr. ROLT.

— SOME CONTINENTAL NOVELTIES. — M. LEMOINE'S novelties in flowers: — Three Bouvardias: Triomphe de Nancy, Sang Lorraine, V. Lemoine; all of them—some shade of scarlet—pretty, and having double flowers. They are abundant bloomers,

aurantiaca, fruit orange-red; Monina obtusifolia, a shrub having persistent leaves, belonging to the Polygala family; Vriesia fenestralis, an introduction from Brazil; Philodendron Mamei, a strong-growing Aroid from Ecuador, by M. ED. ANDRÉ.

— DIOON EDULE. — To the uninitiated the huge cone of the female plant appears like an immense flower-bud about to burst open. It is ovoid in shape, and consists of a densely imbricated, erect mass of scales, closely enveloped with hairs, that give to the cone as well as the leaf-stalks a hoary appearance. The elegantly pinnatifid and spiny-pointed foliage is erect when fully developed and young, but gradually assumes a reclining, or even pendent position, when the plant is about to throw up a fresh tier of leaves. A large well-furnished plant in this condition has a very graceful appearance, despite the rigidity of all parts of the leaves. The plant is figured in the

secondary veins, at once characterises the new species, and distinguishes it from all the other Alocasias introduced into the conservatories, as also from all the species described up to this day, with the exception of *Alocasia pubera*, SCHOTT. This last, however, is easily distinguished from the new one in many points—among others is that the peduncles are pubescent, whilst those of *Alocasia reginæ* are glabrous. *Alocasia reginæ* is a striking plant with foliage of a marked character. The petioles are round, pubescent, of a dark green colour set off with purple-brown. The leaves are fleshy, deeply cordated, deep green, glossy on the upper face, purple underneath, with the veins of the lower face green and pubescent. The peduncles are glabrous, slightly compressed, pale green, marked with points of brown purple. The spathe is white, with the tube prettily spotted with purple. They produce a striking contrast with the dark green colour of the leaves. This plant will be



sought after without doubt to produce charming effects with other brilliantly coloured foliage plants. It has been introduced from Borneo by the Compagnie Continentale d'Horticulture of Ghent, and will demand the same care in culture, easy in other respects, as the other species of the genus. It is figured in the last number of the *Illustration Horticole*.

— **ROYAL GARDENS, KEW.**—Young gardeners of ability and ambition to rise in their calling should not overlook the great advantages which a sojourn at Kew offers to them. In addition to the routine duties of management, excellently carried out at Kew, gardeners have the opportunity of seeing and learning more of plants and their culture (excepting, of course, fruit and vegetable culture) than is to be had anywhere else in the kingdom, and the same may be said as to the facilities for acquiring a knowledge of the principles upon which all good culture is based. If our young men do not wish to find themselves supplanted by the Germans—who as a rule are much better educated for their work than our men are—they will avail themselves of every opportunity of increasing their knowledge and not content themselves with mere routine work. The following circular has just been issued showing the mode of admission to the Royal Gardens, Kew:—

"ROYAL GARDENS, KEW.

"Applicants for admission as gardeners into the Royal Gardens are furnished with a copy of this paper, which, when filled in, must be signed by their present or last employer, and returned to the Curator, accompanied by a letter in applicant's own handwriting. The wages are 18s. per week, with extra pay for Sunday duty.

"Applicants must be at least twenty, and not more than twenty-five years of age, and have been employed not less than five years in good private gardens or nurseries. Preference will be given to men who have had most experience in the cultivation of plants under glass, and no application will be entertained from men who have not had some such experience. Where obtainable, testimonials from known practical gardeners should accompany the application.

"The applicant will be informed if his name has been entered for admission, and, on a vacancy occurring, he will receive notice to that effect. Should there be no vacancy within three months from date of application, it must be renewed if employment at Kew is still desired. If not renewed, the applicant's name will be removed from the book.

"Gardeners who remain at Kew a year, and whose conduct is satisfactory, will be eligible, as vacancies arise, for the positions of sub-foremen, and will be recommended, according to the capacity they display, for employment in other first-class gardens either at home, in India, or in the Colonies.

"J. D. HOOKER, *Director*.

"J. SMITH, *Curator*."

Name \_\_\_\_\_  
Age \_\_\_\_\_

Names of employers in whose gardens applicant has worked, and length of time in each:—  
\_\_\_\_\_  
\_\_\_\_\_

Science and Art Classes (if any) attended by applicant, stating subjects studied, and certificates obtained by him:—  
\_\_\_\_\_  
\_\_\_\_\_

Employer's signature \_\_\_\_\_  
Place \_\_\_\_\_  
Date \_\_\_\_\_

— **NOVELTIES IN CONTINENTAL VEGETABLES.**—We take the following notes from the *Garten Zeitung*.—Lettuces—Cabbage kinds:—Pelletier, an excellent one, ranging from large to very large, firm, tender, and of a pretty golden colour, the leaves finely toothed and fringed, resembling Endive. Does not readily run to seed. Golden Trout, a large kind, and very firm, also stands hot weather well. The outer leaves are golden-yellow, spotted and flecked over with reddish-brown. The flavour is tender and fine, and as an ornament to the table it is one of the best varieties of Lettuce. A Chicory, strong growing kind, with crimson leaves, which in blanching become of a lively carmine colour, is one of the most handsome of the Chicories, and very decorative for the table. Much to be recommended. Onions:—White Giant Garganus, a new Italian variety of extraordinary dimensions. It is early; in form flattish, and with a fine mild flavour, much to be recommended for exhibitions. Pale Red Etna, also an Italian introduction, for which, with the other kind, we have to thank M.

DAMMAN & CO., Naples. Silver-white Etna is like No. 2, an excellent kind, that in quantity and firmness exceeds it. The *Bullettino della Società Toscana di Orticultura* notes a Pea, Bliss's Abundance, introduced from America by M. GODEFROY-LEBEUF, horticulturist, Argenteuil, very dwarf, and a great bearer.

— **THE ROYAL BOTANICAL GARDENS, MANCHESTER.**—MR. BRUCE FINDLAY writes:—

"About four years ago we found that the old range of glass-houses which had been standing for fifty years was worn out, and its removal became imperative, consequently it was taken down and a new range was built, not so imposing as the old one, but far better adapted for cultural purposes. Two years later it was found that the exhibition-house was not safe; this also had to be demolished, and the present fine house was built. These improvements have been effected at a cost of £6000. This amount has been raised partly by the creation of life members, partly by the successful Whitsuntide exhibitions, and partly by donations from friends of the Society. When the present magnificent exhibition-house was finished many gentlemen who had plants which had grown too large for their houses, and who had also a desire to embellish the building, presented some fine specimens of various kinds. These, with some of the old plants saved from the old houses in the garden, numbering together 200 fine plants, are at the present time in the exhibition-house, and form a magnificent spectacle. Now, inasmuch as the whole of these plants will have to be removed to make room for the great annual display at Whitsuntide, and inasmuch as we have no house to protect them, are they to perish? This must be the case to a certain extent unless a suitable home be provided. Our only sources of income are derived from annual subscriptions, life membership, and receipts from exhibitions. The exhibitions of horticultural produce, which for so many years have taken place here, have been among the most attractive events in Lancashire; liberal awards have produced keen competition, and gardeners know that to be the gainer of a prize at Manchester is to stand at the head of their class. It is very generally admitted that the Manchester Botanical Society has been for many years doing important public work. At the annual meeting of the Society two years ago the President of the Institution said:—'In merely a utilitarian and material point of view, he had no doubt it had a great deal more than repaid any expenditure which it had caused, but far above and beyond that he was quite certain that in a place like Manchester, and a county such as Lancashire, it furnished a civilising and humanising agency with which they could not afford to dispense;' and it is earnestly hoped that the sum of £2000 will be raised by an extension of membership and donations from ladies and gentlemen who have the means to assist so worthy an object."

— **ROYAL METEOROLOGICAL SOCIETY.**—At the ordinary meeting of the Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 18th inst., at 7 P.M., the following papers will be read:—"How to Detect the Anomalies in the Annual Range of Temperature;" by Dr. C. H. D. BUYS BALLOT, Hon. Mem. R. Met. Soc. "Cloud Observing;" by D. WILSON BARKER, F.R. Met. Soc. "A Suggestion for the Improvement of Solar Radiation Thermometers;" by WILLIAM F. STANLEY, F.R. Met. Soc., F.G.S.

— **THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.**—The annual meeting of this Society took place in the Caledonian Hotel on Monday evening last, Mr. RICHARD DEAN, one of the honorary members, presiding, and there was a numerous attendance of members, some of them having come twenty and thirty miles in order to take part in the proceedings. The balance-sheet, read by the Secretary, Mr. J. McELROY, showed the position of the Society to be highly satisfactory. The amount received in members' subscriptions during the past year amounted to just over £236, the payments from the sick fund amounted to £232s. 6d., which was the largest amount that had ever been paid in any previous year. During the past year the sum of £301 17s. 6d. had been invested in Consols, and the Society has now the sum of £3000 so invested. There are three distinct funds, viz., the benefit fund, the benevolent fund, and the management fund; a certain amount of the members' subscriptions is paid to each. The management fund is very small, and in this respect the Society is most economically worked, and it is the practice for the members at the annual general meeting to present to the Secretary, as a honorarium, though a very inadequate one, the balance remaining over from the fund, which

this year amounted to only £3 18s. 7d. This is the only payment made to the Secretary for his services, and these are truly a labour of love, for Mr. McELROY is not even a member of the Society and cannot derive any benefit from it, having passed the allotted age when appointed to the office of Secretary in 1872. The number of members is now 163, exclusive of three life and ten honorary members, the latter subscribing one guinea per annum. There has been a steady increase of members during the past two years, forty-seven having joined in 1883, and thirty-five in 1884. The treasurer reported that during his last three years of office the sum of £700 had been invested in Consols, and were the assets of the Society realised they would average nearly £19 for each member. The Society has now been in existence nearly twenty years, and it is a matter for regret the advantages it offers to young gardeners are not so widely known, as they deserve to be. The address of the Secretary is The Gardens, Moray Lodge, Campden Hill, Kensington, who will furnish any information. Hearty votes of thanks were passed to the Treasurer, Secretary, Trustees, Auditors, and others for their services during the past year, and it must be admitted they were well deserved.

— **RAILWAY CHARGES FOR THE CARRIAGE OF FRUIT AND VEGETABLES.**—That what is everybody's business often becomes no one's is a trite old saying, and usually a true one. The rates charged by the railway companies in this country for the conveyance of fruit and vegetables are so disproportionately heavy compared with those of the Continental lines as to occasionally cause low murmurings being heard from the home growers, the manifest injustice to whom becomes more apparent by a glance at what the companies exact from them for the carriage of their produce from any one place to another within the kingdom, as compared with the small amount the said companies get for the conveyance over their portion of line of the same kinds of produce of foreign growth. JOHN BULL is proverbial for the patience with which he submits to have the money extracted from his pockets by his own countrymen, as well as by others; and in such pursuits as the cultivation of garden produce, in which comparatively few are engaged, their want of numbers, and the absence of concerted action, leave them a prey to the rapacity of any strong-backed monopoly that is in a position to put the screw on them; they may grumble more or less loudly, but, the grumbling usually avails nothing. The railway companies have shown that they are wise in their generation; it is a significant movement on their part now—when the times are such that they could not avoid seeing that it was likely there would be some pressure brought to bear on them to reduce their charges for the carriage of home produce of all kinds—to give out their intention, as some of them are doing, of raising their rates higher than they already are, hoping no doubt that, by foregoing their threatened rise as a sort of sop to those who were likely to push for a reduction, they might be able to keep matters as they are. For the farmers and fruit and vegetable growers of this country to look for any patriotic sacrifice at the hands of the representatives of a carrying monopoly would be as useless a proceeding as to look for blood in a stone. But there is one thing tolerably certain, which is, that the agricultural interest through the country will ere long bring a pressure to bear on the companies that they will find it difficult to resist; and if those engaged in the cultivation of fruit and vegetables do not join in the movement, so as to make themselves heard, they will not be true to their own interests.

— **SCOTTISH HORTICULTURAL ASSOCIATION.**—The eleventh ordinary meeting of the Association was held in the Society's rooms, 5, St. Andrew's Square, Edinburgh, on Tuesday evening, February 3, Mr. JOHN METHVEN, the President, in the chair. The Secretary, Mr. ROBERTSON MUNRO, Abercorn Nursery, Piershill, read a paper on "Flowers and the Lessons they Teach." After referring to the rudimentary culture of various plants in the lake districts of Switzerland—plants which have become extinct in some instances, while others were improved—he said that during the Bronze age some improvement was effected; but it was to the Romans that the credit of anything like high culture was due, which clearly showed that as civilisation and good government advanced, so also did the cultivation



of flowers, which never failed to give the greatest pleasure to those who grew them. The city of Edinburgh of late years has made a great improvement in embellishing its parks and gardens with gay flowers, and the hope was expressed that while this good work would continue the city gardener would be provided with the necessary appliances, and have the additional duties imposed on him of providing every elementary rate-paid school with fresh flowers for public instruction. Not only should our children be taught to transfer their images to paper, but their beautiful structure and adaptation should be systematically taught. Such early training could not fail to have an elevating tendency, so that in after years, in whatever situation or relation in life they might be placed, they would make better men and women. In the after discussion Mr. DOWNTON, Mr. DUNN, the President, and others, enforced the sentiments expressed, and gave instances in which the culture of a few plants brightened the cottager's dwelling. The thanks of the meeting were conveyed by the President to Mr. MUNRO for his paper. The meeting then concluded with a very hearty vote of thanks to the President.

— **BEGONIA, GLOIRE DE SCEAUX.**—This, according to a figure in a recent number of the *Revue Horticole*, is a very free-flowering form with oblique smooth leaves, deep green above, claret-red beneath, and with erect panicles of rose-pink flowers, each flower about  $1\frac{1}{2}$  inch long. It is a hybrid out of *B. socotrana* by *B. subpeltata*.

— **EDINBURGH SCHOOL OF FORESTRY.**—A meeting of the committee in charge of the arrangements for the formation of a School of Forestry and Forest Museum, at Edinburgh, was held on the 29th ult., when there were present the Marquis of LOTHIAN, who presided; Lord Provost Sir GEORGE HARRISON, Sir ALEXANDER CHRISTISON, Bart., Dr. CLEGHORN, Dr. CROMBIE BROWN, Messrs. NEILL FRASER, BELFRAGE, and DUNN, and the Secretary, Colonel DODS. After reading a considerable amount of correspondence highly favourable to the proposed scheme a preliminary list of subscriptions was announced, the sums varying from £1 to £100, which was considered a very satisfactory beginning. It was resolved that the subject be brought directly under the notice of the landowners in the country, and others specially interested in a School of Forestry, from whom it is anticipated a liberal support will be received by the committee in the execution of the scheme. The necessary arrangements are expected to be completed in the course of the next week or two, when the committee will be in a position to appeal to the general public for their favourable consideration and generous aid in carrying out the objects in view. At a meeting of the Council of the Scottish Arboricultural Society, held in Edinburgh on the 4th inst., it was resolved to recommend to a general meeting of the Society that a grant of £50 be made towards the formation of a School of Forestry at Edinburgh.

— **THE HARPENDEN HORTICULTURAL SOCIETY.**—The seventh annual show of this Society has been fixed for Wednesday, August 26.

— **ANTHURIUM LINDIGI.**—Judging from the success that has attended the hybridising of some members of this extensive genus, it would probably repay the trouble in other cases to use this plant either as the seed or pollen parent, when a fresh class of seedlings would certainly be obtained. The whole plant is moderate in dimensions, with heart-shaped leaves and flowers in a comparatively small state. The spathe is oblong, erect, waxy-white, or slightly shaded with pink, of great substance, and lasting for weeks in perfection. The cylindrical spadix is stout, blunt, and of a strange pinkish chocolate colour, and fragrant during the dispersion of the pollen. Some plants of it may be seen in No. 1 house at Kew. It is synonymous with *A. Lindenianum*, under which name it is sometimes grown.

— **PUBLICATIONS RECEIVED.**—*Proceedings of a Meeting of the Committees of the Agri-Horticultural Society of Madras.*—*Permanent Pastures* (SUTTON & SONS, Reading).—*Report of London Water Supply for December, 1884.*

— **GARDENING APPOINTMENTS.**—Mr. FREDERICK JENNINGS, Foreman at Eridge Castle, as Gardener to JAMES COX, Esq., Thirlestean Hall, Cheltenham.—Mr. THOS. CROSWELL, late Foreman at Hollanden, has been appointed Head Gardener to Lady FORSTER, Meaford, Stone.—Mr. P. BOGIE, late Head Gardener at the C  tel, Guernsey, as Head Gardener to F. J. CLARKE, Esq., Bracebridge Hall, near Lincoln.

## The Flower Garden.

### HARDY AMERICAN PLANTS.

HYBRID Rhododendrons and hardy Azaleas will sometimes require to be rearranged and replanted as the strong-growing varieties will overgrow those of weaker growth. Beds and borders require fresh mould. I mix one-third peat, one-third turfy loam and leaf-mould, with sharp sand, which I find suits them admirably. Many of the grafted and choice Rhododendrons put up many suckers from their stock, and which soon kill the plants if not checked; all such should be removed, and they are easily distinguished by their leaf, it being the common ponticum on which all the good kinds are worked. In replanting, select all the tallest and the free-growing kinds for the centre of the beds and the backs of the borders, giving plenty of space between them, then plant the dwarf kinds in front of those, and mix the hardy Azaleas with them, and if judiciously selected kinds, the colours will arrange themselves nicely and have a good effect. For the front near the margin, plant such things as hardy Heaths and Sedums of sorts, Kalmias of sorts, with *Gentiana acaulis*, planted quite near the edges. Many persons object to the use of Rhododendrons and Azaleas in large masses, as they flower at a season when the family is absent from home—i.e., during the London season. To obviate that I plant between the Rhododendrons, *Tritoma nvaria*, *T. glaucescens*, *Anemone japonica alba*, *A. rosea*, and *Canna indica*, *Gladiolus* of many varieties, Begonias, and *Digitalis*—an arrangement that gives a most pleasing effect throughout the summer months.

The spring garden has much improved since the favourable change of the weather. Many of the bulbs and early spring flowering plants are showing bloom, and if the weather should keep mild for a time the garden will soon present a gay appearance. Let cleaning operations be well attended to. If frost sets in again protect all tender plants and flowering bulbs. The most convenient way to protect flower beds is to hoop them over with sticks and cover over with mats, leaves, or any other material suitable, which should be moved as soon as the weather moderates sufficiently. All climbers on the walls should be pruned and trained. Clematis and early Roses are frequently damaged by the spring frosts, consequently they require protecting with mats or any other light convenient covering in frosty weather. The propagation of all the summer plants should now receive every attention, and all deficiencies made up as quickly as possible so as to enable the plants to get well-established by bedding-out time; such things as *Heliotropes*, *Ageratum*, *Salvias*, *Lobelias*, *Pelargoniums*, *Dahlias*, *Iresine*, *Coleus*, *Alternantheras*, *Tropæolums*, will strike easily and quickly if placed in bottom-heat. After they are struck they should be carefully hardened off by degrees to prevent too sudden a check. When hardened sufficiently they can be potted off into 60-size pots, and planted into boxes or frames where they can be protected from frost till required for bedding purposes. *Pelargoniums* and all the autumn struck cuttings will want potting off into 60-size pots and kept close for a week or two till they have made fresh roots. All this work should be done as soon as possible. *W. Smythe, Basing Park, Alton.*

## Plants and their Culture.

### STOVES, SOILS, AND POTTING OPERATIONS.

It will be advisable to proceed with this work as soon as convenient, as at the latest all the stove plants should be overhauled by the end of the month. The lengthening days will soon have a perceptible influence on vegetation, particularly in the stove and intermediate houses, and all the more so, should we be favoured with a few sunny days to advance the temperature. Prior to making a start it will be necessary to collect a good quantity of crocks for drainage. These should be placed in a tub and then worked about with a broom to cleanse them. The requisite stock of flower-pots should also be washed, whilst new ones will be all the better for being soaked

in water for some hours previous to using. Each kind of soil will also need attention in its preparation, particularly in the case of that used for the choicer kinds of plants. Good peat with an abundance of fibre in it is indispensable in the cultivation of the majority of stove plants. Cast aside any that is devoid of this essential quality, to be used for plants of a season, i.e., those that are thrown away at the end of the same, or, if required, it can be used for the peat-loving plants in the open air. On the undersides of the sods of peat there is frequently a layer of varying thickness that should be carefully separated from the good; this is generally of a darker colour and deficient in fibre, which if used for plants that require watering freely would soon be rendered unfit for healthy root-action. Sound turfy loam of good quality from an old pasture should also be secured; that taken from low-lying districts is not so good as a rule. This should have been got together and stacked some months ago, and I have no doubt many cultivators will congratulate themselves upon possessing an excellent stack of loam secured in the autumn months. After such a season as the last the loam should be of excellent quality for potting purposes. By reason of the short rainfall it will have been got together in first-rate condition for keeping.

When a good heap of leaves has been got together from such as the Oak and the Beech, it will be found a valuable aid in plant culture when well decomposed. It is necessary to be cautious, however, in the case of the leaves from our evergreen trees and shrubs, such as the Laurel and the Holly, for instance. Rather than use leaf soil that has been made from an indiscriminate collection of leaves, I would prefer to use peat and loam with the addition of charcoal in small pieces, if the loam is of a retentive character. If the charcoal is not at hand, some crocks broken small could be used. When the soil is considered to be somewhat poor, the use of half-inch bones or bone-meal may be recommended in the case of gross-feeding subjects, for which also some dried cow-manure, or that from an old Mushroom-bed will be a capital addition. Silver-sand should always be used freely when it is at command, being favourable to root action by aiding to keep the soil in a porous condition. The soil thus prepared should be placed where it will become warmed; this will be all the more necessary if any of it is of a heavy nature from excess of moisture, or otherwise. If the potting-shed is not in close proximity to the plant-houses it will be well to do the repotting in the houses. The mixing of the soils can be made as the work advances, so as to suit the requirements of the particular plants. *James Hudson, Gunnersbury House, Acton.*

## FRUITS UNDER GLASS.

### PINES.

A PART of the early batch of those fruiting plants to which I adverted in my last paper upon this subject have already thrown up fruit, and the rest of the plants unmistakably appear to have started. The earliest of these fruits will be ripe towards the end of May next, and the others in June—a most opportune time, because the supply of foreign Pine-apples will be almost over or of inferior quality; under any circumstances they will not be at all comparable to the English-grown Queen Pine, which for use from the middle of May until the end of September is unsurpassable in point of quality.

Give these plants every attention, and as to watering especially: use this in a tepid state, and add a little stimulant in the way of guano. Keep the temperatures steady at about 80° at the roots, and at 70° to 75° at night and 80° by day air temperature. Give air at 80°, and close up the place whenever sun-heat prevails at 90°. Well moisten the house and syringe the plants overhead when they need it, which can be ascertained by the moisture resting in the axils of the leaves. When the fruit is flowering it should not be syringed, as sometimes it leads to mischief. The next batch of successional plants to which reference was made in my last paper should now be brought into the place where they are to remain until the fruit is cut. It may not be amiss here to call attention to the fact that much damage may arise from the want of proper care in moving such plants as these, and I, as far as possible, avoid having to do it by having my fruiting plants in those places where the necessary



amount of heat required for the beds is supplied by means of hot-water pipes beneath.

These plants will require similar treatment to the former in all respects, excepting in fire-heat for the house, which should be 5° less. The house in which the young stock of plants are placed should still be kept at a temperature of from 55° to 65° during sunny days; these plants should be freely ventilated, as growth in these is not wanted until after they have been reported. Suitable occasions—as wet days—will afford opportunities to prepare crocks, pots, &c., in readiness for use. Soil may likewise be got ready: this is best done by hand; only the fibrous part should be used, and this should be in good sized pieces and not too much decayed. A compost comprising good fibrous loam, a little sharp sand, and a few half-inch bones, will be found suitable for these plants. *G. T. Miles.*

## The Kitchen Garden.

### FORCING DEPARTMENT.

*Asparagus.*—In a few gardens pigeon-holed brick beds have been constructed, and permanently planted with roots for forcing. This is accomplished by providing intervening spaces between the beds for the reception of heating material. The beds are covered by light spao-roofed glass structures that can be taken on and off at will. Although this system entails considerable labour, beds thus formed are very useful for starting into growth about this time of year to succeed produce forced from lifted roots. When abundance of litter from stables is not at command, it would be useless making such beds, for, of course, they could not be heated by hot water: beds constructed and planted on the above system, and without hot water can now safely be started. Remove the now decayed material which was placed between the beds to force on growth last year, and replace at once with well mixed stuff that will generate a good brisk heat, then place on the glass coverings. If the beds have been well watered throughout the past dry summer, well mulched, and plenty of roots were found penetrating the pigeon-holes, and feeding on the rotten material between the beds, many fine heads may reasonably be expected. Of course, the roots must be cut off.

### IN HOT-WATER FRAMES.

*French Beans.*—As the season advances ply the syringe freely among the plants, which are often assigned positions close to hot-water pipes, which is favourable to the development of red-spider. Somewhat exhausted plants in frames will derive much benefit from a good top-dressing of good short manure with a little soot added. Surface-dressings should be placed between the plants (after pricking up the soil) about the time they require a watering, with which stimulating properties will be carried down to the roots and evaporation will also be arrested.

*Potatos.*—The tubers will now be developing rapidly on the first early lot, either planted out or in pots or boxes. A nice watering should be given occasionally at 65°. When watering in frames use a rose on the pot, or some soil may get washed down from the mouldings and expose the young tubers.

### IN FRAMES WITHOUT HOT WATER.

*Turnips.*—A spare frame may be usefully devoted to the above. Early Milan is a good early variety, and one which will produce useful bulbs when grown thickly in a limited space for development. If labour and material are not plentiful, these will succeed without a slight hotbed, but better with it.

*Carrots.*—Keep the frame close until the young plants are well above-ground. Carrot seed requires moist ground in which to germinate freely, therefore give a watering if the surface of the bed is somewhat dry.

*French Beans.*—A frame with hotbed should now be planted; if the frame is constructed of bricks no outside lining will be necessary. The soil should be light, 1 foot deep.

*Potatos.*—Providing the soil at planting time was fairly moist, no water will yet be required in these frames. The bed and atmosphere being somewhat dry will materially assist in keeping out frost, and a sturdy growth will be made. Place plenty of covering over the mats (where the growths are above-ground) at night. *G. H. Richards, Somerley Gardens, Ringwood, Hants*

## The Hardy Fruit Garden.

### NAILING AND TRAINING.

THE low temperature which generally prevailed throughout last month has kept all kinds of fruit trees back, so that the buds are still dormant; but should mild weather continue during the present month the sap will begin to rise rapidly, so that pruning and nailing of wall trees should be pushed forward with all possible expedition. First finish Apricots and Peaches, then Apples, Pears, and Plums. In nailing use as few nails as possible; the shreds should be of different widths; for small shoots very narrow shreds should be used—broad ones look unsightly, and harbour insects during the summer. Many of the small shoots on wall trees may be tied with raffia-grass, which will last one season, and has a neat appearance on the trees, when used in a workman-like manner.

### PROTECTING THE TREES.

Protection should be got ready in case of sharp weather taking place, but I prefer not covering up

will grow early and rapidly, and will produce fruit in the autumn.

### ORCHARD TREES

should be carefully looked over, and when crowded, thinned out moderately. Any strong shoots that are taking the lead, and so robbing other parts of the tree, should be shortened back, and in some cases removed entirely. Any trees that have become shaken by high winds should be staked anew and placed upright, by digging out a portion of soil on the opposite side of the ball, so as to place the tree upright without destroying many of the roots. Small weak shoots near the ground are best removed, for they seldom bear any fruit. *J. Smith, Mentmore, Bucks.*

## Florists' Flowers.

### THE HOLLYHOCK.

As soon as cuttings can be obtained they may be carefully taken off with a portion of the old stem



FIG. 41.—ULLUCUS TUBEROSA. (SEE P. 217.)

until there is every appearance of frosty weather. There are so many different plans recommended and adopted for protecting the blossom of fruit trees, but we all have the same object in view—namely, trying to secure a crop of fruit. I will merely name a few which I have adopted with more or less success, according to the season. Tiffany is a good material for protection, also thick nettings of various makes. Poles placed against the wall, and hay-bands placed on these, have been found to answer well. Dry Fern placed lightly amongst the branches, straw placed among the shoots in the same manner where dry Fern cannot be procured. Where the wall coping is defective, place boards a foot wide above the trees and remove when all danger of frost is over. These are all inexpensive means of protecting the blossoms, and when applied with care and judgment will in most seasons answer moderately well. The most perfect means is by having tiffany or other thick material placed on rollers, so that it can be rolled up during the day; but all cannot command such expensive means of protecting their trees, hence the above suggestions.

### SMALL FRUIT.

*Raspberries.*—Should a very late supply be desired, cut down the shoots in a row or two to within an inch or so of the ground. By this means the shoots

attached to their base. Each cutting should be firmly potted in a small pot, using for the purpose fine sandy soil. They will form roots under the same conditions as described for the perpetual-flowering Carnations, only note this—the Carnations may be watered as soon as they are inserted in the pots, but the Hollyhock cuttings should not be watered for at least a week; the object of the cultivator is to be careful not to cause the Hollyhock cuttings to damp off; they are certainly very liable to do so if water is too freely applied to them.

### THE DAHLIA.

There is nothing like the difficulty attending the propagation of the Dahlia that there is with the Hollyhock. Our whole collection has been stored in a dry place with some cocoa-nut fibre refuse over the roots. In a week or ten days they will be taken out, and planted closely together in boxes, in any fine refuse from the potting bench. They will soon start into growth, and when the shoots are 2 inches long they can be taken off; they will root readily in an ordinary hotbed.

### THE RANUNCULUS.

There are few people who do not admire a bed of choice Ranunculi when in full bloom, but there are very few gardens now where they are to be seen.



Tubers can be purchased from any of the large seedsmen at a cheap rate. We grow both the French and Scotch strains. Some persons prefer the French; the flowers are larger and more brilliant in colour; the plants are also more vigorous. The Scotch type! Why Scotch? I cannot answer, as most of the best varieties were raised years ago by Mr. Tyso and his son. They have been, and are now, cultivated near Manchester. I had a collection which were termed by the dealer Scotch Ranunculi, but all the varieties, fifty in number, had foreign names, mostly Dutch. At any rate, this small-flowered type is most valued by the trained florists. The dainty little flowers, perfectly formed, are poised on slender stems from 4 to 6 inches high, while the rich and varied colours have a charming effect. The ground ought to be well prepared for them. They like a rich deep loam, and if it is heavy mix some fine sandy peat into the six inches nearest the surface. I tried peat a few years ago, and found they grew and flowered well in it. Mr. Simoonite, of Sheffield, also told me that the finest bed he ever saw was planted in peat soil. The crowns of the tubers should be about an inch below the surface. *J. Douglas.*

### POTATO IMPROVEMENTS.

MR. LAXTON has been making some experiments on hybridising different *Solanums* with a view to procuring a substitute for the Potato. He has tried to mingle the blood of the English woody Nightshade with that of the edible Potato. As one of his subjects for operation he used an early Potato, the Hammersmith Kidney, and in order to get a good supply of blossoms all tubers were removed as they formed. The result was very satisfactory, the more so as twenty-five years ago the experiment with the Ashleaf Kidney had been a failure.

Mr. Laxton commenced operations on June 12 by using the pollen of the earliest Potato he then had flowering on *S. Dulcamara*; between then and July 1 he made sixteen attempts, three of which were successful. He has also obtained one ripe berry containing two seeds by crossing *S. Dulcamara* with *S. Commersonii*. Between June 18 and July 1 attempts were made to fertilise thirty-four blossoms of various Potatoes with *S. Dulcamara*, and again obtained three berries containing seed. Nothing was obtained from an attempt to fertilise *S. Dulcamara* with *S. Maglia*. Nipe attempts were made to cross *S. Commersonii* with various Potatoes, but were a failure. Out of forty-two attempts to cross *S. Maglia* with various Potatoes the result was *nil*; but out of three attempts to cross the Hammersmith Kidney Potato with *S. Maglia*, one berry having twenty seeds was obtained. Altogether Mr. Laxton has only been able to procure eight satisfactory results out of 107 attempts at intercrossing, as the subjoined table shows:—

	Attempts at fertilisation.	Berries obtained.
<i>S. Dulcamara</i> with various Potatoes ..	16	3
" " " <i>S. Commersonii</i> ..	2	1
Potatoes, various, with <i>S. Dulcamara</i> ..	34	3
<i>S. Commersonii</i> , with various Potatoes ..	9	0
Potato Hammersmith Kidney, with <i>S. Maglia</i> ..	3	1
<i>S. Maglia</i> , with various Potatoes ..	42	0
<i>S. Maglia</i> , with <i>S. Dulcamara</i> ..	1	0
	107	8

*Journal of Horticulture.*

### THE MELLOCO.

ULLUCUS TUBEROSA.—Early last year two tubers of this plant were received at Kew from Caracas, and from them a batch of young plants was obtained and planted out-of-doors in a prepared bed in June. The result of this experiment, together with a few particulars as to the esculent properties of the tubers, may be worth recording, as I believe several gardeners, amongst them being the Messrs. Sutton, have obtained tubers of the *Ullucus* from Kew with a view to giving it a trial. The two Caracas tubers mentioned above were as large as hen's eggs, rather longer, and somewhat flattened; the skin was red, as in some Potatoes. These, when placed in heat, rapidly developed shoots,

which were removed as soon as they were strong enough to form cuttings; in this way about a hundred sturdy young plants were obtained and made ready for planting out-of-doors in June. They were planted in a light, sandy, well manured soil in a position exposed to full sunshine. Here they grew quickly, forming by the middle of August tufts of shoots and leaves 1 foot across. They were earthed up as for Potatoes, and the strongest shoots were pegged down and partly covered with soil, though the latter proved unnecessary. At this time there were no tubers nor any signs of them. On again examining the plants in September (about the middle) we were surprised to find no tubers had yet been formed. The plants were now very strong, and it was therefore concluded that instead of forming tubers the strength of the plants had "run to leaves." We gave them up, no further notice being taken of them till the frost came, when on perceiving that a frost of four or five degrees did not injure the foliage, we again examined the plants and found an abundant crop of tubers just below the surface of the soil, and varying in size from that of Peas to pigeon's eggs. The plants were left till the haulms had been destroyed by cold, after which the tubers were gathered. On cooking some of the larger ones by boiling for half an hour we found them still rather hard, and with a flavour of Potatoes, almost concealed under a strong earthy taste, quite disagreeable and soap-like. Considering how short a time these tubers had had to grow in it is not improbable that their hardness and disagreeable taste were owing to their being unripe: no doubt young green Potatoes (these *Ullucus* tubers were partly green) would be quite as nauseous as these were.

We are told that the *Ullucus* is extensively cultivated in Peru and Bolivia, in the elevated regions



FIG. 42.—MELLOCO TUBERS.

where the common Potato also thrives, and with which the *Ullucus* is equally popular as a tuber-yielding plant. In the *Gardeners' Chronicle* for 1848, p. 862, Mr. J. B. Pentland stated that the *Ullucus* "is planted in July or August, the seed employed being generally the smaller tubers unfit for food, and is gathered in during the last week of April. These two periods of the year are the spring and autumn in the southern hemisphere. The mode of cultivation is in drills, into which the root is dropped, with a little manure. The climate, even during the summer season, is severe, scarcely a night passing over without the streams being frozen over, the sky being in general cloudless at all periods of the year except during the rainy season (December to March). Mean temperature about 49°." This information seems to support the view formed of this plant from its behaviour at Kew last year, namely, that the tubers are formed on the approach of cold weather, and that so long as the weather is warm and bright leaves only are developed. Plants grown in houses where the temperature has not been allowed to fall below 50° in winter did not form any tubers, although they were in good health. We found no tubers on the plants grown out-of-doors till some time after the return of cold wet weather. It seems likely that this plant does not develop tubers unless its existence is threatened by cold; at all events, such a conclusion seems reasonable from the above statements.

Possibly a wet and rather cold autumn would be favourable to this plant and the production of its tubers—such a season, for instance, as would be most unfavourable for the common Potato. It would be worth while testing the *Ullucus* for low and cold situations where the Potato would not thrive. There is not much probability of the former ever proving a substitute for, or even a rival to the Potato, at least in this country; but there is room for another good esculent, and the *Ullucus* is prolific enough, hardy enough, and, we suppose, when properly grown,

palatable enough to be worthy a trial. In the *Gardeners' Chronicle* for 1848, p. 828, will be found a most interesting detailed account of experiments made with this plant in France by M. Louis Vilmorin. *W. Watson, Kew.*

### HOME CORRESPONDENCE.

Plants and the Recent Severe Weather.—There can be little doubt that the hardness of plants is greatly influenced by their conditions as to growth or comparative dormancy, as well as to the attendant conditions and severity of the weather. Owing to the mildness of autumn and winter, up till lately vegetation of many kinds was in a more or less active state, consequently it was but ill-prepared to withstand the sudden lowering of the temperature. The thermometer in the neighbourhood of London ranged from 2° or 3° to 10° of frost, attended with dense fog on some days, when the temperature was by no means the lowest. This additional evil, with the alternate freezing and thawing which it implies, cannot but be prejudicial to vegetation in proportion as it saturates the foliage. Most of the undermentioned greenhouse or half-hardy plants, although enjoying the protection of a south wall, are now more or less severely injured. *Abutilon vexillarium*, in full growth, flowered up till lately, but now shares the fate of *Calceolaria luchsiaefolia* and *Physalis edulis*—all from some part of South America. The freely growing tips of *Ceanothus puniceus* are somewhat blackened where they project from the wall, but the Australian *Hardenbergia monophylla* has been severely crippled, contrasting greatly with *Sollya heterophylla*, from the same country, and altogether uninjured. *Cercocarpus parviflorus*, a Rosewort from California, also retains its healthy green appearance. *Buddleia crispa*, a half-hardy shrub from the Western Himalayas, has lost its leaves both on a wall and in the open shrubbery. *Escallonia montevidensis* and *Coprosma Cunninghamii* on a wall are partly denuded; while the scathing effects of the frost is also shown on the shoots of *Benthamia fragifera* and *Myrtus mucronata*, having no such protection. *J. F.*

The Name Veronica.—I have been much interested in your correspondent, Mr. C. Wolley Dod's letter on this subject, and think it very probable that he is correct as to the real origin of the name of Veronica. It has always been up to the present time a very doubtful question whether the word Veronica, though applied to the Speedwell, did not come from "Betonica," the name of the Wood Betony; whilst others, Pliny amongst them, say that Betonica is only an alteration from Vetonica. It seems that the Vetones, a people who lived at the base of the Pyrenees, were the first to bring the Wood Betony into notice. *Helen Watney.*

Gas-Lime for Old Gardens.—Until I saw Mr. Corbett's remarks last week concerning gas-lime I had overlooked what Mr. Divers had to say about its use in the way I recommended it. Let me assure Mr. Divers that in advising the application of this, or anything else for garden use, I always first satisfy myself of its being safe for the purpose named. From a long residence in the manufacturing districts, where the article in question is plentiful, and where its properties are well understood, I was in a position to prove its merits. I have had an old garden to deal with, where the whole Cabbage family clubbed to such an extent that half the crops used to fail until I used it exactly in the way I described, after which, by a thin dressing, put on in the manner named once every two or three years, clubbing was unknown, as well as reducing slugs and other vermin to within manageable numbers. A dressing laid on in the way I mentioned, and allowed to remain the time stated before digging in, will not do the least harm to any crop that may be put in the ground. Mr. Corbett says he wonders if I practise what I advise, in using the lime to kill weeds in the manner I mentioned. I have frequently done so, and oftener seen others use it for the like purpose. Last spring I saw it thus applied to an extent that I had not previously seen, in the quiet old-fashioned town of Richmond, in Yorkshire, where, as known to those who are acquainted with it, some of the wide outlying streets are paved with cobble-stones, and have not enough traffic on them to keep the grass from growing. These were spread



over with the lime, and no one seemed to be inconvenienced by its presence; and there is no mistake about its answering the purpose. Mr. Corbett admits that he has not tried the lime for weeds, neither will he, fearing the smell. I venture to suggest that it is safer to satisfy oneself by actual practice, with this or anything else, than to condemn its use on supposition. *T. B.*

**The Growth of Carrot and Onion Seeds.**—A recommendation is being sent forth from the wholesale seed houses advising that, as the growth of last year's crops of Carrot and Onion seeds is not so strong as expected, it is desirable that they should be sown thicker. It is due to the wholesale seed trade that it should be stated that the utmost care is taken to test the growth of all garden and other seeds as soon as they are received from the growers. In all the large warehouses there is a testing room, properly arranged and heated, and well adapted for the purpose. A certain percentage of the seeds is carefully counted out and sown, and, should any prove tardy in germination or thio, another sowing is immediately made as a further test. Outsiders unacquainted with the internal economy of a seed warehouse have little idea of the labour bestowed on securing accurate tests, and the care with which it is done. It is more than probable that other seeds besides those named above will show a lack of germinating power. The summer of 1884 was indeed what has been very appropriately termed "a rushing season," meaning thereby that owing to the heat and drought things matured with unusual and undue rapidity, and it might be said of some seeds that their juices appeared to be almost dried up in the process. Undoubtedly many seeds are small and thio as compared with a season in which they can be brought to a less hurried maturity. Gardeners of all kinds should not therefore be in too great a hurry to sow. The later in the season seeds of weak vital power are sown, the greater are the chances of a satisfactory crop. There is one thing favourable to the germination of the seeds in the season just commencing—the soil is unusually dry and workable; and heavy soils can be pulverised and rendered more manageable than when wet and tenacious. Given, then, a balmy spring-time, and the work of sowing should be done in comfort and with expedition, under conditions favourable to the fullest germination of the seeds. To this end, all ground intended to be sown should be thoroughly well worked previously, so that advantage can be taken of a favourable time for placing the seeds in the ground. The spring-time is a period of the year when there is a great pressure of work in the kitchen garden, and it is not to be wondered at that gardeners are desirous of expediting the work, and getting in their crops early. Much depends, as a matter of course, upon the nature of the soil and its present condition. In early warm soils sowing can be performed earlier than in soils that are cold and tenacious. There is no doubt that the body of the earth, owing to its unusual dryness at this season, is much warmer than is customary at this season of the year. A warm spring rain will bring into active play the latent heat, and assist the growth of seeds not so strong as could be desired. *R. D.*

**Inarching Vines.**—There is no question but that good results will follow the practical treatment (described at p. 152) Mr. Ward has given his Vines, and that an advantage of considerable worth may be gained by "patching" young canes that break irregularly is manifest. It was a good thought of Mr. Ward's to inarch the lateral growths to the rods, inasmuch as by so doing the neatest work possible can be made, but it is doubtful if any other advantage will thereby be derived. In this respect alone Mr. Ward's mode of "stopping gaps" differs from that I saw practised when I was an apprentice at Crimonmogate, in Aberdeenshire, and which we have carried into effect here in a limited degree upon Vines which broke imperfectly in our Lady Downe's house. Instead of inarching, we merely tied the laterals to the rods, and it is almost superfluous to say the growths emanating from these produced fruit in quality similar to those springing immediately from the main rods. A like method of treating old Vines that have been kept closely spurred for years, and have consequently become weak and unfruitful, is of comparative importance; for example a case of our own experience may be mentioned. Previous to uprooting all our Vines in order to exterminate the

Phylloxera, one of the houses contained, with other varieties, an old Buckland Sweetwater which yielded unsatisfactory crops during the first two seasons we had its management. By laying in young shoots of about 3 feet or 4 feet in length up the entire rod, however, and cutting out useless spurs, this Vine was caused to produce the largest and best bunches of the kind I ever saw. The roots, which were entirely outside, were found, when the Vine was destroyed, to be exempt from Phylloxera, although those belonging to young Vines occupying a part of the same house, having their roots inside, were infested with it. Much is doubtless sacrificed for appearance sake, and want of digression from a beaten track, and probably there are in existence many old, almost barren Vines, taking up valuable space, which want only an infusion of young sap to make them fruitful. This is the argument in favour of extension. *Thos. Coomber.*

**Protection of Plants.**—Although last winter and this up to the present have been exceedingly mild, it is a great chance if we get off much longer without severe frost, and if it does come, most plants after such a time will feel it severely. The best protection that can be given to such things as Pampas-grass, Tritomas, and other half-hardy subjects, is fresh-fallen leaves, which lie light and loose, and are non-conductors, as they keep frost out, by keeping warmth in, and it must be severe weather indeed if the ground is made hard under them, even though only a thin layer be used. The difficulty with them is to keep them where they are wanted, but this may be done by pushing them around the stems and in among the leaves of the plants, and directly after this is effected a layer of Bracken will hold them snug and close. Roses in beds, where they are close together, are very easily dealt with, as loose straw or Bracken scattered amongst them will prevent all harm being done, but standards are best preserved by pieces of hayband being twisted round the part where they are worked, and besides this the ground should be mulched, as it is surprising what a help that is. For Belladonna Lilies, Alströmarias, and other herbaceous subjects partly decayed leaves are suitable, and these may, with great advantage, be spread over the entire bed or border and left there till spring, when they should be picked in. Isolated plants may be protected by using the same kind of material, and to keep the birds from pulling it about it is a good plan to stick a few pieces of Holly or Whin around them, which are very deterrent. Leaf-soil is also capital for young Cauliflowers that are standing in beds, or pricked out under walls, or planted in handlights, and if the ground under them is covered with about an inch or so of it, sifted fine, the plants will stand a great deal of frost. The handiest material for the protection of Celery is clean straw, which should be in readiness, as when the leaves of the Celery get frozen they soon rot together with the stalks. Fruit trees of all descriptions that have been transplanted need mulching as a protection to the roots, which, under it, then get no check in their formation or progress, but soon take fresh hold of the soil. For Vine borders, where the Vines are to be forced, a covering of dry leaves with straw over them is best, and when these come off in the spring a layer of half rotten dung should succeed them. *J. S.*

**Fungus in Imported Japanese Lilies.**—It is singular there should be any doubt about the cause of the fungus found on imported bulbs of *Lilium auratum*, which is simply occasioned by damage to the succulent roots in packing, and by removing them from the ground in an immature state. If English-grown bulbs were subjected to the same treatment, the same fungus and the same effects would probably be produced. There is no remedy when the disease has extended to the centre of the bulbs, but when it is only partial it may be counteracted by judicious treatment. An enormous number of newly-imported bulbs are doubtless lost for want of this. The principal cause of failure is perhaps occasioned by an excess of moisture at first. The best plan is, as soon as the bulbs are received, to plant them singly in pots according to their size, in a mixture of loam, heath-mould and friable manure from an old hotbed, a trifle below the surface. The pots should then be placed in a cold frame, and covered with cocoa-nut fibre to the depth of about 3 inches, and no water given until the flower-shoots appear, when they may be considered safe, and water given in moderation, and

continued more bountifully according to the weather and state of growth. *W. H. Rogers, Southampton.*

**Pruning Dendrobiums.**—I have no wish to revive the old controversy about pruning Dendrobiums, but a few days ago I saw at Wortley Hall a plant of *D. Wardianum*, which Mr. Simpson, the gardener, assured me had been pruned soon after flowering for four years in succession. The growths made by this plant last year were quite as good as are usually met with, and better than I have frequently seen on what may be termed well grown plants of this Dendrobium. The flower buds were well advanced from each node for more than half way down to the bulbs. The plant has commenced to break again freely, and at present shows no inclination to weakness during the coming year. Mr. Simpson pointed out several other plants which had been treated in the same manner, and in each case of *D. Wardianum* the result was the same. One plant of *D. formosum*, which was cut down when first imported, had made a few growths, but not of such a character as would induce any one to follow the plan with that species. *W. Baxter.*

## Reports of Societies.

### ROYAL HORTICULTURAL: Feb. 10.

THIS, the second meeting of the year, was held in the conservatory at the Society's garden, South Kensington, when an interesting number of objects was shown, including even, although it is still winter, a few beautiful Orchids in flower.

#### Scientific Committee.

Present: Sir J. D. Hooker, in the chair; and Messrs. Grote, Beddome, A. S. Michael, Pascoe, Smee, Murray, Ridley, Masters, Llewellyn, Loide, and Wilsoo.

#### SCLEROTIIDS IN POTATOS.

The following communication was received from Professor Trail, who had used various re-agents in testing the nature of these bodies, as suggested by Professor Foster at the last meeting:—

"Since I wrote in the month of January in regard to the result of my experiments on the sclerotoids in the leaves of diseased Potatos, using for these experiments material given me by Mr. A. Stephen Wilson, I have continued and extended my observations. I have made use of several additional tests, and have found the results yielded by them confirm the conclusion that the bodies in question are masses of protoplasm coated with a deposit of oxalate of lime. As the subject is of much practical interest in its bearing on the propagation of disease in the Potato plants I subjoin a description of the results of the tests employed by me in addition to those previously mentioned. The former tests were also repeated, and gave quite the same results as they had done previously.

"In every case, except where specified, the bodies were teased from among the tissues in which they lay imbedded, so as to allow of certainty that the same body remained under observation during the whole course of operations to which it was subjected; nitric acid was then added in sufficient amount to dissolve the oxalate of lime, and the excess of acid was carefully washed away before any other reagent was added. In every case where the body was so isolated, and where care was taken to prevent its escape from the field of the microscope, there remained a nearly transparent finely granular body, as described in my former communication. Nor was it difficult after the situation of the body had been carefully noted with relation to the surrounding objects to detect it again after the slide had been moved and the body was again brought into the field of vision; but where such care had not been taken it was frequently very difficult to rediscover it, and it is easy to understand how one might suppose that nothing remained after the action of nitric acid.

"The residuum, as I shall call what remains after the removal of the oxalate, retains nearly the size and form of the entire sclerotoid; but no true cell-wall can be detected even with the most careful examination, i.e., no cell-wall separable from the rest of the mass. Yet, as the mass retains its form in water and in other fluids, and resumes its form after moderate pressure has been made on the cover glass, the outer surface, like a primordial utricle, must serve as a wall.

"The residuum is faintly yellowish, and on running in dilute solution of ammonia this colour becomes slightly deepened; dilute ammonia did not dissolve the mass.

"Dilute potassic hydrate did not markedly alter the appearance of entire sclerotoids, but it dissolved the residuum more or less.

"Acetic acid, osmic acid, and chromic acid all rendered the residuum in some degree more visible, diminishing its transparency. Osmic acid changed the colour slightly; and chromic acid rendered it yellower.

"On running in a solution of iodine and potassic iodide the residuum became pale brown or yellowish-brown,



being rendered very much more easily detected, though not so dark as the contents of the Potato leaf cells,

"Solutions of saffranine and of aniline blue stained the residuum, though less dark than the cell contents of the leaf tissues.

"Picrocarminae had little effect on either the residuum or the leaf cells, but it is not of general use in vegetable histology. *James W. H. Traill.*"

Mr. G. Murray, having independently examined these bodies, reported as follows:—

"I have to report to the committee that in compliance with its reference to me on the subject, I have renewed my enquiry into the nature of the bodies which Mr. Stephen Wilson calls 'sclerotia' of the Potato disease. It will be remembered that the result of my previous examination of these bodies was the discovery that they consist of oxalate of lime, and my opinion was (and, it may be said, still is) that they are intrinsic products of the Potato plant. Since that was announced Mr. Wilson has again addressed the committee on the subject. He accepts the oxalate of lime, but states that in addition to it there is present a substance which he asserts is protoplasm; and this he regards as establishing again his views as to the connection of the bodies in question with *Phytophthora infestans*. Professor Traill has also sent you a report in which he states that, after dissolving the oxalate of lime, a substance is left which may be stained with magenta. He also judges this to be protoplasm.

"Mr. Worthington Smith, working independently, has made the same observation, and has furnished figures illustrating this aspect of the objects. His contention is, that we have here a central mass of protoplasm encrusted with oxalate of lime. In this view I shall join with him Mr. Wilson, and also Professor Traill, who has 'no doubt that the sclerotia are masses of protoplasm coated with calcium oxalate, probably in the form of minute raphides.'

"But for this unanimous statement that the substance in question was contained in the oxalate of lime, the appearance might have been explained without further investigation. However, I proceeded to carefully repeat these experiments with the bodies strictly isolated from the tissues, and giving a clear, definite outline, precisely as described by the above observers. After treatment with dilute nitric acid there was no difficulty in finding the substance referred to, and none in repeating the staining process, but I failed entirely and absolutely to find the smallest evidence that this substance was contained in the body. The statement that it is so contained is the merest assertion. Obviously if it were the case it would suit Mr. Wilson's theory. If the protoplasm were outside it is equally obvious it would bear out my interpretation. I can prove that it is so. In order to demonstrate the presence of this substance, it is not necessary to remove the oxalate of lime with nitric acid. The observer has only to isolate as well as he can one of these bodies, and apply iodine, for example, to obtain the desired stain. This will appear as a delicate colouring, and not with the intensity that would result were the whole mass to take up the stain. This shows (and I have repeated the test over and over again) that the stained substance is outside the oxalate of lime, and the natural interpretation is, that it is but the remains of the original cell contents of the Potato leaf-cell in which the oxalate of lime body was formed—adhering to it over the surface. A deal of trouble might, therefore, have been saved, but for the assertion that the oxalate of lime contained a central mass of protoplasm.

"In addition to this part of the enquiry, I have looked into the matter from another point of view, and evidence has been obtained which, I venture to think, will prove to be of interest. A week or two ago Mr. Carruthers placed in my hands a letter from Dean Buckland (dated July 19, 1847) to Robert Brown, enclosing leaves, &c., of a Potato plant, and asking, 'Is the enclosed the same affection of the Potato leaves as that of the two last years?'—meaning the Potato disease. I examined the leaves, and found no sign of Potato disease, but, abundantly present, Mr. Wilson's sclerotia. Thus we see that Mr. Wilson was anticipated even in his mistake.

"Mr. Carruthers then suggested to me that I should examine Potato plants preserved in Sir Hans Sloane's herbarium. We found four plants which had evidently been healthy and vigorous when collected. From each I removed a very minute fragment for examination. The first one was from the King's garden at Montpellier, collected by Dr. Charleton (Charleton was born 1619, and died 1707). It contains Mr. Wilson's 'sclerotia' as abundantly as Mr. Wilson's own specimens. The next was a plant collected by Boerhaave (Boerhaave was born 1668, and died 1738), and it also proved as fertile in the matter of 'sclerotia.' The next was one of Plukenet's plants (Plukenet was born in 1642, and died 1706?); it contains them too, but the fragment selected shows only a few. Finally a fragment was taken from a plant 'collected about 1660,' as labelled in Sir Hans Sloane's handwriting; and it, like the last named, contained these bodies which Mr. Wilson wishes to connect with the Potato disease. The four fragments of antiquity could all be placed under an ordinary cover-glass—they were selected from the plants at random, and none of them disappointed me. Unfortunately, I cannot remove the slides from the Museum, but the specimens have been examined by Mr. Carruthers, Mr. Bower, Mr. Ridley, Mr. Geddes, and Dr. Masters. Mr. Carruthers and Mr. Bower have also kindly witnessed the tests described above, and I need not add I shall be happy to exhibit the whole matter to Mr. Wilson, or to any one whom he may appoint. *George Murray.*"

#### BUDS ON ORCHID ROOTS.

Major Lendy exhibited a plant of *Phalenopsis* bearing small buds on the aerial roots; a very unusual phenomenon, though not unknown. They, however, are too minute to be of use as a practical source of propagation. The plant was figured in the *Gardening World*, vol. i., p. 364.

#### PINUS MASSONIANA.

Sir J. D. Hooker exhibited a branch bearing a large cluster of cones. He remarked that they were usually borne singly on the young trees, but the normal character appeared to be in clusters when they grew older, as figured by the Japanese.

#### MASDEVALLIA LEONTOGLOSSA.

This Orchid was exhibited by Sir Trevor Lawrence, and the committee awarded it a Botanical Certificate.

#### DECAY OF CEDRUS DEODARA.

Mr. Murray reported upon the mycelial growth found under the bark of the trees which had died, and which were exhibited at the last meeting. He found it to be in all probability a species of *Polyporus*, and which was parasitic upon the cambium layers. It was his opinion that the fungus was quite competent to cause the destruction of the trees.

#### NARCISSUS PACHYBULBOS.

Mr. Loder exhibited a truss of this Algerian plant, of which we hope shortly to give a figure. The flowers are white and fragrant.

#### CHINESE WAX.

Mr. MacLachlan exhibited specimens of *Fraxinus chinensis* and *Ligustrum lucidum* (?) attacked by *Coccus Pela* (*Gardeners' Chronicle*, 1853, p. 533).

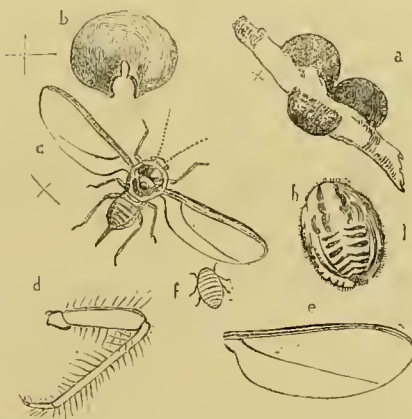


FIG. 43.—CHINESE WAX INSECT.

He remarked that it appeared to be an agglomeration of male insects, and not a secretion from the female scale, as is usual. The wax was an important commercial product, and Sir J. D. Hooker observed that our information on this subject was derived through the great facilities offered by the Foreign Office in inquiring into the sources of various native productions of foreign countries. Mr. MacLachlan observed that there was another source of a similar wax from a female cocoon from South India.

#### MORNODES DISEASED.

Mr. Smee exhibited specimens of leaves apparently attacked by some insect. They were referred to Mr. Michael for examination and report.

#### CASTOR-OIL FRUITS.

He also exhibited some fruits and seeds which had ripened in the open air. The latter were rather small, but apparently quite sound.

#### ROOTS OF RHODODENDRON DISEASED.

Hon. and Rev. Mr. Boscawen sent some roots, which appeared to have decayed through wet; no fungoid growths could be detected in it.

#### Floral Committee.

Present: G. F. Wilson, Esq., in the chair; and Messrs. M. T. Masters, J. Llewellyn, H. Turner, W. Bealby, J. Walker, A. Perry, H. Herbert, G. Hemeloa, J. James, C. Noble, J. Fraser, J. Hudson, H. M. Pollett, H. Ballantine, J. Dornay, H. Cannell, G. Duffield, J. O'Brien, E. Hill, J. Douglas,

W. B. Kellock, H. Williams, T. Baines, H. Bennett, J. Laing, J. Child, and T. B. Kinghorne.

From Sir T. Lawrence's garden came a small plant of *Dendrobium heterocarpum* album with a splendid spike of its charming white flowers. *Cattleya Massangeana*, a richly-coloured species with striped segments, and *Laelia anceps* Hillii, a magnificent plant, growing on a raft. It would measure 2 feet and 3 feet superficially, the spikes of white blooms being both strong and abundant, the faint lilac lip adding much to the attractiveness of the flower. *Acineta chrysanthra*, also from the same treasure-house of Orchids, was showing one spike of its massive orange flowers, spotted with minute red dots. The singular position of the bloom, as in Stanhopea, and its rare colour and unwonted form, made it very attractive. An immense flower of *Anthurium Ferriense*, with a spathe 8 inches in length, came from Sir T. Lawrence's gardener. This was in no way a monstrosity, but a well developed bloom. Mr. Ballantine, gr. to Baron Schröder, The Dell, Egham, showed *Odontoglossum Chestertonii*, with the beautiful brown-spotted lemon-coloured flowers, and the very pretty cream-coloured free-flowering *Coelegyne flaccida*. The plant was not large, but it was completely hung round with the drooping flower-spikes. From W. Lee, Esq. (Mr. Woolford, gr.), Downside, Leatherhead, came the handsome *Odontoglossum Hrubyanum* (cirrosium album), with flowers of the purest white on long robust spikes, the plant carrying about twenty open flowers. *Saccolabium belinum*, having flowers small, with narrow oblong green segments, spotted with brown; the basal part of the lip is a pure white cup, the front portion convex, white, and covered with a fringe of white hairs. Messrs. Veitch & Sons, Chelsea, showed a reddish-crimson greenhouse *Rhododendron militare*, the flower being borne on a flatish corymb. From the same nurseries came the well known *Linnm trigynum*, shown as a mass in a large pan, to indicate its value as a decorative plant in the winter months; likewise a large plant of *Nepenthes cincta*, well furnished with its large brownish-crimson pitchers. This variety is said to have been raised from seeds accidentally imported with those of *N. Northiana* (*Gardeners' Chronicle*, May 3, 1884, fig. 110). This firm staged a bright group of *Cyclamen persicum* of great variety of colour and general excellence, for which a Bronze Banksian Medal was awarded. A. H. Smee, Esq. (gr., G. W. Cummins), The Grange, Wallington, showed a healthy small specimen of *Odontoglossum membranaceum*, which it was stated had been grown for three months in 1884 in the open air. Mr. B. S. Williams, The Nurseries, Upper Holloway, showed a specimen of *Odontoglossum hystrix* magnifica, carrying a spike of flowers, the segments of which are rich chocolate-colour with yellow tips. Mr. W. Bull, The Nurseries, King's Road, Chelsea, had a group of considerable size, consisting mainly of Orchids and Palms, among the former being a *Dendrobium Wardianum* album, a good white form of *Wardianum*, with a yellow labellum and throat, with two purple blotches at the side. Several forms of *Cattleya Trianae*, as *tyrianthina*, *Imperialis*, *picta*, and *Empress* have varying degrees of dissimilarity in colour, size of bloom, &c. *Odontoglossum Pescatorei* aurantiaca, with sepals and petals of a pure white, the crest a bright orange, the former being faintly suffused with rose colour, was a variety to admire, as is also *O. Pescatorei melanoleuca*, with a brown crest, tipped with gold. There was in this collection a good form of *O. Halli leucoglossum*, exceedingly dark in its tints. The finest plant was undoubtedly *Vriesia jaceiriense* variegata, a bold-habited Bromeliaceous plant, well foliaged from top to bottom. The leaves were in tufts, dark green, 3 inches wide, and bearing a broad central band in the young ones, and several in the older leaves of a creamy-white. *Oreodoxa plumosa*, a graceful pinnate-leaved Palm, with narrow recurved segments, was a noticeable species, as was also *Deckenia furfuracea*, a handsome spiny-stemmed Palm, with pinnate leaves and wedge-shaped segments, irregularly notched at the edges. Mr. Heims, gr. to F. A. Phillbrick, Esq., Oldfield, Bickley, showed the New Granada *Odontoglossum blandum*, a small plant of this fine species, the yellowish-white flowers sprinkled with crimson, like *O. nevium* as to the lip, but rather broader than in that species. *O. Erstedii* came from the same gardens. Mr. Simcox, gr. to G. N. Wyatt, Esq., Lake House, Cheltenham, showed a large piece of *Odontoglossum ramosissimum*, a straggling long-spiked variety of no particular beauty, and *Cattleya choconensis*, with five blooms. Mr. James, Farnham Royal, showed a box of wonderfully large and symmetrical blooms of *Cinerarias*. Mr. Baylor Hartland, 24, Patrick Street, Cork, showed the much sought for *Narcissus Rip Vao* Winkle, a dwarf yellow double variety; and N. General Gordon, a hybrid double, N. Ajax x N. Incomparabilis. Messrs. H. Cannell & Sons, Swanley Nurseries, Kent, showed a well grown group of *Primula sinensis*, Swanley Blue, a fair lilac in colour, but not blue, it is, however, the nearest approach to a blue that we have, and moreover, the plants had been well done. They showed besides, a collection of *Cyclamen* of good quality, and another, of the old double white *Primula*, receiving a Bronze Banksian Medal. Messrs. T. Todman & Son, Upper Footing, showed seedling *Azalea indica*. Mr. Clarke, Nurseries, Twickenham, had a fine group of very varied *Cyclamen persicum*, the bright and deep colours of great richness being pre-eminent, as were likewise those with pure white flowers for size and substance. *Monarch*, white with a rosy eye, and *Sunset*, a deep pink, with a scarlet eye, were considered the best of the named kinds. He was awarded a Silver Banksian Medal for the collection. Mr. H. B. Smith, St. George's Nursery, Hanwell, had also a collection of *Cyclamens*, in which were many flowers of great substance and beautiful tints, as *C. persicum*, *Rose Perfect*.



tion, a fine robust kind, and *C. giganteum album*, an equally good flower; showing also *C. Mont Blanc* and *C. H. B. Smith* in good form, two kinds certificated in former years. A Silver Banksian Medal was awarded for the collection. A Bronze Banksian Medal was awarded to Mr. J. Wiggins, gr. to W. Clay, Esq., Kingston-on-Thames, for a collection of Cyclamen (160 plants), in which the flowers of a pure white took the lead, the best of the named kinds being *C. giganteum*, Ingomar, a pale flesh, with purple eye; *C. persicum*, Dawn of Day, rose, with a similar eye; and *C. p. Ariel*, a white, with rose eye. Mr. M. Crowe, of The Nursery, Upton, Essex, showed *Begonia semperflorens gigantea rosea*, a useful winter variety. Mr. J. Potts, gr. to R. Phillips, Esq., Welcombe, Stratford-on-Avon, showed seedlings of double Primulas; and Mr. King, Rousham, Aylesbury, some handsome Chinese Primulas, the best being *The King*, a symmetrically formed crimson of good substance.

#### FIRST-CLASS CERTIFICATES.

To W. Lee, Esq., for *Odontoglossum Hrubyanum* and *Saccolabium belinum*.

To Mr. W. Bull, for *Vriesia janirensis*.

To Messrs. J. Veitch & Sons, for *Nepenthes cincta* and *Rhododendron militare*.

To Sir Trevor Lawrence, for *Acinetia chrysanthra*, *Dendrobium heterocarpum album*, *Cattleya Massangeana*, and *Laelia anceps Hillii*.

To Mr. B. S. Williams, for *Odontoglossum hystrix magnifica*.

To Mr. J. King, for *Primula The King*.

To Mr. H. B. Smith, for *Cyclamen giganteum album*.

To Messrs. Cannell & Sons, for *Primula White Perfection*.

#### VOTES OF THANKS.

To Mr. N. Wyatt, for *Odontoglossum ramosissimum*.

To Mr. Heims, for *Odontoglossum blandum*.

To Messrs. Todman & Son, for seedling *Azalea indica*.

To Sir Trevor Lawrence, for *Anthurium Ferriense*.

To Baron Schröder, for *Odontoglossum Chestertonii*.

To Messrs. Veitch & Sons, for *Linum trigynum*.

To Mr. G. W. Cummins, for *Odontoglossum membranaceum*.

To Mr. James, for *Cineraria* blooms.

#### Fruit Committee.

Present: F. D. Godman, Esq., in the chair; and Messrs. J. Lee, A. Sutton, H. J. Veitch, J. Woodbridge, G. T. Miles, W. Paul, A. Howcroft, C. Ross, G. Goldsmith, J. Willard, Harrison Weir, F. Rivers, F. Rutland, G. Paul, W. Denning, G. Bunyard, and R. D. Blackmore.

Early Cabbages were shown by Mr. Gilbert, gr., Burghley, Stamford, the sorts being his Selected Imperial and Ellam's Dwarf. Mr. Inglis, gr. to Earl Grey, Howick, Northumberland, showed four varieties of early kinds, all of them being superior to the Burghley varieties, the best being the Reading All Heart, and the next Cooke's Early, these two having really firm hearts—the Early Rainham and Heartwell Marrow standing in that order as regards merit. Mr. Bibby, nurseryman, Colchester, showed some solid sticks of white Celery named Bibby's Defiance. In fruit, Messrs. G. Bunyard & Co., and Messrs. H. Lane & Sons, came out strongly, each putting up fifty dishes of Apples, consisting of the leading kinds; many early kinds appearing, that ordinarily are long since over-ripe. Messrs. Bunyard showed a new Pear, Duchess de Bordeaux, a sort resembling the Eyewood somewhat in form and markings. Messrs. Rivers & Son, Sawbridgeworth, exhibited a collection of fifteen varieties of the Orange, of home growth, two of Lemons, a Lime, and a Shaddock. These fruits were handsome to look on, and not wanting in juiciness, but they had no flavour. Only one, named O. Sustane, was considered to be worthy of notice. Mr. J. Day, gr., Galloway House, Garlistown, N.B., showed the Galloway Pippin, which will keep in usable condition from November to May.

#### FIRST-CLASS CERTIFICATES.

To Messrs. Rivers & Son, for Orange Sustane.

To Messrs. G. Bunyard & Co., for Pear Duchess de Bordeaux.

#### VOTE OF THANKS.

To Mr. D. Inglis, for an assortment of Cabbages.

AUSTRALIAN TIMBER.—Of the 10,000 forest trees which probably represent the timber-producing capabilities of the globe 7000 or 8000 would flourish in New South Wales. Already there is an export trade in cut and sawn timber of considerable value. The export in 1881 was valued at £23,816, in 1882 at £42,040, and in 1883 at £67,150. It was well observed by the jurors on wood at the Victoria Exhibition of 1872 that the disfavour which attaches to Australian timber is in a large measure owing to the fact that the timber is so frequently felled at improper seasons, whilst the sap-vessels are full; and it is a matter for regret that this is never considered by the Government in calling for tenders, the completion of the work being often stipulated for at a time which leaves the contractor no alternative but to fell his timber after the sap has risen. Another cause of the disfavour is owing to the fact that due care is not exercised in sending the best sorts, besides which there is a general want of care in withdrawing faulty pieces from shipment. P. L. Simmonds, in "Journal of the Society of Arts."

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, FEBRUARY 11, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.		RAINFALL.
	Mean Reading reduced to 32° Fahr.	Departure from Average of 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure from Average of 50 years.	Dew Point.	Degree of Humidity. Sat. = 100.	Average Direction.		
Feb 5	29.22	-.54	48.0	31.0	17.0	39.5	+ 0.5	35.3	85	W.S.W.	in.	0.02
6	29.56	-.20	48.5	35.0	13.5	42.3	+ 3.2	40.3	90	S.W.		0.03
7	29.52	-.24	51.0	40.0	11.0	45.0	+ 6.8	42.9	90	S.W.		0.01
8	29.47	-.30	51.0	40.0	11.0	45.0	+ 6.8	44.0	94	S.S.W.		0.16
9	29.52	-.25	50.0	36.0	14.0	41.1	+ 2.0	37.1	85	N.W.		0.02
10	29.85	+.07	48.0	33.5	14.5	41.2	+ 2.2	38.3	89	N.W.		0.00
11	29.82	+.04	54.5	42.5	12.0	49.0	+ 10.0	44.6	85	W.S.W.		0.00
Mean	29.57	-.20	50.1	36.9	13.2	43.6	+ 4.5	40.4	88	W.S.W.		0.24

Feb. 5.—Fine day, sun shining occasionally. Fine and clear at 5 P.M.

6.—Fine, dull day and night.

7.—Fine bright day and night.

8.—Dull day throughout; rather windy at night.

9.—Fine bright morning; dull afternoon; fine evening.

10.—Dull morning; very fine afternoon; fine night.

11.—Fine day and night, clear and cloudy alternately.

LONDON: Atmospheric Pressure.—During the week ending February 7, the reading of the barometer at the level of the sea increased from 29.07 inches at the beginning of the week to 29.31 inches by 5 P.M. on the 1st, decreased to 29.05 inches by 1 P.M. on the 2d, increased to 29.41 inches by 9 A.M., decreased to 29.31 inches by 5 P.M. on the 4th, increased to 29.37 inches by 9 A.M. on the 5th, decreased to 29.34 inches by 1 P.M. on the same day, increased to 29.82 inches by 9 A.M. on the 6th, decreased to 29.64 inches by 9 A.M. on the 7th, and was 29.74 inches by the end of the week.

The mean reading of the barometer for the week was 29.43 inches, being 0.25 inch lower than last week, and 0.51 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 53°, on the 2d; the highest on the 1st was 46°.3. The mean of the seven high day temperatures was 49°.3.

The lowest temperature was 31°, on 5th; on the 7th the lowest temperature was 40°. The mean of the seven low night temperatures was 36°.5.

The greatest range of temperature in one day was 17°, on the 2d and 5th; the smallest was 6°.8, on the 1st. The mean of the seven daily ranges was 12°.8.

The mean temperatures were—on the 1st, 42°.7; on the 2d, 45°.9; on the 3d, 44°.2; on the 4th, 40°.9; on the 5th, 39°.5; on the 6th, 42°.3; on the 7th, 45°.9; and these were all above their averages by 4°.1, 7°.2, 5°.2, 2°.0, 0°.5, 3°.2, and 6°.8 respectively.

The mean temperature of the week was 43°, being 1°.1 higher than last week, and 4°.1 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 93°.5, on the 7th. The mean of the seven readings was 83°.7.

The lowest reading of a minimum thermometer with its bulb placed on grass was 23°.5, on the 5th. The mean of the seven readings was 29°.2.

Rain.—Rain fell on every day in the week, to the amount of 0.59 inch, of which 0.28 inch fell on the 4th.

ENGLAND: Temperature.—During the week ending February 7, the highest temperatures were 56°.1, at Cambridge, 53°.6 at Nottingham and Bradford; the highest at Sunderland was 49°, at Bolton 49°.1, at Wolverhampton and Newcastle 50°. The general mean was 51°.8.

The lowest temperatures were 28°.8, at Bolton, 29°.1 at Wolverhampton, 30° at Cambridge and Sunderland; the lowest at Plymouth, 33°.5, at Brighton and Liverpool 33°.4. The general mean was 31°.4.

The greatest ranges were 26°.1, at Cambridge,

22°.6 at Bradford, 22° at Blackheath and Hull; the smallest ranges were 16°.8, at Brighton, 17°.4 at Liverpool, 18° at Newcastle. The general mean was 20°.4.

The mean of the seven high day temperatures was highest at Truro, 50°.9, at Plymouth 49°.9, at Cambridge 49°.6; and was lowest at Bolton, 44°.3, at Newcastle 45°, at Sunderland 45°.1. The general mean was 47°.4.

The mean of the seven low night temperatures was highest at Plymouth, 41°, at Truro 39°.3, at Bristol 39°.1; and was lowest at Wolverhampton, 33°.1, at Bolton and Hull 34°.1. The general mean was 36°.5.

The mean daily range was greatest at Cambridge, 15°.1, at Blackheath and Wolverhampton 12°.8; and was least at Plymouth, 8°.9, at Bristol 9°.2, at Liverpool 9°.5. The general mean was 10°.9.

The mean temperature was highest at Plymouth, 45°.2, at Truro 44°.7, at Bristol 43°.4; and was lowest at Bolton, 38°.9, at Wolverhampton 39°.2, at Sunderland 39°.6. The general mean was 41°.6.

Rain.—The largest falls were 2.11 inches at Truro, 1.51 inch at Bolton, 1.26 inch at Plymouth; the smallest falls were 0.12 inch at Sunderland, 0.14 inch at Newcastle, 0.46 inch at Cambridge. The general mean fall was 0.85 inch.

SCOTLAND: Temperature.—During the week ending February 7, the highest temperature was 50°, at Glasgow; at Dundee the highest was 44°.2. The general mean was 47°.4.

The lowest temperature in the week was 30°.2, at Perth; at Edinburgh, Greenock, and Paisley, 34°. The general mean was 32°.7.

The mean temperature was highest at Leith, 40°.7; and lowest at Dundee, 38°. The general mean was 39°.7.

Rain.—The largest fall was 2.05 inches, at Greenock, and 0.31 inch, at Aberdeen. The general mean was 0.86 inch.

JAMES GLAISHER, F.R.S.

#### Answers to Correspondents.

\* \* Notice.—Owing to want of space this week, many communications are unavoidably held over.

ADDRESS: Chev. d. M., Botanic Garden, Hamburg.

ADDRESS OF INTRODUCER OF JAPAN PLUM: A Constant Reader. The address you inquire for is Messrs. Hammon & Co., Oakland, Michigan, U.S.A. Apply also to Mr. W. Bull, King's Road, Chelsea.

FARADAYA PAPUANA: W. M. It is a tropical Australian climbing shrub, the treatment of which might accord with that given to the warm-house Ipomæas.

GROS COLMAR: Barr & Son. A bunch of from 4 lb. to 5 lb., well finished, is considered a very "fine" bunch.

HYACINTH SPIKE ROTTING: W. & S. The malady is common, but the reason is unknown, and there is no remedy that we know of.

INSECT IN LEAVES OF MARGUERITES: [G. R. Gude. The Celery leaf miner (Tephritis onopordinis). Carefully pick off all affected leaves and burn them; do not throw them away, as the maggots go into the soil and change into the pupæ state, and so are reproduced.

MOSSY TENNIS-COURT: R. G. D. The best remedy for you to adopt will be to thoroughly drain the court, and give it a good top-dressing of sifted wood-ashes and good soil. This generally succeeds in eradicating the moss.

MUSHROOMS FOR THE MARKET: Fungus. Mushrooms for the Million, by J. Wright, published at 171, Fleet Street, E.C. (Journal of Horticulture Office).

NAMES OF PLANTS: J. Forsyth Johnson. Schinus Molle.—F. N. B. Celogyne flaccida.—F. D. Peristrophe speciosa, Nees.—W. M. Excoecaria bicolor; a tropical plant.—A. Goulding. Garrya elliptica.

ODONTOGLOSSUM CRISPUM: J. Earl. A pale variety of no great merit.

ROSE OF JERICO: J. C. The plant you allude to is Anastacia hieracanthina. We believe the phenomenon is purely physical, though it has not yet been explained why this plant, Selaginella involvens, and a few others, should have greater absorbent properties than others. Doubtless there is some structural or molecular reason, but it has not been proved. Of course, the appearance is quite independent of vitality.

STATUS OF UNDER GARDENERS, APPRENTICES, AND GARDEN LABOURERS: W. R. G. Garden labourers are not under-gardeners. Apprentices, improvers, and under-gardeners all come under the Act, and have to be paid for.

\* \* All communications intended for publication should be addressed to the "Editor," and not to the Publisher, or to any member of the staff personally. The Editor



would also be obliged by such communications being written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

INTELLIGENT READERS, PLEASE NOTE. — Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and NOT to the Editor.

### CATALOGUES RECEIVED.

SAMUEL SHEPPERSON, Belper—Florists' Flowers, &c.  
JOHN A. BRUCE & Co., Hamilton, Canada—Seed Catalogue.  
Wm. RENNIE, Toronto, Ontario, Canada—Seed Catalogue.  
LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited—Vegetable and Flower Seeds.  
W. THOMPSON, Ipswich—Descriptive List of Flower Seeds.  
T. WARE, Hale Farm, Tottenham—Select Hardy Perennials and Hardy Florists' Flowers, Greenhouse Seeds, Grasses, &c.  
R. & J. FARQUHAR & Co., Boston, Mass., U.S.A.—Seed Catalogue.  
JAMES MORGAN, Paisley—General Catalogue.  
G. & W. YATES, Manchester—Vegetable and Flower Seeds.  
W. P. LAIRD & SINCLAIR, Dundee—Vegetable and Flower Seeds.  
VOOTE & RICHARD, Zeist, Holland—Vegetable and Flower Seeds.

COMMUNICATIONS RECEIVED:—F. D.—C. P.—G. McK.—Ed. Pynaert.—H. H. R.—M. Godefroy.—C. V. Riley, Washington.—J. R. J.—H. A.—W. R.—A. F.—B. A. R.—W. W.—R. T. C.—M. D.—B. S.—H. B. R.—W. H. B.—G. H.—T. C.—W. Gosling (next week).—R. G.—C. W. S.—W. H.—Skinner & Board.—N. F. Fuller.—W. E.—W. Culverwell.—W. I. M.—J. F.—T. O'B.—J. R. J.

DIED, on the 5th inst., at Denham Road Nursery, Uxbridge, the residence of his son-in-law, ANDREW DICK, aged seventy-six, after many years of patient suffering. Deeply regretted by his family and friends.

## Markets.

### COVENT GARDEN, February 12.

The subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. Eo.]

MARKET very quiet; supplies falling off. Prices remain the same. *James Webber, Wholesale Apple Market.*

### FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, ½-sieve .. 1 6-4 0	Lemons, per case .. 12 0-18 0
— paragus, Eng., .. 1 0-2 0	Pine-apples, Eng., lb. 1 0-2 0
Canadian, barrel 12 0-21 0	St. Michael, each 2 6-8 0
Cobs, per 100 lb. .. 53 0-55 0	Pears, French, doz. 3 0-9 0
Grapes, per lb. .. 3 0-0 0	

### VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz. .. 4 0-6 0	Lettuces, Cab., doz. 1 6-2 0
A-paragus, English, per bundle .. 3 6-10 0	Mint, green, bunch. 1 6-2 0
— French, bundle 15 0-20 0	Mushrooms, p. basket. 1 0-2 0
Beans, Eng., per 100 3 0-4 0	Onions, per bushel. 4 0-4 0
Beet, per doz. .. 1 0-2 0	— Spring, per bun. 0 6-1 0
Cabbages, per doz. 1 6-2 0	Parsley, per bunch. 0 4-1 0
Carrots, per bun. .. 0 6-1 0	Peas, per lb. .. 1 0-2 0
Cauliflowers, English, dozen. .. 2 0-4 0	Potatoes, new, per lb. 0 9-1 0
Celeriac, per root .. 0 4-1 0	Radishes, per doz. .. 0 6-1 0
Celery, per bundle. 1 6-2 0	Rhubarb, bundle .. 0 6-1 0
Cucumbers, each .. 1 0-2 0	Salsify, per bund. 1 0-2 0
Eodive, Eng., dozen 1 0-2 0	Seakale, per punnet 2 0-2 6
Garlic, per lb. .. 0 6-1 0	Small salad, per punnet .. 0 4-1 0
Herbs, per bunch .. 0 2-4 0	Spinach, per bushel 4 0-4 0
Horse Radish, bun. 3 0-4 0	Tomatoes, per lb. .. 2 0-2 6
	Turnips, bun. .. 0 5-1 0

POTATOES.—Magnum Bonums, 40s. to 70s.; Regents, 70s. to 90s.; Champions, 45s. to 60s. per ton. Markets have a downward tendency.

### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-24 0	Ficus elastica, each 1 6-7 0
Arbor-vitæ (golden), per dozen .. 6 0-18 0	Foliage Plants, various, each .. 2 0-10 0
— (common), dozen 6 0-12 0	Genista, 12 pots .. 12 0-18 0
Arum Lilies, dozen 9 0-15 0	Heaths, in variety, 12 pots .. 12 0-30 0
Azaleas, per dozen .. 8 0-12 0	Hyacinths, per doz. 6 0-9 0
Begonias, per doz. .. 6 0-12 0	Lily-of-the-Valley, 12 pots .. 15 0-24 0
Bouvardia, dozen .. 9 0-18 0	Marguerite Daisy, per dozen .. 8 0-15 0
Cinerarias, per doz. 9 0-12 0	Myrtles, per doz. .. 6 0-12 0
Cyclamens, per doz. 9 0-24 0	Narcissus, 12 pots .. 12 0-18 0
Cyperus, per dozen 4 0-12 0	Palms in variety, each .. 2 6-21 0
Dracæna terminalis, per dozen .. 30 0-60 0	Pelargoniums, scarlet, per dozen .. 4 0-6 0
— viridis, per doz. .. 12 0-24 0	Primula sinensis, per dozen .. 4 0-6 0
Epiphyllum, doz. .. 18 0-24 0	Solanums, dozen .. 9 0-12 0
Erica, various, doz. 9 0-18 0	Tulips, dozen pots .. 8 0-10 0
Euonymus, various, per dozen .. 6 0-18 0	
Evergreens, in var., per dozen .. 6 0-24 0	
Ferns, in variety, per dozen .. 4 0-18 0	

### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilon, 12 bunches 2 0-4 0	Mignonette, 12 bun. 6 0-9 0
Arum Lilies, 12 blms. 3 0-6 0	Narcissus, Paper-white, 12 sprays .. 2 0-2 6
Azalea, 12 sprays .. 0 10-1 6	— French, 12 bun. 2 0-6 0
Bouvardia, per bun. 1 0-1 6	Pelargoniums, per 12 sprays .. 1 0-2 0
Camellias, per doz. .. 2 0-4 0	— scarlet, 12 sprays 1 0-1 6
Caraotias, 12 blms. 1 0-3 0	Poinsettia, 12 blooms 3 0-9 0
Cinerarias, per bun. 1 0-1 6	Primula, double, bun. 1 0-1 6
Cyclamens, 12 blooms 0 3-9 0	— sinensis, 12 bun. 4 0-6 0
Epiphyllum, 12 blms. 0 4-6 0	Roses (indoor), doz. 2 0-6 0
Euphorbia laciniiflora, 12 sprays .. 3 0-6 0	— French, per doz. 1 0-3 0
Gardenias, 12 blms. 18 0-30 0	Tropæolum, 12 bun. 2 0-4 0
Heliotropes, 12 sp. .. 0 6-1 0	Tuberose, per doz. .. 2 0-4 0
Hyacinths, Roman, 12 sprays .. 1 0-1 6	Tulips, 12 blooms .. 1 0-1 6
Lapageria, white, 12 blooms .. 2 0-3 0	Violets, 12 bun. .. 1 0-1 6
— red, 12 blooms .. 1 0-2 0	— French, bunch. 1 3-1 6
Lily-of-the-Valley, 12 sprays 1 0-2 0	— Parme, French, per bunch .. 3 0-5 0
Marguerites, 12 bun. 6 0-9 0	Wallflower, 12 bun. 4 0-6 0
	White Jasmine, bun. 0 6-1 0

### SEEDS.

LONDON: Feb. 11.—Messrs. John Shaw & Sons, of 37, Mark Lane, E.C., report that no new feature of interest or importance in connection with the trade for farm seeds was exhibited on the market to-day. Speaking generally, values remain without alteration; the demand for all varieties, for the time of year, continues small. There is a ready sale for spring Tares at the late advance; good parcels of winter Vetches also quickly find buyers. Blue boiling Peas and Haricot Beans are, for the present, neglected. Canary and Hemp seed sell slowly on former terms; there is, however, rather a better feeling for the former. Feeding Linseed keeps firm.

### CORN.

At Mark Lane on Monday English Wheat sold slowly at the rates of Monday week; foreign also remained without quotable change, but there was hardly sufficient doing to test quotations. The prices of flour had a drooping tendency. Barley, Beans, and Peas met only a retail demand, and remained at late rates. American mixed Maize was 6d. lower on the week at 22s. 6d., the little improvement noticed on Friday last being lost. Russian Oats were rather firmer than on last market, and ruled up to Monday last.—On Wednesday transactions in Wheat were upon an extremely limited scale, but sales were not pressed at any tangible decline. Flour was a weak market. No change occurred in the value of Barley, Beans, or Peas. American mixed Maize was easier. Oats were held for steady value, but were very dull of sale.—Average prices of corn for the week ending February 7:—Wheat, 33s. 9d.; Barley, 32s. 5d.; Oats, 20s. 11d. For the corresponding period last year:—Wheat, 37s. 3d.; Barley, 32s. 4d.; Oats, 19s. 6d.

### CATTLE.

At Copenhagen Fields on Monday finer weather, lighter supplies, and rather better markets for dead meat gave help to the trade, and 2d. per 8 lb. advance was obtained on all but undesirable qualities of cattle and sheep. Quotations:—Beasts, 4s. to 5s., and 5s. 2d. to 6s. 4d.; calves, 3s. 8d. to 5s. 8d.; sheep, 4s. 2d. to 5s., and 5s. 4d. to 5s. 8d.; pigs, 4s. to 4s. 6d.—On Thursday there was a very quiet business doing. Supplies were quite equal to the demand. Beasts changed hands quietly at late rates, and a clearance was not effected. Sheep were dull and drooping. Calves and pigs were in demand at late prices.

### HAY.

Tuesday's Whitechapel Market report states that trade was very quiet, at the following quotations:—Clover, prime, 85s. to 102s. 6d.; prime second cut, 85s. to 102s. 6d.; inferior, 45s. to 75s.; hay, prime, 76s. to 90s.; inferior, 30s. to 65s.; and straw, 22s. to 38s. per load.—On Thursday there was a fair supply offered, and the trade was steady at previous prices.—Cumberland Market quotations:—Clover, best, 90s. to 105s.; inferior, 60s. to 84s.; meadow hay, best, 80s. to 88s.; inferior, 60s. to 75s.; and straw, 25s. to 35s. per load.

### POTATOS.

The Borough Market report states that the demand was only very moderate, and supplies fully adequate. Quotations:—Scotch Regents, 90s. to 100s.; Kent, 70s. to 80s.; Champions, 50s. to 60s.; Magnum Bonums, 60s. to 80s.; Victorias, 70s. to 90s. per ton.—The imports into London last week consisted of 80 bags from Boulogne, and 18 from Hamburg.

### COALS.

The following are the prices current at market during the week:—Broomhill West Hartley, 14s. 9d.; East Wylam, 15s. 6d.; Ravensworth West Hartley, 14s. 9d.; Walls End—Harton, 15s.; Tyne (unscreened), 11s. 3d.; Hetton, 17s.; Hetton Lypoos, 15s.; Lambton, 16s. 6d.; Wear, 15s.; Hulam, 15s. 3d.; East Hartlepool, 16s. 3d.; South Hartlepool, 15s. 3d.

Government Stock.—On Monday and Tuesday Consols closed at 99½ to 99½ for delivery, and 99½ to 99½ for the account. Wednesday's prices were as on the preceding days for delivery, and 99½ to 99½ for the account. Thursday's final quotations were 99½ to 99½ for delivery, and 99½ to 99½ for the account.

**SPECIAL TRADE OFFER.**—Three Acres of Conover's COLOSSAL ASPARAGUS PLANTS, on land that must be cleared; 2-yrs., 9s. per 1000; 3-yrs., 11s. per 1000; 4-yrs., 15s. per 1000. The very best money can buy. Cash with orders. Packing free.  
R. LOCKE, Redhill, Surrey.

### PEACHES, NECTARINES, APRICOTS.

—Fine Dwarf Maiden Trees, at greatly reduced prices. Dwarf ROSES, 20s. per 100. LIST on application.  
WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

### CALADIUM ARGYRITES,

sound bulbs, 50s. per 100.  
TURNER BROS., Nurserymen and Florists, Green Hill Nursery, Allerton, Liverpool.

## GARDEN REQUISITES.

### COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton, in 2-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, 10-BACCO CLOTH, RUSSIA MATS, &c. Write for Free Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (late called 174, Coal Yard), W.C.

## STANDEN'S MANURE.

ESTABLISHED 20 YEARS.

This old-established Manure is acknowledged by most of the leading practical Gardeners in the United Kingdom and the Colonies to exceed all others in general fertilising properties and staying powers. It promotes a rapid, healthy, and robust growth to plants generally. For Vines it cannot be too highly recommended, and this fact is fully sustained from the result obtained by its use in the hands of some of the most successful Grape growers. It is a clean and dry powder, with very little smell, which renders it particularly adaptable for ladies interested in plant culture.

The highly fertilising properties of this Manure render its money value, in comparison with other manures, at least double, and users will find that very small quantities will produce favourable results.

Sold in TINS, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each; and in BAGS or KEGS, at reduced prices, 28 lb., 12s. 6d.; 56 lb., 23s.; 112 lb., 42s. each.

May be obtained from most known Seedsmen in the United Kingdom and the Colonies.

### SOLE MANUFACTURERS,

CORRY, SOPER, FOWLER & CO.

(LIMITED).

Offices and Show Rooms—FINSBURY STREET, E.C.

Manufactory and Bonded Tobacco Stores—

SHAD THAMES, S.E.

### THOMSON'S VINE AND PLANT MANURE.

—We are daily getting letters asking us how to apply this manure, from persons who have purchased it from nurserymen who have had none from us. We beg to intimate that we have no responsibility for the quality of the article they have purchased, which may have little in common with ours, though advertised as the same.

WM. THOMSON AND SONS, Clovenfords.

### COCOA-NUT FIBRE REFUSE.

Reduced price. The same as supplied to the Royal Horticultural Society of England. Truck-load, loose, of 2 tons, 20s. 4 tons, 35s. Larger quantity contracted for. In sacks:—Ten, 8s.; twenty, 15s.; forty, 25s.; bags included. All free on to the following Railways:—Great Western, Great Northern, London and North-Western, Great Eastern, Midland; other lines, 5s. extra per truck. Cash with all orders. Established 1872.

J. STEVENS AND CO., Cocoa-nut Fibre Merchants," Grey-bound Yard," and 153, High Street, Battersea, S.W.

## GARDEN REQUISITES.

TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.)

PEAT, best brown fibrous .. 4s. 6d. per sack; 5 sacks for 20s.

PEAT, best black fibrous .. 3s. 6d. .. 5 sacks for 15s.

PEAT, extra selected Orchid .. 5s. 0d. ..

LOAM, best yellow fibrous .. 1s. per bush. (sacks included).

PREPARED COMPOST, best LEAF MOULD, best only ..

PEAT MOULD ..

SILVER SAND, coarse, 1s. 3d. per bush, 12s. half-ton, 22s. ton

RAPIA FIBRE, best only .. 8d. per lb.

TOBACCO CLOTH, finest imported .. 8d. lb., 28 lb. 12s.

TOBACCO PAPER .. (Spécialité) 8d. lb., 28 lb. 12s.

MUSHROOM SPAWN, finest Milttrack .. 5s. per bushel.

SPHAGNUM MOSS, all selected 2s. per bush, 6s. per sack.

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. each; 10 sacks, 9s.; 15 sacks, 13s.; 20 sacks, 17s.; 30 sacks, 25s.; 40 sacks, 30s. Truck-load, loose, free on rail, 30s. Limited quantities of G., special quality, granulated, in sacks only, 2s. each. Terms, strictly Cash with order.

CHUBB, ROUND & CO.,

WEST FERRY ROAD, MILWALL, LONDON, E.



**BEST AND CHEAPEST INSECTICIDE.***By permission of the Hon. Board of Customs.***(FREE OF DUTY.)****NICOTINE SOAP.**

An effectual and speedy Eradicator of Scale, Thrip, Green-fly, Mealy-bug, Red-spider, American Blight, and all Parasites affecting Plants, without injury to Foliage.

The basis of this valuable preparation is NICOTINE, or the Oil of Tobacco, with which is blended other essential ingredients to render it available as a general INSECTICIDE that may be used as a Wash or Dip for out or indoor plants.

A large number of Testimonials have been received from the most practical men in the country.

Price, in JARS, 1s. 6d., 3s., and 5s. 6d.; in TINS, 14 lb., 15s. 6d.; and DRUMS, 28 lb., 25s.

To be obtained from all Seedsmen, Florists, &c.

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*Horticultural Sundriesmen and Manufacturers,*  
18, FINSBURY STREET, E.C., and SHAD THAMES,  
LONDON, S.E.

**LEMON OIL INSECTICIDE (Registered).**

—Soluble in water. The cheapest, safest, and most effectual Insecticide extant. Harmless to flower and foliage. Instant death to Mealy Bug, Scale, Thrips, Red Spider, Green and Black Fly, American Blight, Mildew, Ants, &c. As a winter dressing unequalled. See circulars, with testimonials, from many of the leading gardeners on its behalf.

Sold by most of the leading Nurserymen, Seedsmen, and Garden Manure Manufacturers, in tins—per pint, 1s. 6d.; quart, 2s. 6d.; half gallon, 5s.; gallon, 9s. Directions for use with each tin.

Wholesale, J. W. COOKE, Market Place, Winsford; and A. LAING, Rawcliffe, Selby, Yorks; also Messrs. OSMAN AND CO., 15, Windsor Street, Bishopsgate, London; and W. FRASER, 121, High Street, Perth.

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Is the best for all Horticultural Purposes.

Sold in Tins at 1s., 2s. 6d., and 10s. 6d. each; also in Sealed Air-tight Bags, containing 1 cwt., 13s.

The 10s. 6d. Tins serve as a strong substantial receptacle to refill from the 1 cwt. bags.

Supplies can be obtained through all respectable Nurserymen, Seedsmen, and Florists in the Kingdom, or direct from the MANUFACTURER,

**W. H. Beeson, Carbrook Bone Mills, Sheffield.**

Testimonials from the Rev. Canon Hole, and most of the leading Gardeners, free on application.

Pure Crushed Unboiled BONES, any size, for Vine Borders, &c.

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**EPPS'S SELECTED PEAT.**—Forty sacks, 2s. 6d. per sack; 30 ditto, 2s. 6d.; 20 ditto, 3s. 6d.; 10 ditto, 4s. 6d.; sacks, 6d. each. In trucks of 14 cubic yards, 11s. per yard. For Rhododendrons and common purposes, 14s. per ton, not less than four tons; sample sack, 2s. 6d.

LOAM, SAND, LEAF-MOULD, SPHAGNUM, &c. See Special List, also for the Trade. Ringwood, Hants.

**GENUINE GARDEN REQUISITES, as** supplied to the Royal Gardens.—Fresh Cocoa-Nut Fibre Refuse, 4 bushel bags, 2s. each; 30 for 25s.—bags included. Two Ton Truck, free on Rail, 25s. Best Brown Fibrous Kent Peat, 5s. per sack; 5 for 22s. 6d.; 5 for 35s.; 20 for 60s. Best Black Fibrous Peat, 4s. 6d. per sack; 5 for 20s.; 10 for 30s. Bedford Sand, 1s. 6d. per bushel; 14s. per 1/2-ton; 25s. per ton. SPECIALITE TOBACCO PAPER, 10d. per lb.; 28 lb., 21s.; cwt., 70s. Second quality, 7d. per lb.; 28 lb. 16s. Finest Tobacco Cloth, 8d. per lb.; 28 lb. for 18s. Leaf-Mould, 5s. per sack. Charcoal, 2s. 6d. per bushel. Bones, Guano, Sphagnum, &c. LIST free. Special prices to the Trade for cash. W. HERBERT AND CO., HOP EXCHANGE WAREHOUSES, SOUTHARK STREET, S.E. (near London Bridge).

12-oz. Sample Packets, free by post, 12 stamps.  
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**FIR TREE OIL INSECTICIDE**

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Effectually clears all Insects and Parasites from the Roots or Foliage of Trees and Plants. Kills all Vegetable Grubs, Turnip Fly, &c. Cures Mildew and Blight. Clears Oranges from Mealy Bug, &c., and makes a good Winter Dressing. Of all Seedsmen and Chemists, 1/6, 2/6, 4/6 a bottle. Per gallon 12/6, or less in larger quantities. A Treatise on "Fir Tree Oil," and its application, sent free on receipt of address, by the Manufacturer, E. GRIFFITHS HUGHES, MANCHESTER. Wholesale from Hooper & Co.; Corry, Soper, Fowler and Co.; J. C. E. OSMAN & Co., and from all the London Seed Merchants and Wholesale Patent Medicine Houses.

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The LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, will in future sell their celebrated MANURE under the name of "COWAN'S VINE and PLANT MANURE," in place of "THOMSON'S VINE and PLANT MANURE." The composition will be the same, and the high quality in every way be maintained. Bags containing 1 cwt., 18s.; 1/2 cwt., 9s. 6d.; 1/4 cwt., 5s.; 1/8 cwt., 3s. Circulars, with full particulars, on application to

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**EUREKA!!**

**INSECTICIDE.**

Prepared by

**WILLIAM SMITH, Chemist, Stockbridge, Edinburgh.**

Highest Award, Forestry Exhibition, Edinburgh.

"Clovenfords, by Galashiels, N.B., July 25, 1883.  
"Mr. SMITH.—Dear Sir.—We have now tried your Insecticide on all the Insects we can find on any of our Plants, including Orchids, and used as directed by you we find it instant destruction to them all, while it neither stains nor injures the tenderest leaf. We shall in future use no Fir-tree Oil, or other Insecticide but yours.—We are, yours truly,  
"WILLIAM THOMSON AND SONS."

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**TOBACCO PREPARATIONS**

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**The "LONDON" TOBACCO POWDER.**

—This preparation consists of best Virginian Tobacco, finely ground, and mixed with other ingredients of an essential character. Price, in Tins, 1 lb., 1s.; 3 lb., 2s. 6d.; and 5 lb., 4s.; or in bulk, £3 12s. per cwt.

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(Free of Duty).—Manufactured from strong American Leaf Tobacco and highly concentrated. Sold in bottles, 1s., pints; 1s. 9d., quarts; 2s. 6d., half-galls.; and 4s., galls. Or in casks of 10 galls. and upwards at 2s. 6d. per gall.

And their highly esteemed

**TOBACCO-PAPER, CLOTH, and CORD**  
for Fumigating Greenhouses.

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**GISHURST COMPOUND**, used by leading Gardeners since 1850 against Red Spider, Mildew, Thrips, Green Fly, and other blights. 1 to 2 ounces to the gallon of soft water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in later from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

**GISHURSTINE** keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s. from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

**SILVER SAND**, coarse, 6s., 8s. and 10s. per ton. Sussex and Kent PEAT and LOAM, 6s., 8s. and 10s. per cubic yard. Free on rail by truckloads. In sacks at moderate prices.—W. SHORT, Horticultural Company, Midhurst, Sussex. Established 1862.

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VINE BORDERS, FRUIT TREES, STRAWBERRIES, ROSES, FLOWER BEDS, POTTING PURPOSES, AND GENERAL HORTICULTURAL PURPOSES.

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**TOBACCO CLOTH and PAPER**, finest and most effective, 14 lb. for 9s.; 28 lb., 18s.; cwt. 70s. Special quotations for the Trade.

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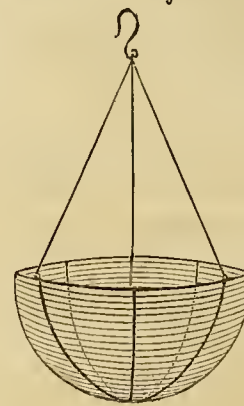
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SUSPENDING BASKETS,  
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BUY ONLY ENGLISH THREE-QUARTER PLATE  
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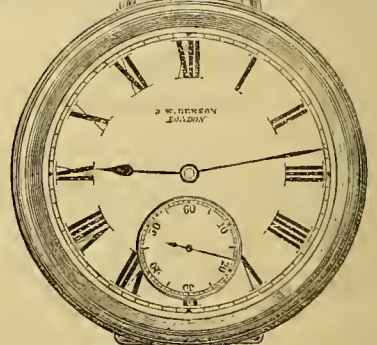
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"LUDGATE" WATCH,

SILVER,

£5 5s.

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Is a "Special Strength" Silver English Lever, my best London make, with Three-quarter Plate Movement.

Jewelled throughout.

Chronometer balance, with damp and dust-proof

Patent ring-band, and extended barrel, in

Massive sterling silver dome cases

With crystal glass front.

Winds, set hands and opens at back.

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The "Ludgate" Watch is far superior

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SINGLE CYLINDER ROLLERS, 16x16, 20x20 AND 24x24 DOUBLE DO SAME SIZES.

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**J. SMITH'S IMPERISHABLE STRATFORD LABELS.**



The above Labels are made of a White Metal, with RAISED BLACK-FAÇON LETTERS.

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Made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three years, and every one who sees my plants is astonished to see how healthy and well they are without the use of glass."

— From a —  
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**"FRIGI DOMO" PROTECTION.**  
To be had  
2 yards,  
3 yards and  
4 yards wide,  
of all Nurserymen and Florists,  
or from the Sole  
Proprietor and Maker,  
**BENJAMIN EDGINGTON**  
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Ask for "Frigi Domo," and see that it is stamped "Frigi Domo," Registered Trade Mark.

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**JAMES T. ANDERSON** supplies every description of **RUSSIA MATS** for Covering, Tying, and Packing, at the very lowest possible prices. **TOBACCO PAPER, RAFFIA, BROWN PEAT, SILVER SAND, COCOA FIBRE REFUSE** (Best only), and other **HORTICULTURAL REQUISITES**. Full Descriptive Priced **CATALOGUE** post-free on application.  
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**ASTON CLINTON STRAW MATS.**—The warmest covering for Pits and Frames. Sizes:—6 ft. 6 in. by 3 ft. 9 in. at 2s.; 6 ft. 6 in. by 4 ft. 6 in. at 2s. 2d.; 6 ft. 6 in. by 7 ft. 3 in. at 3s. 2d. Apply to  
**Miss MOLIQUE**, Aston Clinton, Tring.

Russia Mat Merchants.

**ARCHANGEL MATS, PETERSBURG MATS**, of all qualities and sizes, **RAFFIA FIBRE, TOBACCO CLOTH, FUSE PAPER**, &c. For Wholesale Prices apply to the largest Importers and Manufacturers—**MARENDAZ AND FISHER**, 9, James Street, Covent Garden, W.C.

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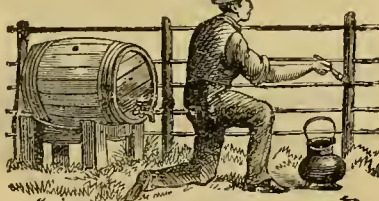
For Sizes and Price apply to the Sole Manufacturers—**BLAKE & MACKENZIE, SCHOOL LANE, LIVERPOOL.**

**BLAKE AND MACKENZIE'S** WATERPROOF and other LABELS, for Nursery and Greenhouse purposes; also the **WILLESDEN WEATHER-PROOF SCRIM CLOTH** for Shading. Pictorial Flower and Vegetable Seed Pockets, and other Seedsmen's Requisites. Address: School Lane, Liverpool.

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RUSSIA MAT MERCHANTS AND IMPORTERS.  
**ARCHANGEL AND PETERSBURG MATS** of every description at wholesale prices for Packing, Covering, and Tying, from 12s. per 100. Manufacturers of **SACKS and BAGS, ROPES, LINES, and TWINES, SEED BAGS** all sizes, **SCRIM and TIFFANY**, for shading and covering, in all widths; **TANNED NETTING, TARRED TWINE and TARRED YARN, RAFFIA FIBRE** for tying, **TOBACCO PAPER and TOBACCO CLOTH, COCOA-NUT FIBRE REFUSE, and GARDEN SUNDRIES**. Price List free on application. Special Quotations to large buyers.  
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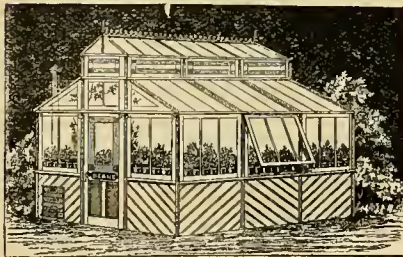
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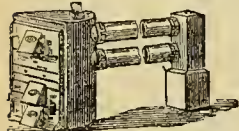
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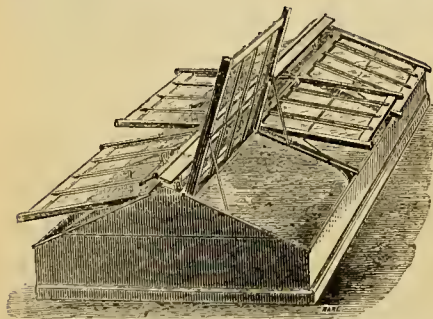
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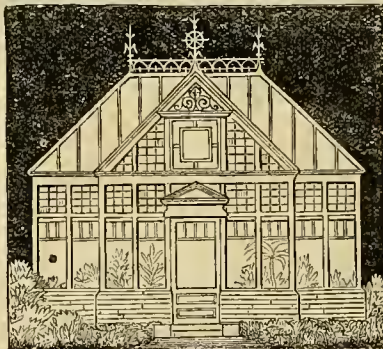
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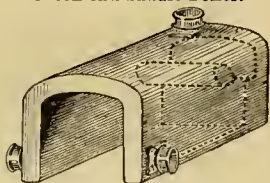
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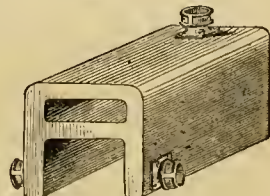
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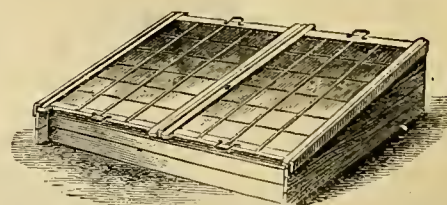
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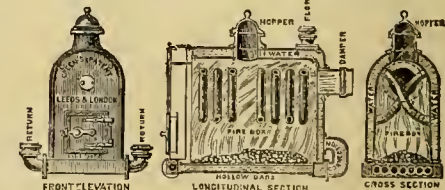
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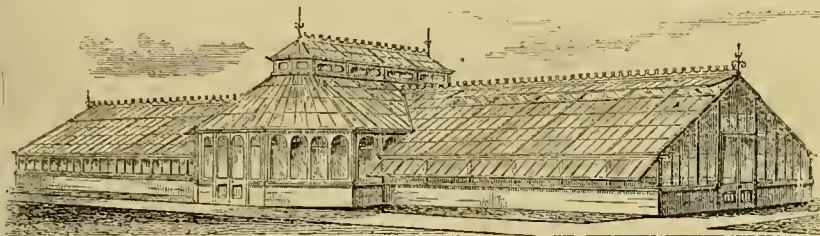
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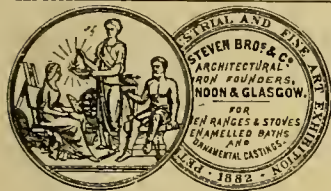
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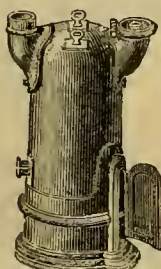


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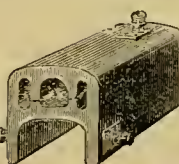
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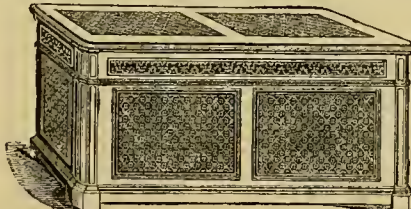
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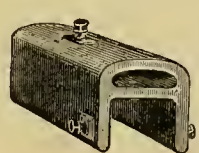
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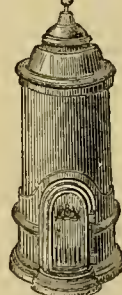
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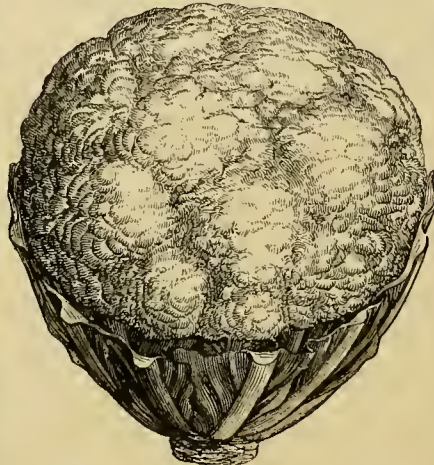
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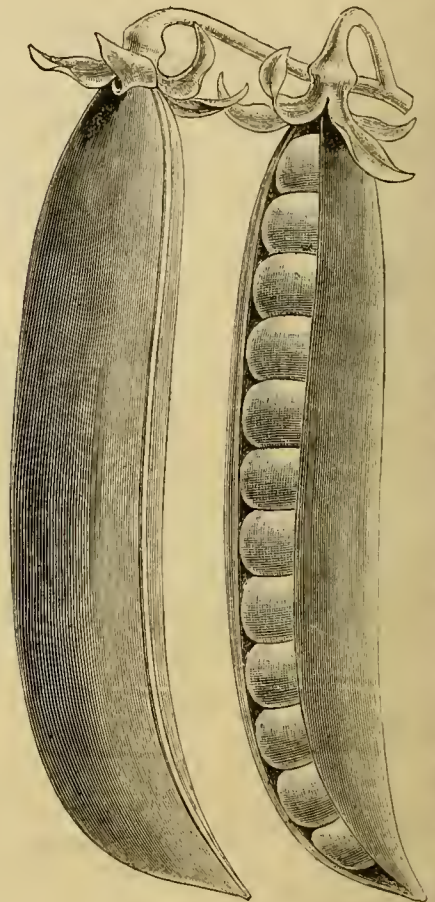
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From W. ELSTON, Esq., *Clifton*.—"I had some very fine Summerhill Lettuce from your seed. They were the size of small Cabbage, and the best I ever grew. I took 1st prize with them at our Horticultural Show."

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THE QUEEN'S SEEDSMEN, WORDSLEY, STOURBRIDGE.



# THE GARDENERS' CHRONICLE.

Established 1841.

No. 582.—VOL. XXIII. { NEW SERIES. } SATURDAY, FEBRUARY 21, 1885.

{ Registered at the General } Price 5d.  
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Volume XXII., JULY to DECEMBER, 1884.  
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**CRYSTAL PALACE.**  
EXHIBITIONS OF PLANTS, FLOWERS, FRUIT, &c., to be held during the year 1885:—  
SPRING EXHIBITION OF PLANTS, FLOWERS, &c., FRIDAY and SATURDAY, MARCH 27 and 28.  
GREAT SUMMER EXHIBITION, MAY 22 and 23.  
THE GRAND EXHIBITION OF ROSES, JULY 4.  
THE FRUIT EXHIBITION, with the GRAND NATIONAL DAHLIA SHOW, SEPTEMBER 4 and 5.  
GREAT AUTUMN FRUIT SHOW, and the INTERNATIONAL POTATO EXHIBITION, OCTOBER 7 to 10 inclusive.  
GRAND CHRYSANTHEMUM EXHIBITION, FRIDAY and SATURDAY, NOVEMBER 6 and 7.  
Schedules on application to Mr. W. G. HEAD, Garden Superintendent, Crystal Palace, S.E.

**SHEFFIELD BOTANICAL and HORTICULTURAL SOCIETY.**  
GRAND EXHIBITION OF PLANTS, FLOWERS, and FRUIT, at the Botanical Gardens, Sheffield, on FRIDAY and SATURDAY, July 17 and 18. TWO HUNDRED and FIFTY POUNDS in PRIZES. Prize Schedules may be had on application to  
Mr. JOHN EWING, Curator, at the Gardens.

**SEVEN ACRES OF NURSERY,** containing a VALUABLE STOCK, continues to be offered at a nominal price. The lease cannot be renewed.  
See CHARLES NOBLE'S full Advertisement, *Gardeners' Chronicle*, February 14 and 28.

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**TWO HUNDRED THOUSAND LARCH,** native. Transplanted last year, 9 to 15 inches, strong, good roots. No reasonable offer refused. Samples and price sent to any address.  
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Apply, stating price, to PUBLISHER, 41, Wellington Street, Strand, London, W.C.

**BARR'S COLLECTIONS OF SEEDS** for Flower or Kitchen Garden, for Home or Abroad. Purchasers can make any alterations they please. CATALOGUE free on application.  
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T. JACKSON and SON, Nurseries, Kingston-on-Thames.

**ROSES.—ROSES.—ROSES.**—Fifty choice Perpetuals sent on receipt of remittance for 25s.; purchaser's selection from 400 best varieties. List of names on application. Twenty-four choice Standards, or Half-standards, 21s. JAS. WALTERS, Mount Radford Nursery, Exeter, Devon.

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EDWIN HILLIER, Nurseries, Winchester.

**ROSES.**—The finest Show and Decorative varieties, strong, robust, hardly grown plants, from 5s. per dozen, 40s. per 100 and upwards. Standards, from 12s. per dozen, 60s. per 100 and upwards. Many thousands to select from.  
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

**DWARF ROSES,** very cheap.—100,000 Leading Sorts, strong, well-grown Plants, on the Seedling Brier. Rose LIST and Prices on application.  
FRIEDRICH MÜLLER, Pionneberg, near Hamburg.

**Gardenias.—Gardenias.**  
JOHN STANDISH and CO. have to offer a splendid lot of GARDENIA PLANTS, clean, bushy, and well set, at the undermentioned prices for Cash with order:—In 5-inch pots, 18s. per dozen; in 6-inch pots, 27s. per dozen; in 8-inch pots, 40s. per dozen.  
Royal Nurseries, Accot.

**Grape Vines, Roses, and Fruit Trees.**  
IRELAND and THOMSON beg to announce that their stock of the above is this year specially fine, and now ready to send out. Descriptive CATALOGUE with prices on application.  
Nurseries: Craigleith, Comely Bank, and New Golden Acre, Granton Road, Edinburgh.

**ELLAM'S DWARF and EARLY MARKET CABBAGE.**—The two best Cabbages for Autumn or Spring. 6d. per packet, free by post.

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POPE and SONS, Seedsmen, 120, Market Hall, Birmingham Nurseries, King's Norton.

**To the Trade.**  
**SEED POTATOS.**—Early Rose and Magnum Bonums, true to name. Low price.  
J. MARTIN, Emneth, Wisbech.

**WISE and RIDES, Covent Garden, W.C.,** have now a demand for Tuberoses, Arum Lilies, White Bouvardias, good Roses, &c.

**WISE and RIDES, Covent Garden, W.C.,** are open to RECEIVE CONSIGNMENTS of Tomatoes, Cucumbers, Gros Colmar, Alicante, and Muscat Grapes.

**SQUELCH and BARNHAM,** Long Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatoes, Cucumbers, choice Flowers, &c.

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WANTED, Six YUCCA GLORIOSA, from 3 to 4 feet high. State price to  
The GARDENER, Boultham Hall, Lincoln.

WANTED, regular supplies of CHOICE CUT FLOWERS.  
ROBT. DASHWOOD, Salesman, Covent Garden, W.C.  
Address, Queen's Road Nursery, Peckham, S.E.

**CANNELL'S CARNATIONS, PICOTEEES, and CLOVES.**—The finest and most complete collection in England, in perfect health and vigour. Our selection, 7s. per dozen. Special prices for large quantities. All Dodwell's splendid new varieties. Send for ours, the best CATALOGUE.  
H. CANNELL and SONS, The Home of Flowers, Swanley, Kent.

**Hyacinthus candicans.**  
**BUDDENBORG BROS., BULB GROWERS,** Hillegom, near Haarlem, Holland, offer the above, splendid white flowering bulb, at 50s. per 1000.

**NEW CHRYSANTHEMUMS, 1884-5.**—Our Descriptive Priced LIST is now ready, and can be had free on application to  
T. JACKSON and SON, Nurseries, Kingston-on-Thames.

**To the Trade.**  
1885.—NEW FLORISTS' FLOWERS.—1885.  
OUR SPECIAL LIST of the above is now ready, and will be forwarded on application. We are introducing this year many novelties of sterling merit, and the plants are strong and healthy.  
R. B. LAIRD and SONS, successors to Downie & Laird, Royal Winter Garden, Edinburgh.

**HERBACEOUS and ALPINE PLANTS.**—Now is the season to plant and insure success. Write for R. H. VERTEGANS' Pocket CATALOGUE, and make your choice from his unrivalled Collection.  
Chad Valley Nurseries, Edgbaston, Birmingham.

**GLADIOLI.**—Twenty Acres. The largest collection in Europe. CATALOGUES free, with Cultural Directions.  
KELWAY and SON, Langport, Somerset.

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**PETER LAWSON and SON (Limited),** Edinburgh, will be glad to Post their CATALOGUE of Garden and Field Seeds upon application.

**Rhododendrons.**  
IRELAND and THOMSON have a magnificent collection of all the finest named varieties covered with flower-buds, also many thousands of Seedlings, Hybrids and Potentillas. Samples and Prices on application.  
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JOHN DOWDIE, SEEDSMAN, 144, Princes Street, Edinburgh, begs to intimate that he is now sending out the finest stock of the above that money can buy, and as J. D. is now in business solely on his own account, the most of the Flower Seeds have been saved under his own supervision and may be thoroughly relied upon.

**CEDRUS DEODARA.**—To arrive in about fourteen days, guaranteed perfectly fresh seed. Price according to quantity on application to  
HY. CLARKE and SONS, Wholesale Seed Merchants, 39, King Street, Covent Garden, W.C.

**Grape Vines.**  
THE LIVERPOOL HORTICULTURAL CO. (John Cowan), Limited, have this season a grand stock of Grape Vines, suitable for Fruiting in Pots and Planting in Vineries. CATALOGUES free on application. The Trade supplied.  
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FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey.

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WATKINS and SIMPSON, Seed and Bulb Merchants, Exeter Street, Strand, W.C.

**TOMATO.**—The best flavour and finest for private use, Vick's Criterion. True selected seed, imported from America, free by post, 6d. per packet.  
POPE and SONS, Seedsmen, 120, Market Hall, Birmingham Nurseries, Birmingham.

**PEACHES, NECTARINES, and APRICOTS,** fine Dwarf Maiden. LIST on application. Dwarf ROSES, 20s. per 100. (At Clearance Prices.)  
WILL TAVLER, Osborn Nursery, Hampton, Middlesex.

**CAULIFLOWER PLANTS,** Autumn-Sown, strong, 2s. 6d. 120, 18s. 1200. CABBAGE PLANTS, HERBS, LETTUCE, &c., PLANTS, cheap, carriage paid. LIST free of  
EDWARD LEIGH, Ivy House, Cranleigh, Surrey.

**To the Trade.**  
**CUCUMBER SEEDS.**—Rollinson's Telegraph, Veitch's Tender and True, carefully selected stock, which may be relied on. Price on application.  
GEO. COOLING and SON, Seedsmen, &c., Bath.

**To the Trade.**  
**BROAD BEANS.**  
AND F. SHARPE have fine samples of WINDSOR and LONGPOD BEANS to offer. Samples and Prices may be had on application.  
Seed Growing Establishment, Wilsbech.



## SALES BY AUCTION.

**Monday Next.**—(Sale No. 6853.)  
5000 LILUM AURATUM from Japan, &c.  
**MR. J. C. STEVENS** will **SELL** by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY NEXT**, February 22, at half-past 12 o'clock precisely, an importation of 5000 LILUM AURATUM, just received from Japan in the finest possible condition, TUBEROSES, TIGRIDIA, GLADIOLI, Home-grown LILIES in quantity, EUPHARIS, AMARYLLIS, and many Hardy BULBS and ROOTS in variety.  
On view morning of Sale, and Catalogues had.

**Wednesday Next.**—(Sale No. 6855.)  
ROSES, FRUIT TREES, HARDY PLANTS, &c.  
**MR. J. C. STEVENS** will **SELL** by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT**, February 25, at half-past 12 o'clock precisely, a quantity of first-class Standard and Dwarf ROSES, to name, including all the leading varieties from French and English Nurseries; FRUIT TREES, SHRUBS and CLIMBERS, BORDER PLANTS, LILiums, GLADIOLI, and other BULBS, &c.  
On view morning of Sale, and Catalogues had.

**Thursday Next.**—(Sale No. 6856.)  
IMPORTED ORCHIDS.  
**MR. J. C. STEVENS** will **SELL** by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, February 26, at half-past 12 o'clock precisely, an importation of ODONTOGLOSSUM CRISPUM (Alexandria) of the best type, and in fine condition; white LÆLIA ANCEPS, in fine masses and splendid condition; ONCIDIUM KRAMERIANUM, LÆLIA MAJALIS, L. ACUMINATA, and CATLEYA TRIANÆ, &c.  
On view morning of Sale, and Catalogues had.

**Thursday Next.**—(Sale No. 6856.)  
FERNS in variety from New Zealand.  
5000 LILUM AURATUM from Japan.  
**MR. J. C. STEVENS** will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, February 26, a consignment of FERNS, from New Zealand, including Todax, Cyathus, Dicksonia, Asplenium, Lomaria, &c. Also 5000 LILUM AURATUM, just received from Japan, in the finest possible condition.  
On view morning of Sale, and Catalogues had.

**Stoke Park, Slough.**  
ORCHIDS, STOVE and GREENHOUSE PLANTS, &c.  
**MR. J. C. STEVENS** has received instructions to offer for SALE by AUCTION, on the Premises, as above, without reserve, about the SECOND WEEK in MARCH, the ENTIRE COLLECTION of ORCHIDS, STOVE and GREENHOUSE PLANTS, &c., formed by E. J. Coleman, Esq.  
Further particulars in next Advertisement.  
Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

**Important Sale of English-grown Camellias.**  
Beautifully set with bloom buds, AZALEA INDICA, and other GREENHOUSE PLANTS, 400 fine Standard and other ROSES, selected FRUIT TREES, Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, DAHLIAS, LILUM AURATUM, &c.  
**MESSRS. PROTHEROE and MORRIS** will **SELL** by AUCTION the above, at the City Auction Rooms, 58 and 59, Gracechurch Street, E.C., on **TUESDAY**, February 24, at 12 o'clock precisely.  
On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

**Tuesday Next.—ORCHIDS in FLOWER.**  
**MESSRS. PROTHEROE and MORRIS** will **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on **TUESDAY NEXT**, February 24, at half-past 12 o'clock precisely, ORCHIDS in Flower and Bud, from various collections, including:—  
Catleya Trianæ, 70 plants, including many fine showy specimens.  
Cologynia cristata, true Chatsworth variety; several plants.  
Lælia anceps, varieties.  
Odontoglossum Alexandræ, many fine varieties.  
Lycaste Skinneri alba, with 7 bulbs and 5 flowers.  
Dendrobium Ainsworthi.  
Odontoglossum species.  
On view morning of Sale, and Catalogues had.

**Wednesday Next.**  
LILUM AURATUM, ROSES, PLANTS, &c.  
**MESSRS. PROTHEROE and MORRIS** will **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT**, February 25, at half-past 12 o'clock precisely, 6000 very fine and sound bulbs of LILUM AURATUM, just received from Japan; 2000 double African TUBEROSES, 1800 Standard, Half-standard, and Dwarf ROSES from English nurseries; AZALEA MOLLIS, A. INDICA, FICUS and PALMS, from Belgium; a consignment of PANCRACTIUMS and AMARYLLIS received direct from the West Indies, an assortment of hardy English-grown LILIES, CARANTIONS, GLADIOLI, DAHLIAS, BEGONIAS, GLOXINIAS, and a variety of hardy PLANTS and BULBS.  
On view morning of Sale, and Catalogues had.

**Aspley Guise, Beds.**  
UNRESERVED CLEARANCE SALE, by order of Mr. W. Handscomb, Sen., who is retiring.  
**MESSRS. PROTHEROE and MORRIS** will **SELL** by AUCTION, on the Premises, The Mount Pleasant Nursery, Aspley Guise, about 2 miles from Woburn Sands and Ridgmont Stations, London and North-Western Railway, on **WEDNESDAY**, February 25, at 12 o'clock precisely, the whole of the above NURSERY STOCK, comprising large quantities of Conifers in variety, an assortment of choice American Plants, 2000 fine Limes, clean grown trees; Fruit Trees, Roses, Spring Cart, Tools, and Effects.  
May now be viewed. Catalogues may be had on the Premises, or of the Auctioneers, 67 and 68, Cheapside, London, E.C.

**N.B.** The valuable FREEHOLD ESTATE, of 2 Acres in extent, with a commanding frontage to the High Road, to be SOLD. Apply to the Auctioneers, as above.

**Wednesday Next**  
LILUM AURATUM.—TO THE TRADE.  
**MESSRS. PROTHEROE and MORRIS** will **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT**, 6000 exceedingly fine BULBS, just received from Japan.  
On view morning of Sale, and Catalogues had.

**Friday Next.—Wood Green, N.**  
CLEARANCE SALE.—TO FLORISTS and OTHERS.  
**MESSRS. PROTHEROE and MORRIS** are instructed to **SELL** by AUCTION, on the Premises, The Lordship Nursery, Wood Green, N., on **FRIDAY**, February 27, at 12 o'clock precisely, the BENEFICIAL INTEREST in the LEASE of the NURSERY, comprising about an Acre of Land, with brick-built Dwelling-house and Stable. Rent only £40 per annum. There are eleven Greenhouses, all heated by hot water, and in good working condition, which will be included in the purchase. After the Sale of the Lease will be offered in Lots, without the reserve, the whole of the well-grown STOCK, including 900 Adiantums, Pteris, 1000 Palms and Dracenas, 150 store boxes of Ferns, containing about 7000 good plants; Carpet-bedding Plants, and large quantities of other Stock; capital Market VAN, &c.  
May now be viewed. Catalogues and full particulars of the Nursery may be had on the Premises, or of the Auctioneers, 67 and 68, Cheapside, E.C.

**Friday Next.**  
**MESSRS. PROTHEROE and MORRIS** are instructed by Mr. F. Sander to **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, February 27, at half-past 12 o'clock precisely, an extra fine importation of CATLEYA MAXIMA (Backhouse's variety), containing some extra large masses. The old spikes show up to 9 and 10 flower-seats. A fine lot of the lovely CATLEYA CHOCOENSIS, LÆLIA ANCEPS (white type) in first-class condition and compact well-shaped species; ONCIDIUM PHALÆNOPSIS, unusually fine. O. LOXENSE, O. MACRANTHUM, ODONTOGLOSSUM CRISTATELLUM, extra large pieces; also a splendid importation of MEXICAN ORCHIDS, consisting of Odontoglossum Insleyi, Leopoldium, Oncidium tigrinum, Lælia autumnalis, &c., together with a fine lot of Odontoglossum Alexandræ, unequalled type.  
On view morning of Sale, and Catalogues had.

**Friday Next.**  
ESTABLISHED ORCHIDS from a well-known Private Collection. Without Reserve.

**MESSRS. PROTHEROE and MORRIS** are favoured with instructions to include in their SALE on **FRIDAY NEXT**, February 27, about 150 lots of valuable ESTABLISHED ORCHIDS, from a well-known Private Collection: for Sale without Reserve. Amongst them will be found the following:—

Catleya Mendeli, fine vars.	Odontoglossum Alexandræ, good vars.
Masdevallia Schlumieri, 40 leaves	" Ruckeraianum
Cologynia Massangeana	" Jenningsiana
Masdevallia Trochilus	" citrosum roseum
" caeruleus, Bull's blood, original from Meadowbank.	Dendrobium suavisimum
Restiopsis anteaferia, from Rucker's collection	Catleya Trianæ
	" labiata

On view morning of Sale, and Catalogues had.

**Warminster, Wilts.**  
Re J. Wheeler.—In Liquidation.—IMPORTANT SALE of VALUABLE FREEHOLD PROPERTIES.  
To Nurserymen, Builders, and Others.

**MESSRS. PROTHEROE and MORRIS** (in conjunction with Messrs. Harding & Sons) are instructed to **SELL** by AUCTION, at the "Bath Arms" Hotel, Warminster, on **TUESDAY**, March 3, at 3 o'clock precisely, by order of the Trustees, the valuable FREEHOLD NURSERY GROUNDS, with comfortable DWELLING-HOUSES, OUTBUILDINGS and OFFICES, extensive HOTHOUSE and GREENHOUSE ERECTIONS, Brick PITS, &c., and the GOODWILL of the Old-established BUSINESS; also several productive GARDENS, possessing choice FREEHOLD BUILDING SITES, the whole conveniently situate in the Town of Warminster, near the Railway Station, and only three hours' journey from London. Offering an excellent opportunity to Nurserymen requiring a thoroughly genuine Old-established Business and others desirous of securing Land in the best part of the Town for Building Purposes. The purchaser or purchasers of these Properties will have the great advantage of securing, at unreserved Auction prices, any of the Trees and Shrubs growing in the Grounds at the extensive SALE of NURSERY STOCK, commencing **WEDNESDAY**, March 4. Particulars and Conditions of Sale may be had on the Premises, at the place of Sale, of Messrs. SPARKES and POPE, Solicitors, Exeter and Crediton; of Messrs. CHILTON and GREEN-ARMYtage, Solicitors, Bristol; of Messrs. WAKEMAN and BLACK, Solicitors, Warminster; of Messrs. HARDING and SONS, Auctioneers, Frome and Warminster; and of Messrs. PROTHEROE and MORRIS, Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

**Warminster, Wilts.**  
In Bankruptcy.—Re James Wheeler, Nersyman.  
GREAT CLEARANCE SALE of about 40 ACRES of NURSERY STOCK.

**MESSRS. PROTHEROE and MORRIS** (in conjunction with Messrs. Harding & Sons) will **SELL** by AUCTION, on the Premises, the various Nurseries situate at or near Warminster, on **WEDNESDAY**, March 4, and following days, at 12 o'clock precisely each day, without reserve, by order of the Trustee, with concurrence of the Mortgagees, the whole of the valuable NURSERY STOCK, extending over 40 Acres, including an enormous number of Trees and Shrubs of young growth, and an extraordinary stock of large Conifers, Evergreen and Deciduous Shrubs, invaluable to Planters, Gentlemen, and others largely engaged in planting. The Stock includes 5000 Green Hollies, 1 to 2 feet; 3500 English Yews, 2½ feet; 30,000 Common and Caucasian Laurels, 9 inches to 3 feet; 7000 Portugal Laurels, 14,000 Firs and Pines, 10,000 hybrid and named Rhododendrons, 1 to 5 feet; 50,000 Larch, 2 to 5 feet; 7000 Privet, 15,000 Thorns, 1½ to 2 feet; 20,000 Hazel, 1½ to 4 feet; 35,000 Ornamental and Forest trees, such as Limes, Beech, Poplars, Oaks, Chestnuts, &c.; 8000 Standard and Pyramid Apples and Pears, 2000 Standard and Dwarf Roses, GREENHOUSE PLANTS, and other Stock too numerous to mention.

May now be viewed. Catalogues may be had at the Warminster Nurseries; or of Messrs. PROTHEROE and MORRIS, Auctioneers, 67 and 68, Cheapside, London, E.C.; Messrs. HARDING and SONS, Auctioneers, 26, King Street, Frome; Mr. W. H. PHILLIPS, Chartered Accountant, 1, Small Street, Bristol; Messrs. WAKEMAN and BLECK, Solicitors, Warminster; Messrs. SPARKES and POPE, Solicitors, Exeter and Crediton; and of Messrs. CHILTON and GREEN-ARMYtage, Solicitors, Bristol.

**N.B.**—The Four FREEHOLD NURSERIES will be OFFERED by Public AUCTION, in Lots at the "Bath Arms" Hotel, Warminster, on **TUESDAY**, March 3 (the day preceding the Sale of the Stock), by Messrs. PROTHEROE and MORRIS, in conjunction with Messrs. HARDING and SONS. Full Particulars and Plans may be had on application. (See preceding Advertisement.)

**Extraordinary Form of White Lælia anceps.**  
**MESSRS. PROTHEROE and MORRIS** are favoured with instructions from Mr. F. Sander to **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., at an early date, great masses in extra condition of a most superb WHITE LÆLIA ANCEPS, undoubtedly the finest pure white species ever offered. The whole flower is pure white, and very large, the throat striped crimson and the lips over an inch across. Mr. Edward Klaboch, who has collected these masses, states that the flowers are of great substance. (We consider this the finest White Lælia anceps ever introduced. Dried flowers will be on view.  
Further particulars will appear.

**Tuesday Next.—Barnes, Surrey.**  
Short Notice of Sale.  
MELADY'S WHITE HART LANE NURSERY.  
A few paces from the "Edinburgh Castle" Tavern, midway between Barnes Terrace and Upper Richmond Road.  
To GENTLEMEN, NURSERYMEN, and OTHERS requiring the choicest kinds of FRUIT TREES, in right condition for moving, also CAMELLIAS, AZALEAS, PINKS, CLOVES, TULIPS, and other Flowers in pots.

**MR. J. A. SMITH** has received instructions from Mr. Melady, to **SELL** by AUCTION, on the Premises, as above, on **TUESDAY NEXT**, February 24, at 1 o'clock precisely, the whole of the NURSERY STOCK, Fruit Trees of named and choice sorts: Flowers, Shrubs, Plants, 6 pieces of Asparagus, 500 Fruit Trees, including Marie Louise, Beurré Diel, and other Pears; Cox's Pippin, Flower of Kent, Blenheim Orange and other Apples; Victoria, Magnum, and Green Gage Plums; Lee's Red Grape and Black Currants, Gooseberries—all selected sorts; Poplars, Horse Chestnuts, Lilacs, Laburnum, Arbor-vitæ; Oval-leaf Privet, 4 feet high; Moss and other Roses, Cloves, fine specimen plants of Camellias and Azaleas, in pots; nearly new Span-roof Propagating House, 36 by 15 feet, as fitted and heated with hot water; the 36 by 25 feet Span-roof Conservatory, as fitted complete: large 3-light Frame, and 16 2-inch glazed Lights. Viewed the day prior and morning of Sale. Catalogues on the Premises; at the "Bull's Head" Omnibus Station; and at Mr. J. A. SMITH'S Auction and Estate Offices, 58, King Street, East Hammsmith, W.

**Spring Planting.**  
GREAT CLEARING SALE.  
**MR. DAVID MITCHELL** will **SELL** by PUBLIC AUCTION, as under, on **TUESDAY** and **WEDNESDAY**, February 24 and 25, at 11 o'clock forenoon prompt, at Bangholm Nursery, Inverleith Row, and Windlestrawlee, Granton Road, Edinburgh.

**THE LAWSON SEED and NURSERY COMPANY** (Limited) will dispose of as above, as the Land must be cleared, an extensive collection of FOREST and ORNAMENTAL TREES, SHRUBS, HYBRID PERPETUAL ROSES, FRUIT TREES, and BUSHES; splendid Specimen RHODODENDRONS, HOLLIES, &c. All without any reserve.

Catalogues may be had from the Auctioneer, Mr. DAVID MITCHELL, 6, Cornely Bank; at 1, George IV. Bridge; or at the Nursery. Inspection of the Stock invited, and all orders entrusted to the Auctioneer will be carefully attended to.

**To Gardeners, Florists, and Nurserymen.**  
200 Lots of Rare ORCHIDS, HOTHOUSE PLANTS, and valuable GARDEN EFFECTS.

**MESSRS. LIDSTONE** will **SELL** the above by AUCTION, at Meyerton House, Polegate, Sussex, 1½ mile from Hailsham and Polegate Stations on the L. B. & S. C. R., on **FRIDAY**, February 27, at 12 o'clock precisely. Catalogues of the Auctioneers, 110, Cannon Street, London, E.C.

**Heaton Park, Lancashire.**  
IMPORTANT SALE of RARE and CHOICE ORCHIDS, PALMS, TREE FERNS, and VALUABLE STOVE and GREENHOUSE PLANTS, GARDEN IMPLEMENTS, TOOLS, and OUTSIDE EFFECTS.

**MESSRS. ARTINGSTALL and HIND** beg to notify that they are favoured with instructions from the Executrix of the late Earl of Wilton, to **SELL** by AUCTION, in the Gardens of Heaton Hall, near Manchester, on **MONDAY** and **TUESDAY**, March 2 and 3, commencing at 12 o'clock each morning, the whole of the choice HORTICULTURAL PRODUCTIONS, IMPLEMENTS, TOOLS, and MISCELLANEOUS EFFECTS.  
May be inspected on the Saturday prior to Sale. Descriptive Catalogue will be prepared, and may be obtained on application to Mr. BAILLIE, Head Gardener; or from the Auctioneers, 45, Princess Street, Manchester.

**Chelmsford, Essex.**  
PRELIMINARY NOTICE.  
Full particulars in future Advertisement.  
HIGHLY IMPORTANT SALE of valuable Specimen STOVE and GREENHOUSE PLANTS, &c., by order of Mr. Thomas Harris (that well-known Plant Grower), who is giving up exhibiting.

**MR. BURLEY** will **SELL** by PUBLIC AUCTION, and without reserve, on the Premises, Baddow Road, Chelmsford (about fifteen minutes' walk from the Chelmsford Railway Station, Great Eastern Railway), on **THURSDAY**, March 5, at 12 for half-past 12 o'clock precisely, the whole of the valuable COLLECTION of STOVE and GREENHOUSE PLANTS, including grand specimens which have been exhibited at all the principal shows in the Eastern Counties with marked success. The whole of them are in the best possible health, and are ready for exhibiting this season. Also a large well-made EXHIBITION PLANT VAN, on Springs and Patent Axle.  
On view the day prior and morning of Sale. Catalogues may be had on the Premises; of Mr. THOS. HARRIS, as above; and of the Auctioneer and Valuer, High Street, Brentwood, Essex.

**TO BE DISPOSED OF, a WHOLESALE and RETAIL SEED BUSINESS.** A splendid going concern. One of the finest in existence, doing a large and profitable trade. An unusual opportunity.  
Apply (by letter only) to Messrs. PROTHEROE and MORRIS, 67 and 68, Cheapside, London, E.C.

**Worthing.**  
**FOR SALE, a FLORIST'S BUSINESS.**  
Also LAND to BE LET, from 1 to 2 Acres, well adapted for Glass.  
PIPER and SON, Auctioneers, Worthing.

**TO BE LET, a MARKET GARDEN,** within 2½ miles of Nottingham. Large Gardens, with Greenhouses, Vineries, Pine Pits, and excellent Dwelling-house attached.  
Apply, by letter, to GARDENER, E. C. Fatchitt, Derby Road, Nottingham.



## To Nurserymen, Florists, Gardeners, and Others. FLORIST'S BUSINESS.

**FOR SALE,** by Private Treaty, as a going concern, all that well known and remunerative **FREEHOLD BUSINESS PREMISES**, called **Guldford Street Nurseries**, within two minutes' walk of the **Barton Railway Station**, Hereford, the property of **Uriah Hain, Florist**, who is relinquishing business on account of declining years. The Property comprises a modern and substantially brick-built Residence, called **Blenheim House**, with several **Perches of Freehold Garden Ground**, a number of **Span-roof and Lean-to Glass Houses**, with **Hot-water and other Heating Apparatus**, **Hot and Cold Pits**, and **Potting Sheds**; together with the **Stock-in-Trade**, consisting of a well-grown and healthy lot of **Bedding, miscellaneous assortment of useful Greenhouse and Hardy Outdoor Plants**, in popular demand; **small collection of useful Nursery Stock**, **Horticultural Requisites**, **Tools**, and **absolute Goodwill**. A splendid opportunity for an enterprising young man or gentleman's gardener with small capital desirous of retiring from service. One-half or so of purchase money can remain on mortgage, if required. For further particulars, apply to **GEO. H. BARLOW**, Estate and Property Agent, Hereford.

**NURSERY TO LET**, Six 50-foot Houses, in one of the best parts of Kent. Near station. Twelve miles from London. Moderate rental. Stock at Valuation. For further particulars apply to **C. B. Gardeners' Chronicle Office**, 41, Wellington Street, Strand, W.C.

## Important to Florists, Nurserymen, Market GROWERS and OTHERS.

**TO BE LET, on LEASE, or SOLD** with possession, the valuable **FREEHOLD ESTATE** known as **Osborn's Nursery**, Sunbury, Middlesex, comprising 17 Acres of excellent **Lead** with **Dwelling-house**, **Stabling**, **Sheds**, and all the extensive range of modern and recently-erected **Greenhouses**. The Estate having a frontage of 1100 feet to the high road, possesses a great prospective value for **Building purposes**. Full particulars may be obtained of **Messrs. PROTHOROE AND MORRIS**, Auctioneers, 67 and 68, Cheapside, E.C.

**TO BE LET, on Lease (with Immediate Possession)**, Capital **NURSERY GROUND**, partly stocked, with five large **Glass-houses** or **Forcing Pits**, **Heating Apparatus** to same; with large **Dwelling-house** and suitable **Outbuildings, Sheds, &c.** The whole covering about 1 acre. Situated within about a mile of three **Railway Stations**, and about 5 miles from London. For particulars apply to **Messrs. LAUDER AND BEDELLS**, Surveyors, 6, John Street, Bedford Row, W.C.

**TO ECONOMISTS.—CLERGYMEN, &c.**, possessing influence, obliged by pecuniary circumstances to unwillingly retrench in their "garage purchases" will be met in a most fair and liberal spirit, to their entire satisfaction, by communicating with **ALPHA, T. W. Hannaford's**, 73, Ludgate Hill, London, E.C.

**JOHN KENNARD'S HORTICULTURAL** Nurseries, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

**To Landed Proprietors, &c.** **MCINTYRE** (late of Victoria Park) is now at liberty to undertake the **FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS** and **REMODELLING existing GARDENS**. Plans prepared. 115, Listeria Park, Stamford Hill, N.

**To Noblemen and Others Planting, &c.** **FOR IMMEDIATE SALE**, 10 magnificent Specimen **WELLINGTONIA GIGANTEA**, over 6 feet high, in perfect health, shape and foliage—such handsome trees seldom seen; 10 good Silver Variegated Japanese **MAPLES**, from 4 to 8 feet high (grafted), and about 20 fine shaped **Purple BEECH**—all moved within the last year. Also 5 immense Specimens of **ADIANTUM CUNEATUM**, over 30 inches through—these are fit for high competition. The above, the property of a Lady, are for immediate Disposal. Price, &c., address by letter only to **R. GARDINER**, care of T. Smith, 15, Wise Office Court, Fleet Street, London, E.C.

**HOUSE'S PERFECT MARROW PEA.** Pronounced by competent judges to be the finest Pea ever eaten. Prizes of 30s. and 20s. per Forty Pods will be given at the Royal Horticultural Society's Show in July. Sold in packets, post-free for fifteen penny stamps.

**DAHLIA TUBERS.**—A large quantity of pot Roots in fine condition, in all the leading varieties, including Shows, Fancies, Cactus, Pompons, and Singles. **DESCRIPTIVE PRICE LIST** on application to **JOHN HOUSE**, Eastgate Nurseries, Peterborough.

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**LARCH, SCOTCH, SPRUCE, and AUSTRIAN PINE.**—Special cheap offer to clear ground. Also a fine lot of Standard **ROSES**, good stocks and heads. **J. W. MAY**, The Nurseries, Knaresborough, Yorkshire.

**To the Trade only.** **CHAS. KERSHAW** offers strong Crowns of his **PARAGON RHUBARB** at 25s. per 100. Strong plants with several crowns—price on application. **DECIDUOUS SHRUBS** in variety, fine transplanted stuff, 4s. per 100. He can still supply extra strong plants in pots of **MARECHAL NIEL**, **GLOIRE DE DIJON**, **BELLE LYONNAISE**, **REINE MARIE HENRIETTE**, and other **ROSES**. The Slead Syke Nurseries, Brighouse.

**EAST LOTHIAN STOCKS.** **THOMAS METHVEN and SONS** offer their choice strain of the above Intermediate Stocks in five colours—Scarlet, Purple, White, Crimson, and Snow-white, well-leaved, in packets, 1s., 2s., 6d., and 5s. each colour. Price to the Trade on application. 15, Princes Street, Edinburgh.

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The best of all Evergreen Fences.  
to 15 inches, 10s. per 100.  
15 to 18 inches, 16s. per 100.  
18 to 24 inches, 25s. per 100.  
These plants, which are grown in sandy loam, are beautifully rooted, and remove with perfect safety.  
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**J. W. COLE, NURSERYMAN, SEEDSMAN** and **MARKET GARDENER**, Holly Nursery, Hundleby, Spilsby, Lincolnshire, offers the following:—

**ASH**, 10 to 3 feet.  
**LARCH**, 2 to 3 feet, 3 to 4 feet, 4 to 5 feet, three times transplanted.  
**SPRUCE**, 15 to 20 inches, 18 to 24 inches.  
**OAKS**, 2 to 3 feet, 3 to 5 feet.  
**SCOTCH**, 20 to 30 inches.  
**AUSTRIAN PINE**, 18 to 24 inches, 2 to 3 feet.  
**LAUREL**, Commode, 2 to 3 feet.  
" rotundifolia, 1 to 2 feet.  
" Portugal, 1½ to 2 feet.  
**PARK or HEDGEROW TREES.**  
**SYCAMORE**, 7 to 10 feet.  
**CHESTNUT**, Horse, 6 to 10 feet.  
**POPLARS**, 8 to 10 feet.  
**LIMES**, 6 to 9 feet.  
Samples and Price LIST on application.

## SURPLUS STOCK.

Special offer of Nursery Stock:—  
**FIR**, Scotch, 3 to 5 feet, 2-yr., 2-yr.  
" Spruce, 2-yr., 3-yr.  
" **LARCH**, 2-yr., 2-yr., strong stuff.  
**BIRCH**, 2 to 3 feet.  
**ALDER**, 1½ to 2 feet.  
**ASH**, Mountain, 4 to 6 feet.  
**LABURNUM**, 4 to 5 feet.  
**WYCH ELM**, 5 to 6 feet.  
**SYCAMORE**, 4 to 6 feet.  
Prices on application.  
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The best Exhibition TOMATO.  
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The largest red TOMATO, weighing from 14 to 20 oz. each.  
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A great improvement on the old form of Orangefield TOMATO, sent out by us nearly 20 years ago.  
The best Market TOMATO.  
The earliest TOMATO.  
The most prolific TOMATO.  
Price, 6d. per packet.

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**DREADNAUGHT.**—The best paying Cucumber for Market, and finest Black Prickly Cucumber grown. We have grown mostly of the Telegraph type, and find Dreadnaught make 30 per cent. more in the market. 1s. per packet. **POPE AND SONS**, Seedsmen, 120, Market Hall, Birmingham Nurseries, King's Norton.

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**Rhododendrons.—Rhododendrons.** **JOHN STANDISH and CO.** have to offer many thousands fine bushy Plants of **PONTICUM RHODODENDRONS**, exceedingly well grown and well-rooted, from 2 to 2½ feet in height, suitable for covert planting, 9 to 12 inches, at 30s. per 100; 12 to 15 inches, 42s. per 100; 15 to 24 inches, 55s. per 100; 24 to 30 inches, 75s. per 100. **HYBRID PONTICUM RHODODENDRONS**, 2 to 2½ feet, 45s. per 100. Choice named varieties, 1½ to 2 feet, with flower-buds, 27s. per dozen, 610 per 100. Royal Nurseries, Ascot.

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All the best varieties in cultivation.  
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**ARBOR-VITÆ**, American, 2 to 3 feet, 5s. per dozen, 30s. per 100; 3 to 4 feet, 6s. per dozen, 40s. per 100; 4 to 5 feet, 6s. per dozen, 65s. per 100; 5 to 6 feet, 12s. per dozen.  
**CUPRESSUS LAWSONIANA**, 2 to 2½ feet, 6s. per dozen, 40s. per 100; 2½ to 3 feet, 10s. per dozen, 60s. per 100; 3 to 4 feet, 15s. per dozen, 80s. per 100; 4 to 5 feet, 18s. per dozen, 120s. per 100.  
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The above are all well grown, have been recently transplanted, and will remove with safety.  
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**GILBERT'S UNIVERSAL SAVOY and CHOU DE BURGHEY.**—*The Times* of Horticulture says:—"Universal Savoy proved to be of excellent quality, and the great public show their appreciation of same by ordering 400 packets last week."

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Free by post, **UNIVERSAL SAVOY**, 2s. 6d. per packet; **CHOU DE BURGHEY**, 1s. 6d. per packet. Trade supplied.

**CHRYSANTHEMUMS.**—Specialty.—420 varieties, guaranteed true to name. One of the largest and cheapest Collections in the Trade. Plants, purchaser's selection, 2s. 6d. per dozen, 16s. per 100; cuttings, 1s. 6d. per dozen, 10s. per 100; W. E.'s selection, cheaper. For the new English and Continental varieties see **CATALOGUE**, with Essay on Cultivation, one stamp. **W. ETHERINGTON**, The Manor House, Swanscombe, Kent.

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**To the Trade.** **SEED POTATOS.** **H. AND F. SHARPE'S Wholesale Priced LIST of SEED POTATOS** is now ready, and can be had on application. It comprises the best kinds in cultivation, and the prices are very reasonable. Seed Growing Establishment, Wisbech.

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Invites attention to the following LIST of well-grown and properly rooted NURSERY STOCK:—

- HOLLIES**, Commoo Green, 3, 4, 5, 6, 7, 8 to 10 feet high. [to feet high.]  
 " laurifolia, ditto. many thousands.  
 " Hodgins', 3, 4, 5 to 8 feet.  
 " myrtifolia, ditto.  
 " Scottica, 3 to 8 feet.  
 " Yellow-berried, atalcarense and others.  
 " Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.  
 " Waterer's spleoid plants, 3, 4, 5, and 6 feet, 8 to 15 feet in circumference.  
 " Goldea Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of beautiful specimens.  
 " Perry's Weeping Holly, on straight stems, with beautiful heads, ten to fifteen years' growth, hundreds.  
 " new Golden Weeping, a large number of very beautiful plants.  
**BOX**, Green and Variegated, 3, 4, 5, 6 to 7 feet, many thousands.  
**YEW**, Commoo, 3, 4, 5, 6 to 10 feet, thousands.  
 " Goldea, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards, in point of variety and size unequalled.  
 " Irish, 5 to 10 feet, hundreds. [thousands.]  
**CUPRESSUS ERECTA VIRIDIS**, 3, 4, 5, 6 to 8 feet.  
 " Lawsoniana lutea, 3, 4, and 5 feet, hundreds of beautiful specimens.  
**THUIOPSIS DOLABRATA**, 3, 4, and 5 feet, hundreds.  
**RHODODENDRONS**, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.  
**AZALEAS**, Hardy, the finest varieties known, 2, 3, 4, and 5 feet high, thousands.  
**JUNIPERS**, Chinese, 7, 8, and 10 feet high.  
 " Chinese Golden, 3 to 6 feet.  
**JUNIPERUS VIRGINIANA GLAUCA**, 3 to 5 feet.  
**ABIES CANADENSIS**, 4 to 7 feet, hundreds.  
 " DOUGLASSII, 3 to 5 feet, thousands.  
 " GLAUCA, 2 to 4 feet, hundreds.  
 " ORIENTALIS, 4, 5, 6 to 10 feet, hundreds.  
 " HOOKERIANA, 3 to 5 feet.  
 " PARRYANA GLAUCA, 1½ to 2 feet, hundreds.  
**PICEA CONCOLOR**, 2 to 4 feet, hundreds.  
 " GRANDIS, 5 to 7 feet.  
 " LASIOCARPA, 3 to 5 feet, hundreds.  
 " MAGNIFICA, 2 to 3 feet, hundreds.  
 " NOBILIS, 1½ to 3 feet, thousands.  
 " NORDMANNIANA, 6, 7, to 10 feet.  
 " PINSAP, 6 to 10 feet, hundreds.  
 " PUNGENS, 1½ to 2 feet, thousands.  
**PINUS CEMBR**, 6 to 8 feet.  
**CEDRUS DEODARA**, 6 to 9 feet, hundreds.  
 " LIBANI (Cedar of Lebanon), 3 to 5 feet.  
**THUJA OCCIDENTALIS LUTEA**, 3 to 6 feet, hundreds.  
**THUIOPSIS BOREALIS**, 3 to 5 feet, hundreds.  
**RETINOSPORA OBUSA AUREA**, 3 to 6 feet, hundreds.  
 " PISIFERA AUREA (true), 3 to 6 feet.  
 " PLUMOSA AUREA, 3 to 5 feet.  
 Knap Hill Nursery, Woking Station, Surrey.



**CUTBUSH'S MILL-TRACK MUSHROOM SPAWN**.—Too well known to require description. Price 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by Parcels Post, 1s. None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.  
**WM. CUTBUSH AND SON** (Limited), Nurserymen and Seed Merchants, Hightgate Nurseries, N.

### For Present Sowing.

The earliest in cultivation, dwarf and compact in habit, head firm and pure white, and well protected by the foliage. It stands dry weather better than any other variety.

Mr. GILBERT says it turned out the best of all he grew last season.

Mr. E. STEPHANSON, Thorogaby Hall, says:—"Your 'President' Cauliflower is not only the earliest but the most useful I have ever grown; we can plant it 3 or 4 inches closer than any other variety. The heads are very white and compact. I have grown it ever since it came out: I recommend it to all my friends."

Post-free on receipt of postal order or stamps for 1s. 6d.

WILLIAM E. MARTIN, Seed Merchant, Hull.

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Of Choice New Seeds for Gardeners and Amateurs.

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Hundreds of Thousands of

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**ABRIDGED CATALOGUE** of over 1200 Species and Varieties free on application.

**LARGE CATALOGUE** (Price 1s.), containing 75 Illustrations of Ferns and Selaginellas, valuable "Hints on Fern Culture," and other useful and interesting information.

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FERN NURSERY, SALE, MANCHESTER.

## EDELWEISS.

The Star-shaped Everlasting of the Alps.

## LAVATERA ARBOREA VARIEGATA.

The Variegated Tree Mallow.  
A grand plant, 8 feet in height, with large variegated foliage.

## CINERARIA MARITIMA.

Silver-foliaged Bedding Plant.

## CALTHA PALUSTRIS.

The Golden King-Cup.

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The Yellow-flowered Tree Lupine.

## MIGNONETTE GOLDEN QUEEN.

Very compact, good pot variety. Flowers tipped with yellow.

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Same habit as above. Flowers tipped with crimson.

## MIGNONETTE PYRAMIDALIS gigantea

Very large Flowers.

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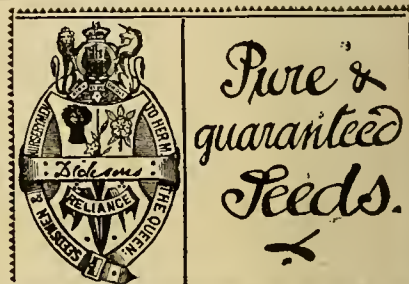
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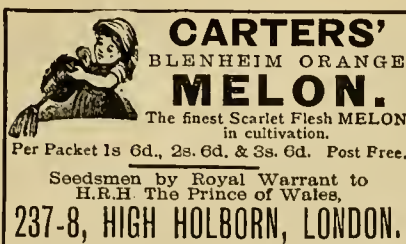
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THE

# Gardeners' Chronicle.

SATURDAY, FEBRUARY 21, 1885.

## LEAVES.

IN his discourse at the Royal Institution last Friday night Sir John Lubbock (to whom we are indebted for the following summary) said that, greatly as we all appreciated the exquisite loveliness of flowers, it must be admitted that the beauty of our woods and fields was even more due to the marvellous grace and infinite variety of foliage. How is this inexhaustible richness of forms to be accounted for? Does it result from an innate tendency of the leaves in each species to assume some particular shape? Has it been intentionally designed to delight the eyes of man? Or has it reference to the structure and organisation—the wants and requirements of the plant itself?

## SIZE.

Now, if we consider firstly the size of the leaf we shall find that it is regulated mainly with reference to the thickness of the stem, and that when strict proportion is departed from the difference can generally be accounted for. This was shown, for instance, by a table giving the leaf area and the diameter of stem of the Hornbeam, Beech, Elm, Lime, Spanish Chestnut, Ash, Walnut, and Horse Chestnut.

The size, once determined, exercises much influence on the form. For instance, in the Beech the leaf has an area of about 3 square inches. The distance between the buds is about 1½ inch, and the leaves lie in the general plane of the branch, which bends slightly at each internode. The basal half of the leaf fits the swell of the twig, while the upper half follows the edge of the leaf above; and the form of the inner edge, being thus determined, decides that of the outer one also. In the Lime the internodes are longer, and the leaf consequently broader. In the Spanish Chestnut the stem is nearly three times as stout as that of the Beech, and consequently can carry a larger leaf-surface. But the distances between the buds are often little greater than those in the Beech. This determines, then, the width, and, by compelling the leaf to lengthen itself, leads to the peculiar form which it assumes.

## ARRANGEMENT.

Moreover, not only do the leaves on a single twig admirably fit one another, but they are also adapted to the ramification of the twigs themselves, and thus avail themselves of the light and air, as we can see by the shade they cast without large interspaces or much overlapping. In the Sycamores, Maples, and Horse Chestnuts, the arrangement is altogether different. The shoots are stiff and upright, with leaves placed at right angles to the plane of the branch, instead of being parallel to it. The leaves are in pairs, and decussate with one another, while the lower ones have long petioles, which bring them almost to the level of the upper pairs, the whole thus forming a beautiful dome.

For leaves arranged as in the Beech, the



gentle swell at the base is admirably suited, but in a crown of leaves, such as those of the Sycamore, space would be thereby wasted, and it is better that they should expand at once, as soon as their stalks have carried them free from the upper and inner leaves; hence we see how beautifully the whole form of these leaves is adapted to the mode of growth and arrangement of the buds in the plants themselves.

In the Black Poplar the arrangement of the leaves is again quite different. The leaf-stalk is flattened from side to side, so that the leaves hang vertically. In connection with this it will be observed that while in most leaves the upper and under surfaces are quite unlike, in the Black Poplar, on the contrary, they are very similar. The stomata, or breathing holes, moreover, which in the leaves of most trees are confined to the under-surface, are in this species nearly equally numerous on both. The "Compass Plant" of the American prairies, a yellow Composite not unlike a small Sunflower, is another plant with upright leaves, which, growing in the wide open prairies, tend to point north and south, thus exposing both surfaces equally to the light and heat. It was shown by diagrams that this position also affected the internal structure of the leaf.

In the Yew the leaves are inserted close to one another, and are long and linear; while in the Box they are further apart and broader. In the Scotch Fir the leaves are linear, and  $1\frac{1}{2}$  inch long, while in other Pines, as, for instance, the Weymouth, the stem is thicker and the leaves longer.

In the plants hitherto mentioned, one main consideration appears to be the securing of as much light as possible; but in tropical countries the sun is often too powerful, and the leaves, far from courting, avoid the light. The typical Acacias have pinnate leaves, but in most Australian species the true leaves are replaced by a vertically flattened leaf-stalk. It will be found, however, that the seedlings have leaves of the form typical in the genus. Gradually, however, the leaf becomes smaller and smaller, until nothing is left but the flattened leaf-stalk or phyllode. In one species the plant throughout life produces both leaves and phyllodes, which give it a very curious and interesting appearance. In Eucalyptus, again, the young plant has horizontal leaves, which in older ones are replaced by scimitar-shaped phyllodes. Hence the different appearance of the young and old trees which must have struck every visitor to Algiers or the Riviera.

#### EVERGREENS.

We have hitherto been considering mainly deciduous trees. In evergreens the conditions are in many respects different. It is generally said that leaves drop off in the autumn because they die. This, however, is not strictly correct. The fall of the leaf is a vital process, connected with a change in the cellular tissue at the base of the leaf-stalk. If the leaves are killed too soon they do not drop off. Sir John illustrated this by some twigs which he had purposely broken in the summer; below the fracture the leaves had been thrown off, above they still adhered, and so tightly that they could support a considerable weight. In evergreen trees the conditions are in many respects very different. It is generally supposed that the leaves last one complete year. Many of them, however, attain a much greater age; for instance, in the Scotch Fir, three or four years; in the Spruce and Silver, six or seven; in the Yew even longer. It appears from this that they require a tougher and more leathery texture. When we have an early fall of snow our deciduous trees are often much broken down; glossy trees have a tendency to throw it off, and thus escape; hence evergreen leaves are very generally smooth and glossy. Again, evergreen leaves often have special protection, either in an astringent or aromatic

taste, which renders them more or less inedible; or by thorns and spines. Of this the Holly is a familiar illustration; and it was pointed out that in old plants, above the range of browsing quadrupeds, the leaves tend to lose their spines, and become unarmed. The hairs on leaves are another form of protection; on herbs the presence of hairs is often associated with that of honey, as they protect the plants from the visits of creeping insects; hence perhaps the tendency of water species to become glabrous, *Polygonum amphibium* being a very interesting case, since it is hairy when growing on land, and smooth when in water. Sir John then dealt with cases in which one species mimics another, and exhibited a striking photograph of a group of Stinging Nettles and Dead Nettles, which were so much alike as to be hardly distinguishable. No one can doubt that the Stinging Nettle is protected by its poisonous hairs, and it is equally clear that the innocuous Dead Nettle must profit by its similarity to its dangerous neighbour. Other similar cases were cited.

He had already suggested one consideration which in certain cases determined the width of leaves, but there were others in which it was due to other causes, one being the attitude of the leaf itself. In many genera with broad and narrow leaved species, *Drosera* and *Plantago*, for instance, the broad leaves formed a horizontal rosette, while the narrow ones were raised upwards. Fleshy leaves were principally found in hot and dry countries, where this peculiarity had the advantage of offering a smaller surface, and therefore exposing the plant less to the loss of water by evaporation.

#### WATER PLANTS.

Sir John then passed to aquatic plants, many of which have two kinds of leaves—one more or less rounded, which floats on the surface, and others cut up into narrow filaments, which remain below; the latter thus present a greater extent of surface. In air, however, such leaves would be unable to support even their own weight, much less to resist any force such as that of the wind. In perfectly still air, however, for the same reason, finely divided leaves may be an advantage, while in comparatively exposed situations more compact leaves may be more suitable. It was pointed out that finely cut leaves are common among low herbs, and that some families which among the low and herb-like species have such leaves, in shrubby or ligneous ones have leaves more or less like those of the Laurel or Beech.

An interesting part of the subject is connected with the light thrown by the leaves of seedlings. Thus the Furze has at first trifoliate leaves, which gradually pass into spines. This shows that the Furze is descended from ancestors which had trifoliate leaves, as so many of its congeners have now. Similarly in some species, which when mature have palmate leaves, those of the seedling are heart-shaped. He thought that perhaps in all cases the palmate form was derived from the heart-shaped, and that when in any genus we find heart-shaped and lobed leaves, the former may represent the earlier or ancestral condition. He then pointed out that if there was some definite form told off for each species then surely a similar rule ought to hold good for each genus. The species of a genus might well differ more from one another than the varieties of any particular species; the generic type might be, so to say, less closely limited; but still there ought to be some type characteristic of the genus. He took then one genus, that of *Senecio* (the Groundsel). Now, in addition to *Senecios* more or less resembling the common Groundsel, there were species with leaves like the Daisy, bushy species with leaves like the Privet and the Box, small trees with leaves like the Laurel and the

Poplar, climbing species like the Tamus and Bryony. In fact, the list is a very long one, and showed that there is no definite type of leaf, but that the form in the various species depends on the condition of the species. From these and other considerations he concluded that the form of leaves did not depend on any inherent tendency, but on the structure and organisation, the habits and requirements of the plant. Of course it might be that the present form had reference to former and not to present conditions. This rendered the problem all the more complex and difficult. The lecture was illustrated by numerous diagrams and specimens, and Sir John concluded by saying, the subject presented a very wide and interesting field of study, for if he were correct in his contention every one of the almost infinite forms of leaves must have some cause and explanation.

#### MEMBLAND.

(Concluded from p. 206.)

THE kitchen garden is the exact termination of the valley which runs up its centre. It is from 5 to 6 acres in extent, bounded by a wall 14 feet high, and as a consequence ranges on both sides of the valley. The greater portion is on the right or north side, where a kind of terrace is occupied by the various fruit and plant houses, the whole length of the wall on this side being covered with glass.

#### THE GLASS HOUSES.

For greater convenience in directing the operations in the numerous houses, Mr. Baker has numbered each one—a capital plan in large establishments—and for the purpose of describing them we cannot do better than adopt the same. Nos. 1 to 4 are lean-to vineries, 18 feet wide, thus affording a good length of rafters. The Vines all through are in first-class condition, being about eight years old, trained on the span system. Borders are made inside and out.

No. 1 is the early vinery, for which purpose Black Hamburgs and Foster's Seedling are the only kinds grown.

No. 2 is a late house, where were growing fine well-shaped and coloured bunches of Gros Colmar, also splendid examples of Alicante and Barbarossa, well coloured. A Vine of Pearson's Golden Queen was carrying a good crop, and perfectly ripened; these appeared as if they would surpass the Muscat of Alexandria for keeping qualities, the skin being thick and the berries plump. Some Vines also of Madresfield Court, though the fruit had all been cut, showed evident signs of good culture. The back wall of this house was covered half with that fine old Pelargonium, Rollisson's Unique; the other with Heliotrope, which produces abundance of cut bloom during the winter months.

No. 3 contained Vines of Lady Downe's, carrying some remarkably fine bunches for this variety, well coloured and monstrous berries. Black Prince, Muscat Hamburg, and Madresfield Court also are grown in this house, and from the latter variety in this house were grown those handsome bunches with which Mr. Baker carried off the first prizes at the western shows.

No. 4. Principally Muscat of Alexandria are here grown. A few Vines of Frontignan are being inarched with rods carried from the Muscats, in order to fill the house entirely with the latter variety. The back wall was covered with double Pelargoniums and Abutilon Boule de Neige. A fine batch of Chrysanthemums, for cut flowers, occupied the centre at the time of my visit.

No. 5, a Peach-house; back walls 16 feet, the border 6 feet wide, with upright sashes in front, 12 feet wide, 65 feet long. It may here be remarked that this kind of fruit cannot be



grown on the open walls, owing to the salt impregnating the atmosphere as it comes off the sea; hence there is a considerable amount of glass devoted to the Peach and Nectarine. In the house No. 5 the principal varieties are Lord Napier, Violette Hâtive, and Rivers' Early Orange Nectarines; Royal George, Dymond, and Magdala Peaches; the two latter Mr. Baker thinks much of for early work.

No. 6. Peach-house, wherein Walburton Admirable, Barrington, Lord Palmerston, and Princess of Wales Peaches; Humboldt, Victoria, and Pittmaston Orange Nectarines, are the kinds grown.

No. 7 is a small square house, connecting the two Peach-houses, Nos. 6 and 8. A very fine plant of *Luculia gratissima* occupied the back wall, and a standard of the same in front, well set with flower-buds. A large and healthy-looking plant of *Lapageria rosea* was trained up and covered the roof; a collection of Palms, *Dracaena indivisa*, and *Dracaenas* with hardy green-house Ferns occupied the centre.

No. 8, another Peach-house of the same dimensions as the other; Noblesse, Dymond, and Princess of Wales Peaches, and Pine-apple Nectarines occupied the trellis. The trees throughout were strong and healthy-looking, with plenty of good bearing wood, but not so well ripened as one could wish. It seems a pity that these ranges of Peach-cases were not widened sufficiently at first, so as to enable a large trellis to be used in front; an angle would thus have been made in the roof which would have caught the direct rays of the sun and would have conducted to a better ripening of the wood, besides the large quantity of fruit extra, and all this at a little more cost than the present erections, which, like all other glass structures in this establishment, are very substantial, elaborate, and well-built.

Nos. 9 and 10 are low span-roofed houses in front of the vineries, each about 50 feet long, and 12 feet wide, admirably adapted for plant culture for decorative purposes. Large specimen plants are not grown, only those that are useful for cut blooms and home work, of which there are large quantities.

No. 9 is classed an intermediate-house. Here were growing a fine batch of *Odontoglossum Alexandræ* and *vexillarium*; a fine specimen of *Lælia Dayana* was in flower at the time, and several large plants of *Cypripedium Maulei*. A capital lot of *Cyclamen* for early use were coming on; large batches of *Adiantum cuneatum* and *White Lady Heliotrope* were all in a very healthy condition. The shelves were filled with *Primulas* and *Cyclamens*, every available space being utilised to advantage.

No. 10. A stove temperature is here maintained. Some remarkably fine pans of *Cologne cristata*, which Mr. Baker had under his care for many years previous to taking charge of Membland, were very noticeable. *Calanthes* in variety were largely grown. Batches of *Euphorbia jacquiniæflora*, small *Crotons*, *Dipladenias*, *Adiantums cuneatums* and *Farleyense*, were all showing signs of good management. A fine lot of plants of *Jasminum gracillimum*, well set with flower-buds, and just coming into flower, are much esteemed here for their fragrance and pure whiteness. It does not drop its flowers so readily as most *Jasmines*. In a line with these houses stands a range of pits, 70 feet long, used for forcing French Beans, &c.

We now leave the walled garden and pass out to the back of the vineries on ground still higher, where exist two long ranges of span-roofed-houses, each range about 100 feet long, and each in six divisions, well adapted for the cultivation of Cucumbers, Melons, Tomatos, &c.

No. 11 in these ranges is used as a propagating-house.

No. 12. Anthuriums, Gardenias, and Bouvardias occupy this house at the present time, conspicuous being *A. Andreanum*, with a very

fine and handsome spathe. This house at forcing time is devoted to the forcing of Roses, Lilacs, &c.

No. 13. Filled with double white *Primulas*, flowering well, together with several of Gilbert's new varieties—Princess of Wales being the best of them.

No. 14. Double *Pelargoniums*, of Wonderful and Raspail varieties—the latter being a splendid thing, a very deep scarlet; and *Carnations* W. P. Milner, best of Whites; and Miss Jolliffe, were all showing abundance of flower-buds.

No. 15 was filled with French Beans in pots, Fulmer's Forcing still being a favourite here.

No. 16. Devoted exclusively to Tomatos, Trentham Fillbasket being considered the best—Hathaway's Stamfordian Excelsior and Stamfordian being the other varieties grown. Large crops had been taken from this house, and there yet remained a quantity of fair sized fruit.

No. 17. A Cucumber-house just coming into bearing. Mr. Baker sticks to a cross between Sion House and Telegraph raised by himself, and which he considers the best that he knows, being specially adapted for winter culture. By the appearance of the fruit at that time I thought it a very distinct and desirable variety, and one that should be brought under public notice.

No. 18 was just being filled with pot Vines. This completes the list of houses, and here I may say that cleanliness and good management existed everywhere, as might be anticipated, as the gardener is one of our best men.

#### THE KITCHEN GARDEN

exhibited the same care bestowed upon it in the selection of varieties of vegetables suitable, and arrangement for a continuous supply throughout the season. Good specimens of Apple and Pear trees line the different walks intersecting the garden. The principal varieties of Pears that succeed here as pyramids are *Fondante d'Automne*, *Gratioli* of Jersey, *Urbanist*, *Alexandre Lambre*, *Williams' Bon Chrétien*, and *Louise Bonne* of Jersey, this last doing exceptionally well. Pruning is not carried out so rigidly as in many places, no doubt conducing to fruitfulness in earlier stages of the tree. The north wall is covered with Morello Cherries, and the border with late autumn bearing Raspberries. At the head of the kitchen garden are borders for herbaceous plants in great variety. Beds of Lilies of the Valley were noticed as producing wonderfully fine crowns, and which are said to do so annually, the soil and position being such that they luxuriate in. Various additions and alterations are in contemplation to improve the gardens, and so long as Mr. Baring has a gardener like Mr. Baker, who has so long served and enjoyed the confidence of his employer both here and at Coombe to advise him in any fresh undertakings, there is no doubt but that Membland will retain its rank with the finest and best managed establishments in the kingdom. *D. C. Powell.*

## New Garden Plants.

### ODONTOGLOSSUM PESCATOREI MELANOCENTRUM, n. var.

A VERY fine variety, which looks as if it had a black centre. The top of the column and the whole of its front side have this colour. The lamellæ of the base of the lip, and the bilamellate disc between them, are likewise blackish-purple, while the small anterior lamellæ are orange, with a black-purple margin at the base. Sepals with a light purple wash on the middle line. Excepting the places mentioned the whole flower is white. Kindly forwarded from Mr.

W. Bull, together with the fine variety *aurantiacum* *H. G. Rehb. f.* (These varieties were shown at the last meeting of the Floral Committee.)

#### MAXILLARIA KALBREYERI (*Rehb. f.*), n. sp.\*

This is a New Grenadan discovery of Mr. W. Kalbreyer, whose name it may bear. It comes near to *Maxillaria venusta* and its allies, but the flower is so much shorter that I was reminded at first sight of *Maxillaria candida*, Lindl. This, however, has a distinctly three-lobed lip, and the callus stands far more towards the apex of the lip. I have only seen *M. candida* in Dr. Lindley's Herbarium. The bulb of our plant is oblong-uncipitous, one-leaved, and about 2 inches in length and 1 in breadth. The leaf is oblong-ligulate, a span high, a good inch broad. Peduncles with some strong sheaths as in allied species. Bracts oblong cucullate acute, surpassing a little the ovary, which is one inch in length. Mentum angulate. Upper sepal and petals ligulate, acute, side sepals triangular acute, not much surpassing an inch, lightest greenish-white. Lip oblong-ligulate, blunt, tooth-letted on the anterior margins, a little broader towards the base, lightest greenish-white, with some sordid mauve-purple outside on the superior margins, covered with meal from broken hairs in the usual manner. The callus itself is partly mealy, but its triangular, naked, orange apex peeps out distinctly from the meal in the middle of the disc. I had excellent materials from Mr. Harry Veitch. *H. G. Rehb. f.*

#### CHARLES DOWNING.

THE death of Mr. Charles Downing, of Newburgh, New York, took place on January 18, in the eighty-third year of his age, after a lingering illness, caused by a severe injury received in New York city two years ago, when he was knocked down by a horse car. In early life he was engaged with his brother, A. J. Downing, in the nursery business near Newburgh, New York. Many years after he retired from active business life, and took up his abode in the city of Newburgh, having a small garden attached to his house, where he devoted all his time to the study of fruits, living a very retired and quiet life. Being a man of great experience and in direct communication with all the leading horticulturists, pomologists, and nurserymen, he received large quantities of fruits from all parts of the country, thus enabling him to become one of the greatest pomologists the world has ever known.

The *Fruits and Fruit Trees of America*, in its present form, was really more the results of the labours of Mr. Charles Downing than of his brother, A. J. Downing. He added much new matter, the results of his own observation and experiments, finally completing a work which is considered of the highest authority on this subject, both in England and America.

Darwin, in his work on *The Origin of Species*, constantly quotes from this work of Charles Downing in support of his own theories of "natural selection," and "evolution," and makes due acknowledgment of the aid and assistance he had received from his opportune discoveries. His conscientiousness was one of his most noticeable traits, and no nurseryman could ever induce him to over-praise any new fruits introduced, and it has been said of him that "there can be no other Charles Downing, as no other man can do for the fruits of America what he did." Mr. Downing never had any children. His wife died a few years ago. The Massachusetts Horticultural Society appointed a committee at its last meeting (January 24) to take action on his death. Ex-President Wilder, chairman of the committee appointed to take action on his death, spoke at the meeting of January 31 in tender and touching words on the life and worth of the deceased. He recalled the fact that it was his sad duty to pronounce the eulogy of his brother, Mr. A. J. Downing, since which time the work in pomology had been conducted by Mr. Charles Downing. As a pomologist Mr. Downing was renowned for his knowledge and accuracy. His object was to make others happy in the enjoyment of the bounties of Nature. In closing he said, with deep emotion, that he expected soon to follow and rejoin him in another world.

At the request of Mr. Wilder, the Secretary read a series of resolutions expressing the sense of loss in the death of the eminent pomologist. Mr. Downing had a large collection of works on pomology, which he

\* *Maxillaria Kalbreyeri*.—Aff. *Maxillaria candida*, Lindl. Folio angustiori; labello integerrimo oblongo-ligulato superius furfuraceo; callo in disco superiori apice triangulo. N. Grenada. *H. G. Rehb. f.*



intended to give to a Western agricultural college at his death. A portrait of Mr. Downing will be found at p. 143 of our vol. i. for 1875.

## THE NEW DAHLIAS OF 1885.

RESPECTING these it may be stated that while the list of new varieties to be sent out by Mr. Turner is, if anything, considerably larger than usual, that of Messrs. Keynes & Co. is a little less; but both lists include flowers that will not lessen the reputations of these firms for putting into cultivation varieties generally acceptable to cultivators, and likely to maintain the interest in this favourite summer flower. That there is no lack of interest in the Dahlia as an exhibition flower was abundantly shown at the meeting of the National Dahlia Society at the Crystal Palace in September last. A very large number of flowers were staged, and it is with something like surprise we hear the rumour that this annual exhibition is in danger of being discontinued through want of funds, and especially as just now special societies appear to be more flourishing than those which encourage plants in general.

It will be remembered that at the October meeting of the Royal Horticultural Society Messrs. Rawlings Brothers, of Romford, exhibited a number of seedlings of their own raising, not in the best condition because the fateness of the season had induced a certain amount of roughness, but yet showing evidence of promise in another trial. These passed into the hands of Mr. Turner, and he has decided to send out the following from this batch in May next, viz.:—Mrs. Douglas, vivid scarlet, perfect in petal and form, good high centre, and an extra fine exhibition variety; Mrs. Glasscock, a pure white self, of full size, good form and centre; Mrs. Kendall, white ground, heavily tipped and edged with purple, a novel flower of full size and good form; Harry Turner, rich black-maroon, extra fine form, and very constant; T. J. Saltmarsh, yellow, deeply edged with red, finely cupped petals, and of decidedly novel character; and William Dodds, orange-buff, petals broad, stout and circular, full size, and quite constant.

In addition, Mr. Turner has the following new varieties raised by the Rev. C. Fellowes, Shottesham, for sending out in May, viz.:—Bugleman, dark maroon, shaded with bright crimson, fine petal and outline, very beautiful and novel; Clarionet, a bright scarlet self, showy and constant; Sybil, a buff self flower of good form, and constant; and Pandora, French white, of good size, excellent form, and very constant.

Messrs. Keynes & Co.'s new show varieties are Falcon, fawn colour, novel, pretty, a very neat and well-formed flower; James Huntley, a fine bright rosy-purple self, novel in colour, very pleasing, large in size, and of fine form; and Mrs. Langtry, cream colour, heavily edged with cherry, charming in colour, form all that can well be desired, and has received several First-class Certificates of Merit. The three foregoing are all of their own raising.

Mr. Turner will send out the following new fancy varieties, viz.:—Charles Turner, pale buff ground striped with maroon, of great depth of substance, very constant, good centre, and a fine show variety; Henry Eckford, yellow or light buff ground, striped with scarlet, very constant; and Mrs. Carter, a finely-shaped dark fancy, the ground colour dark maroon tipped with white, and extra fine.

Messrs. Keynes & Co. will also send out three new fancy varieties, viz.:—General Gordon, a variety that will take the same high rank among fancy flowers this year that Mrs. Gladstone did among the show varieties in 1884. The ground colour is yellow, and it is very handsomely striped with scarlet of a bright shade, which, with the brilliancy of the yellow, imparts a very effective appearance to the flower: it is of exquisite form, and very constant. It was Certificated wherever shown last year, and it obtained the premier prize for the finest bloomer of the whole exhibition of the National Dahlia Society in 1884. Neptune is an orange-ground flower striped with crimson, and likely to prove very useful as an exhibition variety. Romeo is a somewhat distinct variety, the ground colour buff, striped and speckled with crimson. This trio was raised by Messrs. Keynes & Co.

Of new bouquet and single Dahlias there will no doubt be many—of the latter especially, and of these no information is obtainable at this early period of the year. R. D.

## VARIETIES OF NARCISSUS.

DAFFODIL RIP VAN WINKLE.—This Daffodil was shown by Mr. Hartland, of Cork, before the Royal Horticultural Society at the last meeting, but as the specimens were grown under glass it was considered better to wait till flowers were produced in the open air before adjudicating on their merits.

By some this is considered to be the true double Daffodil; but a reference to our figure (fig. 44) shows such considerable differences that there can be no doubt as to its distinctness from that variety. It is very like the big double Daffodil, *N. telamonius* plenus, but is considerably smaller, and the segments are slightly toothed and whitish at the tips. Mr. Hartland himself considers it to be the Irish nanus, basing his opinion upon the comparison of the bulbs of the two. "The colour of the flowers he describes as pale lemon-yellow, petals very double, and frilled." It is of very dwarf habit.

Mr. Barr, in a "Stop Press Notice," inserted as an appendix to his *Ye Narcissus or Daffodil*, says of Rip Van Winkle that "the colour of the flower is a very light canary-yellow, habit of the plant dwarf, early to bloom, and very dapper in its way among small rare Daffodils." Mr. Barr, moreover, promises "not to spare Master Rip Van Winkle if he has been posing himself as new when we strongly suspect he



FIG. 44.—NARCISSUS RIP VAN WINKLE: FLOWERS CANARY-YELLOW.

is our English pseudo-Daffodil, or Lent Lily, gone to sleep in his double form in the island of saints." Now is Mr. Barr's opportunity, but we do not think his suspicion is justified, but as the Narcissophiles are apt to make very fine distinctions we are conscious that we are skating on thin ice. Botanically we stand on firm ground when we say that both are forms of *Narcissus Pseudo-Narcissus*! A melancholy significance attaches to another Daffodil exhibited by Mr. Hartland, and called General Gordon, a cross between Ajax and *Incomparabilis*!

### NARCISSUS PACHYBULBOS.

We are indebted to Mr. Loder for the opportunity of figuring this interesting species (fig. 45), which he exhibited at the last meeting of the Scientific Committee of the Royal Horticultural Society. It is an Algerian species, with a large thick bulb covered with brown lacerate scales, and trusses of white fragrant flowers. The plant is figured in Mr. Burbridge's work on the *Narcissus*, t. 39, apparently from dried specimens. In the fresh specimen, the flowers are all turned to one side. It was originally introduced by the late Mr. Giles Munby. Mr. Baker in our columns inclined to the view that it is but an African form of *N. tazetta*, having a more sturdy habit of growth and very glaucous foliage, but as shown the other day it appeared sufficiently distinct.

## THE INFLUENCE OF DIRECT SUNLIGHT ON VEGETATION.

THE influence of direct sunlight on vegetation is generally known, but surely deserves to be a subject of special study. In the following paper we shall only endeavour to describe some facts with relation to this influence. In the first place, the effect of the sun's rays in the tropical regions will be traced, and afterwards in the temperate and arctic zones. The constant high temperature within the tropics is the cause of the plants being less dependent on the direct solar heat than is the case in the greater part of the temperate and cold zones, but, notwithstanding this, there are plants even in the tropical regions requiring for a luxuriant growth the direct rays of the sun.

Of the tropical monocotyledonous plants, the Palms are doubtless the most important, and of these the Date Palm of the Sahara Desert (*Phoenix dactylifera*, L.) furnishes daily food to the inhabitants of this part of Africa.

It is known that the subterranean wells are the only cause of vegetation in this desert. When a well is discovered, in a short time an oasis arises, and the Date Palm appears.

Considering that the first condition for the growth of Palms is a humid soil wherein the roots may vegetate there seems to be at first something strange in the fact of the Great Desert producing species of this family; but the Arabs say that this "Queen of the Oasis" puts her feet in water and her head in the fire of heaven; and this is the cause of the rapid growth of the plant (Grisebach, *Die Vegetation der Erde*, theil ii., p. 87); the water ascends by the roots into the tissue of the tree, and communicates its temperature to the inner parts, so that the influence of the sun's heat is tempered; the evaporation of the plant also causes a lower temperature; thus it withstands the difference of 98° (from 126° to 28°), as occurs in the desert (Martins, "Le Sahara," *Revue des Deux Mondes*, 1864, vol. lii., p. 613).

Though, as we have said above, these plants require, in the first place, water for their roots, the fact of the stems growing in their wild state at a considerable distance one from the other, and never forming dense forests, proves that they require also the light.

But the Date Palm is indigenous to the Great Desert; nowhere else does this plant vegetate so rapidly. When cultivated with success it is also in a desert climate, as, for instance, in that of Murcia in Spain (the Date forest of Elche), the highlands of Afghanistan, &c. The cause of its being without fruits in the Mediterranean is the dry summer, there being no subterranean wells, as is the case in the Sahara.

The Sugar-cane (*Saccharum officinarum*, L.) is also a plant requiring direct solar light; moist climates are disadvantageous to its cultivation. Thus the climate of China, with its heavy rains in May and June (Dove, *Klimatologische Beiträge*, vol. i., p. 102), but less precipitation in autumn, when the fruits [cane?] ripen, is suited for the culture of this plant. It is known that the quantity of sugar depends on the quantity of sunshine.

Turning to the warm temperate zone we see the species of Citrus cultivated in the sunny climate of Southern Italy, and even by cultivation produce the delicious fruits generally known, because they are in summer under the almost constant influence of the sun's rays in open localities. In the Malayan peninsula the supposed native country of these plants, they also grow in open spaces and not in the jungles, requiring a moist soil, but also the solar light, to ripen their fruits; this explains why the finest and largest Oranges are obtained when the trees are trained against walls, as is the case in some parts of Southern England.

The Vine (*Vitis vinifera*, L.) is also a plant requiring heat in the after summer to ripen its fruits; the climate of Southern France and Italy is therefore well adapted for its cultivation. In the continental climate of Bokhara in Turkestan (40° N. lat.), with its hot summers (in the sandy desert on the Oxus River the soil was found to have a temperature of 144°—Basiner, *Reise durch die Kirgisiensteppe nach Chiwa*, the plant is cultivated in the open fields; its winter covering is not taken off before the end of March, but in April the temperature is already very high, and in July it becomes insupportable; \* the fruit of the

\* Mean temperature at Samarkand, lat. 39° 39', in 1881:—April, 61°; May, 70°; June, 77°; July, 84°; August, 77°; September, 68°; and December, 28°. Mean temperature at 1 P.M. in June, 86°; in July, 93°; in August, 92°; in September, 81°.



Vine is ripe by the end of June or the beginning of July. The soil is moistened here by artificial irrigation. A climate with sudden changes of temperature, as, for instance, in the United States, does not suit this plant. On the banks of the Ohio River the fruits are rotten, or fall down, before they are ripe, notwithstanding that the mean temperature of all the months at Cincinnati is higher than at Pesth in Austria; but the American species are cultivated with success.

In California, with its equal temperature, the Vine is cultivated, though the mean temperature at San Francisco is much lower than in Europe in the same latitude; but the dry Californian summer is not to be found throughout the United States, where heavy rains occur at this season.

Everywhere, in the warm as well as in the temperate regions, corn is cultivated with success where there is in summer direct sunlight enough to ripen its grains; on the highlands of Afghanistan, in China, on the plains of Southern Russia, on the highlands of Mexico, &c.—for these plants require also the direct solar warmth.

On highlands, the influence of insolation is very much increased. At Leh, in Tibet, altitude about 12,000 feet, the thermometer rose in July, in the sun, to 144°, and in mid-winter to 84°, though the mean summer temperature is only 61°, and that of the winter 16°.\* Barley is sown about May 18, and harvested on September 12; but in the valley of Pituk (altitude about 11,000 feet) Barley was sown and harvested in two months. *Nature.*

(To be continued.)

## KILIMANJARO.

At a meeting of the Royal Geographical Society, held recently, Mr. H. H. Johnston gave a description of his visit to Kilimanjaro, on the slopes of which he spent more than five months in the summer and autumn of last year. Kilimanjaro is a snow-clad mountain in Eastern tropical Africa, and the investigation of whose flora may be expected to yield results of great interest to science and to horticulture.

Mr. Johnston told how, after some difficulties, he began the ascent of the mountain. He and his porters crossed the cultivated zone, which ended at about 5500 feet in that part, entered a healthy district with pleasant grassy knolls and many streams of running water, and encamped beside a lovely fern-choked brook at 6500 feet, the whole ascent being very gradual. The following day they passed through stunted forest, not unlike an English woodland, where the trees, however, were hung with unfamiliar ferns and creepers, and where deliciously-scented parasitic Begonias trailed their pink flower-bells from branch to branch. The *Dracæna*, which is cultivated by the Wa-Chagga to form hedges, here grow wild. Tree Ferns were abundant and handsome. Above 7000 feet the Orchilla moss draped the forest trees in long gay festoons. At 9000 feet they encamped for the night by a small spring of water in the midst of a grand bit of forest, not of that stunted character which marked the lower woods. The next day they walked several miles eastward to find a good place for settlement close to water, and not too high up, so that his shivering followers might not suffer unreasonably from cold. He selected an admirable spot on a grassy knoll rising above the river of Kilema, which takes its source near the base of Kimawenzi. The altitude of this spot was nearly 10,000 feet. Having seen every one carefully installed and protected from the—to them—severe cold (for the thermometer descended every night to 1° or 2° below freezing point), he transferred his own quarters to a higher elevation, and began industriously to collect. His first excursion was to the base of Kimawenzi. The terrible hurricane of wind, however, that raged round this jagged series of lava peaks, prevented him from continuing the ascent, although he doubted if it were possible for any one to reach the summit, owing to the want of foothold. The snow varied very much in quantity on Kimawenzi. Sometimes the whole peak would be covered down to the parent ridge, with only the precipitous rocks peeping blackly through the mantle of white. At other periods the snow would be reduced to an insignificant patch, and the reddish sand which filled the crevices and glissades between the lava rocks would be left exposed to view. This change from an

almost complete snow-cap to nearly no snow at all might be effected in twelve hours. His great object, however, was to reach the snows, and, if possible, the summit of Kibô. Starting at 9, he walked upwards with few stoppages until 130. At first they crossed grassy undulating hillocks, the road being fairly easy. Then they entered a heathy tract, scorched and burnt with recent bush-fires; but higher up, where the blaze had not reached, the vegetation was fairly abundant and green. Small pink *Gladioli* studded the ground in numbers. At an altitude of nearly 13,000 feet bees and wasps were still to be seen, and bright little sun-birds darted from bush to bush, gleaning their repast of honey. Mounting high above the rivulet the scenery became much harsher. Vegetation only grew

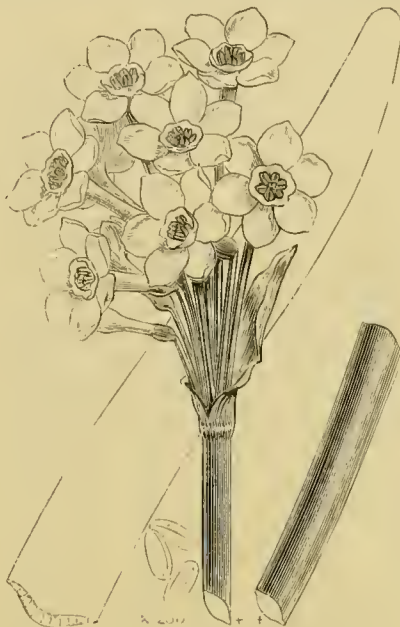


FIG. 45.—*NARCISUS PACHYBULBOS*; FLOWERS WHITE, FRAGRANT.



FIG. 45.—THE TRUE WILD DOUBLE DAFFODIL, FOR COMPARISON WITH FIG. 44.

in dwarfed patches as they passed the altitude of 13,000 feet, and the ground was covered with boulders more or less big, apparently lying in utter confusion, and without any definite direction. They were not very difficult to climb over, and even seemed to act as irregular stone steps upwards. In their interstices Heathens of the size of large shrubs grew with a certain luxuriance. About 13,700 feet he saw the last resident bird, a kind of stonechat apparently. It went in little cheery flocks, and showed such absence of fear that he had to walk away from it before shooting to avoid shattering his specimen. After this, with the exception of an occasional great high-soaring kite or great-billed raven, he saw no other bird.

Throughout this ascent, which was easy to climb, he suffered absolutely nothing from want of breath or mountain sickness, although his three Zanzibari fol-

lowers lagged behind, panting and exhausted, and complained much of their lungs and head. "Mounting up a few hundred feet higher than the last stopping-place," Mr. Johnston said, "and rounding an unsuspected and deep ravine, I arrived close to the base of a small peak which had been a continual and useful point to aim at during the whole journey from my station. I was now on the central connecting ridge of Kilimanjaro, and could see a little on both sides, though the misty state of the atmosphere prevented my getting any good view of the country. The highest point I attained on Kilimanjaro was 16,315 feet. I thus came within a little more than 2000 feet of the summit, which is usually estimated to reach an altitude of 18,800 feet." He made other ascents during the month he was in high altitudes. The footprints and other traces of buffaloes were seen up to 14,000 feet, but he never caught sight of one of the creatures, nor did he see any of the big antelopes, which also wander up to the snow line. At a height of 13,000 feet he saw three elephants, and at night the shrill trumpeting of these animals could be heard round the station. On October 18 he found himself, most unwillingly, obliged to leave the elevated settlement and return to Taveita. The relatively great cold they had experienced had acted very unfavourably on his men's health, and he feared that a longer delay might render them quite unfitted to carry burdens. Their downward journey, part of the way through trackless bush and dense dank forest, was not without adventure and some reward in scenery of great beauty. The average elevation of this country was between 8000 and 7000 feet, and the temperature consequently almost cool, ranging from 43° at night to 70° in the mid-day warmth. After some four hours' walking from their camp they crossed the long ridge that marked the southern flank of Kimawenzi, and began to descend the eastern slope of the mountain. Soon they emerged on a kind of heath-like country, and then looked forth on a splendid view, stretching from Mvika to the mountains of Bura and Ukambani (the Kiulu range), with Jipe on one hand and the River Tzavo on the other. After some enjoyable excursions from his settlement at Taveita, he made a rapid journey to the coast by way of Pare, Usambara, and the Rufu River to Pangani. At Zanzibar, finding there were no fresh funds to enable him to return to Kilimanjaro, he paid off the last of his faithful followers and took his passage on the British India steamer to Suez in quite a sulky frame of mind, as sorry to leave his beautiful mountain as many people are to quit Eogland. Travelling overland from Suez he arrived in London not much more than six weeks after he had caught his last glimpse of the snows of Kilimanjaro.

## DISEASE OF RHODODENDRON ROOTS.

THE Scientific Committee (see p. 219 *ante*) must have arrived at an erroneous conclusion in regard to the roots infested with fungi, sent for examination by the Rev. J. T. Boscawen. The material described by the committee as "roots, which appeared to have decayed through wet," and amongst which "no fungoid growths could be detected," included the hybernating mycelium, in profuse quantities, of the fungus known to mycologists as *Xylaria vaporaria*, B. This mycelium, which is really in a sclerotoid or compact and hybernating condition, entwines amongst the roots, and exactly (on a superficial examination) resembles entwined root masses. It is always more or less "wet," and exudes drops of water on being broken. Some persons would consider the root-like growth of this curious mycelium to be an example of "mimicry" or "protective resemblance;" the latter quality, perhaps, last week, saved the fungus from desiccation and incarceration in one of the national herbaria.

These "wet roots" have often been sent to the *Gardeners' Chronicle* office for a name. They have been artificially grown in damp sand, first by the late Mr. Frederick Currey, and afterwards by Mr. C. E. Broome and myself. The perfect *Xylaria* appears after the mycelium has rested for about three months.

The only way to get rid of this fungus is to pull out all the "roots" and burn them. In some instances I have known this sclerotoid mycelium to be so profuse and destructive in gardens that the gardeners have pulled out the cords of mycelium by yards, and carted them away in barrows for destruction by fire, W. G. Smith.

\* Frost is observed in September, and lasts till the end of May. See Moorcroft, *Travels in the Himalayan Provinces*.



## FORESTRY.

### REMARKABLE TREES ON THE PENRHYN ESTATE.

In our Forest papers it has frequently been asserted that the Larch is not suited for bog planting; but this is a mistake, and certainly not borne out by the testimony of the tree itself, as apart from the specimens in question the finest Larch I have ever seen are growing in deep peat bog, on an estate in the North of Ireland. In such soil the Larch is also remarkably free from the various diseases to which, more especially of late years, it seems particularly susceptible, and which have lowered it in the estimation of landed proprietors and planters in general, and so caused the now well-known outcry of "a substitute for the Larch." Remarkable not so much for individual size, but as being planted by Royalty and other distinguished personages, are a number of trees near the lawn-tennis ground between the Castle and flower garden. The first of these is a well furnished and very symmetrical specimen of the Mammoth tree (*Sequoia gigantea*), planted on October 17, 1859, by Her Majesty the Queen, and which has now attained a height of over 40 feet, the stem girthing 6 feet 9 inches at 3 feet, and 6 feet 1 inch at 5 feet. A Turkey Oak, also planted by Her Majesty on the same date, is 33 feet in height, with a stem girthing at 3 and 5 feet 33 inches and 31 inches respectively. Another Oak (English), planted on the same day by H.R.H. Prince Arthur, girths 18 inches at 3 feet up, and 16 inches at 5 feet. Close to the latter is a Nordmann's Fir (*Abies Nordmanniana*), planted in 1857 by Sir James McGarel Hogg, the girths at 3 and 5 feet being 4 feet 2 inches and 3 feet 11 inches respectively, and the height 50 feet. A *Sequoia* planted by the Lady Hogg in 1857 has, however, far outgrown any of the others, being now rather more than double the girth of the Nordmann Fir planted by Sir James Hogg in the same year. This tree is also the tallest of its kind on the estate, although as regards girth of stem it is inferior to one or two others. The total height is now fully 60 feet, and the bole girths 8 feet 8 inches at 3 feet, and 7 feet 8 inches at 5 feet.

Here also is a well-branched specimen of the Redwood (*Sequoia sempervirens*) planted in 1857 by the Lady Penrhyn, and which has attained the height of 47 feet, and a girth of stem at 3 feet of 6 feet 9 inches, and at 5 feet of 6 feet. A fine group of the upright Cypress (*Cupressus sempervirens*, var. *fastigiata*), eight in number, and with stems girthing from 3 to 4 feet at a yard up, next attracts attention, these trees being amongst evergreen shrubs what the Lombardy Poplar is amongst timber trees—a fine contrast to the more spreading and round-headed forms. Although of rather formal growth, and imparting a somewhat gloomy air to the situation which it occupies, yet the deep evergreen branches and leaves, laden as they usually are with clusters of large round cones, render this Cypress a favourite with most planters, more especially for using alongside buildings where the prevailing lines are horizontal. Not far from these, at the bottom of the lawn, are a number of Lebanon Cedars, some of which were raised from seed sent from the Lebanon forest in 1859. Strange to say, these latter approach in structure and general appearance so nearly to the Atlantic Cedar (*Cedrus atlantica*) that they would readily pass for that species; indeed it is difficult to find distinctive characters for these trees, the main difference lying in the foliage of the latter, which is shorter and of a more glaucous green or silvery hue than that of the Lebanon Cedar. The Atlantic Cedar is of a more erect pyramidal habit than that usually assumed by the Lebanon species—this being very noticeable in the specimens under consideration.

A few trees growing in front of the kitchen garden must not be omitted, notably fine specimens of the Aleppo or Jerusalem Pine (*Pinus halepensis*), the Cephalonian Fir (*Abies cephalonica*), and the Golden Larch (*Pseudo-Larix Kämpferi*).

Amongst these the Jerusalem Pine is the most remarkable, not only as being a tree that is rarely seen in Britain but one that has been falsely represented as being of too tender a constitution for our climate generally. The tree in question is 45 feet in height, with a stem girthing, at 3 and 5 feet, 4 feet 5 inches and 4 feet respectively; and although growing in a somewhat breezy situation has kept pace with the

Austrian and other trees in its close vicinity. *Abies cephalonica* and *A. Pissapo*, growing nearly side by side, are very distinct and ornamental Firs, the former especially having been quite enlivened during the past summer with its numerous purple, resin-streaked cones.

The Golden Larch is a very ornamental Conifer, the leaves being of a beautiful pale green when young, but before falling off in the autumn they assume a fine golden-yellow hue. This is the only deciduous species among golden Conifers, and, at the same time, one of the largest in growth. Not far from these, and growing in poor shingly soil, is a well proportioned specimen of Lambert's Cypress (*Cupressus Lambertiana*), the horizontal branches of which, well laden with glossy cones, are at all times attractive. It is fully 50 feet in height, with a stem girthing 4 feet 4 inches at 3 feet, and 4 feet 2 inches at 5 feet up.

A short distance from the entrance gate at Port Penrhyn are several of the newer Coniferæ with goodly proportions, amongst which is a well-furnished plant of the Japan Cedar (*Cryptomeria japonica*), 52 feet in height, and girthing 4 feet 6 inches at 3 feet, and 4 feet 2 inches at 5 feet up. Growing nearly opposite this is a densely branched and well proportioned *Araucaria imbricata*, that shows well the gracefully drooping branches with up-curved tips, which is so striking a peculiarity of some of these trees. The Bhotan Pine (*Pinus excelsa*) also does well, as a specimen but a few yards from the latter tree clearly shows. At a yard up it is 5 feet 6 inches, and at 5 feet 5 feet 3 inches in circumference of stem, and has a height of 61 feet. Many old Thoro trees, real relics of the past, are scattered throughout the park, and which during early summer display a wealth of bloom that is both ornamental and conspicuous. Several of these, notably such as are the remnants of demolished fences, are of unusual dimensions; one in particular, growing on the southern side of the Ogwen River, and within a short distance of the park wall, has a girth of stem at 3 feet up of 9 feet 6 inches, and a height of over 30 feet. Close to this tree are several others of the same kind and of nearly the same dimensions, some in full vigour, others gauged and half decayed, while not a few are, as it were, amalgamated with other trees, notably the Oak, Ash, and Elm. *A. D. Webster.*

(To be continued.)

### VEGETABLE MARROW CULTURE UNDER GLASS.

THIS very popular edible can be had fit for use during the months of May and June in this way, but will its cultivation prove to be remunerative in a commercial point of view? I predict that it can be made so, although my practical experience in the matter is not sufficient to confirm it, as my requirements have been only of a private and limited nature; but this is a matter well worth the attention of our enterprising market growers, and which they could readily solve by devoting a house to this particular subject. It is not very many years since the Tomato, now a most popular edible, was but rarely cultivated under these conditions, and I am inclined to believe, from my personal experience with this subject, the Vegetable Marrow, that it would be as remunerative as a house of Cucumbers is during the same season; and for this reason I submit the problem to the consideration of those whom it may be more likely to concern, and with this view give my experience, which now extends over four seasons, as to its cultivation in this manner.

We sow seeds in the early part of February, and rear the plants in the same way as Cucumber plants until they become of a good size, when they are partially hardened in a more temperate house, and subsequently planted out in hillocks of moderately enriched soil, containing about 2 bushels in each. In private establishments they have to be accommodated in those houses where space and trellis room—as they require a good run—can be found for them. Any house, or the back wall of it, can be employed, providing sun and light can get to them, wherein a temperature of 50° to 55° at night, and of 60° or 65° in the daytime is maintained. I have had them both in mid-summer vineries and intermediate Peach-houses, where they succeeded to my satisfaction in every way, giving them the same treatment with regard to stopping, training, and setting the fruit, as is applied in the case of Cucumber plants. As an addition to the

vegetable list for private demands they are highly esteemed; and doubtless, if introduced into the markets, they would be in demand; at least, I have found it to be so when I had a superabundance and a surplus quantity beyond what I required. *G. T. Miles.*

## Orchid Notes and Gleanings.

### LÆLIA ACUMINATA.

THIS species is now being imported, and sold at a cheap rate, but it is not greatly valued by the fanciers, and although not a showy plant by any means, it is of a neat, compact habit, does not take up much room, and flowering as it does in December and January, we value it greatly for producing cut flowers; I grow it in pots in the Cattleya-house. The flowers are of small size, produced in clusters; the sepals and petals, as well as the lip, are white, with the exception of a dark blotch on the base of the lip.

### LÆLIA AUTUMNALIS AND L. MAJALIS

are both being imported and sold at cheap rates. I have potted a number of them; their treatment is rather different from the ordinary run of *Lælias*. I place them in a house 5° cooler than the Cattleya-house, and they are also placed in a position where they get plenty of light; they are scarcely shaded from the sun even in summer. While growing they receive plentiful supplies of water; at other times they are kept comparatively dry. Plants like these, that are frequently exposed to the direct rays of the sun in summer, are apt to suffer, if they happen to be neglected when they require water for a few hours. If they could get the right treatment, there is no reason why they should not flower as well here as they do in their own wild home. *L. majalis* seems to do well on blocks. *L. autumnalis* should be potted in the usual way. The plants alluded to were sold as the *atro-rubens* variety. This is brighter in colour than the ordinary form, but both are handsome. The flowers are produced earlier than those of *L. anceps*. *J. Douglas.*

### DENDROBIUM SPECIOSUM.

In a note in the *Gardeners' Chronicle* of Feb. 7, p. 180, mention is made of a fine *Dendrobium speciosum*, bearing three spikes of bloom, and it is also mentioned as being a shy bloomer; this is a rock Orchid, and if properly treated it should not be shy to bloom. A plant here has been in the vineries for many years, and it flowers every year. We never think of a miss year, and we are all anxious to count the number of spikes it is showing as soon as the new year arrives. The plant measures nearly a yard in diameter. It has just gone out of bloom after carrying seventeen spikes, this being regarded as a minimum quantity, as three years since it bore thirty fine spikes. But to obtain this I put the plant in the warmest place in the vinery, and as soon as it shows signs of growth it is given plenty of water; and when the growth is completed—which is some time in July—the plant remains in the warm place, in the full sun; and never gets any water until it begins to show signs of flowering in the new year. This it will do readily, many of the stems throwing two spikes each—on one occasion one stem threw three spikes. In one of the years I spent in the Horticultural Gardens at Chiswick—I think it was the year 1847—a large plant flowered there after such treatment by a Mr. Harris, now gardener to Lord Halifax, in a stove in the experimental ground. Dr. Lindley was delighted with this plant, and ordered it to be exhibited at the Horticultural Rooms, 21, Regent Street. The superintendent said this was impossible, it could not be got out of the house, the doors not being big enough. Dr. Lindley then said "Take the roof off," and part of it was taken off, and the plant exhibited at the Regent Street rooms. What has become of that plant now? It deserved a home at Kew. *William Culverwell, Thorpe Perrow.*

### CATLEYA CHOCOENSIS.

In your notice of *Cattleya chocoensis* you do not mention the chief reason for which I prize it, which is for its exquisitely delicate perfume. It also has the merit of flowering in mid-winter. Another very



favourite plant of mine, now in flower, is *Epidendrum ciliare*. I cannot say much for its beauty. At night its rich but not oppressive scent cannot be surpassed, and I have it in the drawing-room for five or six weeks every winter when in flower. Another very sweet-scented winter-flowering Orchid is *Epidendrum varicosum*. *C. W. Strickland.*

#### CYRTOPODIUM CARDIOCHILUM.

A very curious Orchid, with elongated pseudobulbs 3 feet high, bearing linear lanceolate recurved leaves, and erect branching many-flowered racemes proceeding from the base of the pseudobulbs. The flowers are yellow, each about  $1\frac{1}{2}$  inch long, with three rounded yellow sepals; lateral petals of the same size and colour, but shortly stalked; lip 3-lobed, side lobes erect roundish, central lobe spoon-shaped. The native country is unknown. It requires to be grown in fibrous loam, with a little rotten dung, and to be kept in the East India house.

#### DENDROBIUM CRUENTUM.

A species with slender erect pseudobulbs, from the joints of which, near the upper part, arise flowers each about 2 inches long by  $1\frac{1}{2}$  broad, with broadly ovate lanceolate green sepals, the lateral petals very narrow, green; the lip 3-lobed, the side lobes short, erect, crimson, central lobe ovate acute, with a green centre, crimson edges with a central red callus. Native of the Malay peninsula. *Orchid Album*, t. 174. It requires a hot and dry rest from October till April.

#### CIRROPETALUM PICTURATUM.

A singular Orchid, with small ovoid pseudobulbs, solitary leaves, and erect scape, bearing an umbel of long greenish flowers, the median sepal and small petals red spotted, the two lateral sepals united and prolonged into a long sleeve-like tube. Native of Moulmein. *Bot. Mag.*, t. 6802.

#### LÆLIA PEDUNCULARIS.

Pseudobulbs small, sub-globose, with a solitary oblong leaf and a terminal erect raceme of flattish star-shaped flowers, each about  $2\frac{1}{2}$ —3 inches across, with narrow sepals and rather broader petals of a rosy-lilac colour. The lilac lip is 3-lobed, the two side lobes short, erect, the central lobe oblong, throat magenta coloured. Mexico. Mr. Williams, in the *Orchid Album*, t. 173, recommends this to be grown in the Cattleya-house in a basket near the glass.

#### DENDROBIUM SPECIOSUM.

A notice is made in your impression of February 7, p. 180, of the flowering of this species at The Mount, Sevenoaks. We have a plant in bloom here (Park Place, Henley-on-Thames), with eleven spikes, producing collectively 638 flowers. There are two other spikes not yet developed. *George Stanton, Park Place Gardens.*

## The Arboretum.

#### THE CEDARS OF REELICK.

IN reference to the paragraph on these trees that appeared a short time since, I beg to say that "W. C." is quite correct about the Indian Cedar (*Cedrus Deodara*). The large one in the centre of the grounds referred to by Mr. Cruthers was planted by McCallum, as he says; and Miss Fraser, of Rebeg, tells me they were brought from India by her uncle, J. B. Fraser, Esq., last male heir of Reelick. This tree Miss Fraser says was grown a number of years in a pot before planting it, and when planted the ball was left entire, and consequently the roots never got away right into the soil. But we have four better specimens in front of the house; they seem to have been better planted; they are in good health, and better furnished with branches. But the *Cedrus Libani*—I am sure there is a mistake about them. So far as Miss Fraser can remember they were planted by her grandfather, Edward S. Fraser, of Reelick, father of the late J. B. Fraser. As near as we can go, some of them had been planted about the year 1749—50; that makes some of them 130 years old. We have this year on some of them a fine lot of cones, and I shall be very glad if any person will give me a hint when to harvest them. They are still sticking on the trees, and I am very anxious to try the seed.

Can you furnish me with any information regarding the cones? I shall be much obliged if you can. *Andrew Ewart, Monlack Gardens, Beaulieu.*

### RORAIMA.

A TELEGRAM has been received at Kew giving the welcome news that Mr. Everard F. im Thurn has at last ascended Roraima. This has been the cherished object of botanical exploration in South America for the last quarter of a century. The expenses of Mr. im Thurn's expedition have been borne in equal shares by the Government grant of the Royal Society and the Royal Geographical Society.

The latest news from Mr. im Thurn was in a letter dated December 6, from the south side of the mountain, and the following passage, cited from *Nature*, describes the position immediately before the final attack:—

"Before we came to Roraima itself we had four days walking through a purely savannah, but most glorious country, and over splendid mountain passes, guided by an Aricoona who said, villain that he is, that he knew the way to Roraima. But at a village marked on the map as Tpelemonta on the Aroopa River, and with a considerable mountain pass still between us and Roraima, our villain guide at last admitted that the road for some distance had been quite new to him, and that he now knew not how to proceed further. However, at last we procured a guide and came, in some four hours, out of our difficulties at Tpelemonta (its real name, by the way, is Toorarking), into this inconceivably magnificent valley, and are installed in a village on the actual southern slopes of Roraima itself.

"Yesterday Perkins and I ascended the slope of Roraima to a height of 5600 feet to a most beautiful spot—a very garden of Orchids and most beautiful and strange plants. To-morrow after despatching the bearer of this scrawl, we go up to the same place with a lot of Aricoonas, who are to build us a house, in which we intend to stop for a week or as much longer as we may find desirable. I may mention that we have already seen, close to where our house is to be, a place where the mountain seems accessible; but it looks so easy that I am convinced that it is impossible at that point."

## THE PROPAGATOR.

#### BERTOLONIAS.

THE Bertolonias form a small but most effective and beautiful group of variegated plants. Their leaves are delicately and beautifully veined or spotted with silvery-white, or pink, or purple, and are shown to great advantage, especially in small choice collections, because of the plant's diminutive growth, while in larger collections it is much prized as an ornamental plant. The stock can always be kept healthy and beautiful if propagation is attended to, and any old and unsightly plants can be thrown away. Bertolonias can be propagated from cuttings and from leaves, but can also be raised from seed.

If the plants are to be raised from seed it will be necessary to fertilise two or three flowers on each plant for three or four days in succession, to ensure good seed. They should then be removed to a part of the house beyond the range of the syringe, but as near the light as possible. Directly the seeds are ripe they should be cleaned from the pod and sown, for which purpose well drained 48-size pans should be prepared. The soil should be composed of equal parts of yellow loam, peat, leaf-mould, and river-sand, to which should be added small quantities of chopped sphagnum moss, charcoal broken into pieces of hazelnut size, and ballast or finely broken potsherds. This mixture should be passed through a fine sieve, and in filling the pans the soil should be raised 2 inches above the top, and made to slope gradually to the rim. After the seed has been thinly sown upon the surface the pans should be placed in a cutting case upon a gentle bottom-heat, and as near the light as possible. They should be watered as soon as they become dry, and a little air must be left on the case both night and day; they should, however, be shaded from the sun. When the seedlings have put forth three or four small leaves they should be pricked off into thimble-pots. They must then be replaced in the cutting case, where they must be sprinkled with a fine-rose pot both night and morning, and shaded from the sun, and if the case be a very close one the light should

be raised an inch and never shut down. The seedlings will again be treated in this manner after they have been potted into thumb-pots, which will be done as soon as they are strong enough, but after they have been potted into 60's the quantity of air should be increased from 1 to 2 inches. As soon as the plants have become established in this size pot they should be taken out of the case and placed upon a front platform, which should be covered with a layer of sifted ashes. They can be potted again when necessary, although as a rule they do not require much pot room, a large 48 being the size they generally develop in. They should always be well supplied with water at the roots, but should not in any case be syringed overhead during sunshine.

#### FROM CUTTINGS.

Top shoots make the best cuttings, although the plants can be propagated from single eyes. The plants selected for cutting purposes should have the top shoots taken off, each one having two well developed leaves upon it, and should be potted into long thumb pots. Each cutting should be firmly pressed into the soil and a little silver sand should be placed at the base of each one. For single eyes, pieces between half an inch and an inch, having two leaves attached, can be taken off the old plants. Each piece must be made into two cuttings, and this is done by splitting the main stem down the centre so as to have one leaf and eye upon each piece. The cuttings should now be put in and pressed firmly into the soil up to the eye, and to each one a stick should be placed, to which the leaf should be tied in as erect a position as possible. They must be well watered before putting in the frame, but when they have been placed there they must be watered with a fine-rose pot night and morning, at which times they should also be given a little ventilation. They must be shaded from the sun. When the plants have well rooted through, more ventilation should be given them, in fact the light of the case should be raised 1 inch in front and behind, and left so night and day until the plants are thoroughly established, and then they should be potted into small 60's. They must be watered and placed back in the frame as near the light as possible, and there they should remain until they are strong enough to be potted into large 48's. They must again be placed in the case, but more air should be given them until at length they are hardy enough to be stood out upon the open platform of the house. The plants should at all times be carefully watered at the roots, but they should never be syringed overhead during sunshine; air should be given them upon all mild days, and they should be lightly shaded from the sun.

#### FROM LEAVES.

The oldest leaves upon the plant should be selected for this purpose, because none but well developed leaves are likely to lead to a good result. The leaf-stalk should be cut off close to the leaf, which should now be turned over, and the midrib and the side ribs of it must be notched with a sharp knife about every half inch; the ribs must not, however, be cut right through. Well drained pans should have been previously prepared for the leaves. The soil, similar to that previously named, should be pressed very firmly into the pans, and well watered before they are used. The under-side of the leaf should touch the soil, to which it should be loosely pegged. A little dry silver-sand should be lightly sprinkled over the upper surface of the leaves before they are put in the cutting-case. Here they must be placed upon a gentle bottom-heat, and air given them for an hour at night and in the morning. They should also be shaded from the sun, and watered as they become dry.

When the young plants which will be formed upon the leaves have grown half an inch high they should be taken off and potted into thimble-pots. They can then be treated in the same manner as the seedlings. The old leaves will continue to produce young plants for some time, they should therefore be taken care of.

Bertolonia Van Houttei is one of the most distinct and beautiful of these plants, and can be freely propagated from leaves. The following varieties must not by any means be overlooked, viz., *B. Mirandei*, *B. guttata*, *B. margaritacea splendens*, *B. marmorata*, and *B. superbissima*. They all make lovely table plants, and when propagated freely can well be spared for such work. *T. O.*



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Feb. 23	Sale of 500 <i>Lilium auratum</i> , at Stevens' Rooms.
TUESDAY, Feb. 24	Special Sale of Flowering Orchids, and a Sale of <i>Camellias</i> , <i>Azaleas</i> , and <i>Roses</i> , at Protheroe & Morris' City Auction Rooms.
WEDNESDAY, Feb. 25	Sale of Hardy Plants and Bulbs, at Stevens' Rooms. Sale of <i>Lilium auratum</i> , <i>Roses</i> , and <i>Bulbs</i> , at Protheroe & Morris' Rooms. Clearance Sale of Nursery Stock at the Mount Pleasant Nursery, by Protheroe & Morris.
THURSDAY, Feb. 26	Sale of Imported Orchids, at Stevens' Rooms. Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms.
FRIDAY, Feb. 27	Sale of the Lease and Stock, at the Lordship Nursery, Wood Green, by Protheroe & Morris. General Meeting of the Royal Botanic Society.
SATURDAY, Feb. 28	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

THE TILLAGE OF THE SOIL constitutes one of the most essential elements in the successful germination and cultivation of young plants, and the gardener who sows his small seeds in an imperfectly pulverised soil is only throwing away time and money.

The influence of soil upon the quantity of seed necessary to be sown is accounted for by the fact that in rich garden mould more or stronger stems will be thrown up from each plant-root than if the soil be poor. To make up for this deficiency, and also to enable the crop more thoroughly to search for food, a greater number of plants is necessary, and a larger allowance of seed is the consequence.

The depth most desirable for the germination of seed depends to a very great extent upon the closeness and adhesive character of the soil; the seed should be planted in that position which will secure to it such a supply of moisture, warmth, and air as will most rapidly promote healthy germination. It is clear that these conditions cannot be secured in soils of different texture at one uniform depth, and that this can only be safely decided by local experience.

The lighter and more loamy the soil the gardener has to deal with, the more important he will find it to sow his seeds at a considerable depth, as this not only favours the stability of the plant, but enables the small root-fibrils to obtain their necessary supply of moisture; the stronger and more clayey the soil, the greater the necessity for keeping near the surface.

In clay soils seed should be sown as a rule whilst the land is as dry as possible; it will be sure to receive moisture from the fall of rain; but wetness in adhesive soils causes the particles to bind together to the prejudice of the crop. As the soils we have to cultivate assume a lighter texture there is less objection to working them when wet; in some cases, indeed, this even becomes essential in order to give the soil the required firmness, and the seed a sufficiency of moisture.

When a proper degree of tilth has been obtained and the seed sown, the introduction of atmospheric air beneath the surface of the soil by means of the hand-hoe and similar implements cannot be too frequent. For as the majority of garden outdoor seeds are sown in early spring their growth takes place at a time of year which is not only very favourable for active nitrification of the soil, but the soil is also less exposed to the loss of the soluble nitric acid by excess of rain.

Seeds sown in the spring and early summer have still one other advantage: nitric acid contains an immense amount of oxygen, and as it is only those particles of carbon which are close to the surface of the soil that can have access to oxygen, the constant stirring which a soil should receive during the early growth of plants is doubtless the means of continually exposing fresh surfaces to the action of atmospheric air, and so providing the young plants with food easily to be assimilated. Sir J. B. LAWES says, in an article on the "Action of Manures," he has more faith in these several causes being sufficient to explain the reason why mineral manure, or even phosphate of

lime alone, is able to grow large crops of roots without a direct supply of nitrogen in manure—than he has in the explanation sometimes put forward, that plants with large leaves take their nitrogen from the atmosphere.

— DR. REGEL.—This indefatigable botanist has been nominated by the Emperor of BRAZIL a member of the Order of the Rose.

— CHANGES IN THE BOTANICAL DEPARTMENT, JAMAICA.—Mr. GEORGE SYME, formerly Superintendent at the Castleton Botanic Gardens, has resigned his appointment, and returned to England.—Mr. HART, Superintendent, King's House Gardens, &c., has been appointed to the charge of Castleton Botanic Gardens.—Mr. ELLIOTT, late Superintendent at the Parade Garden, has been appointed to King's House.

— POLITICAL FLORICULTURE.—Our, as we thought, wholly impartial and innocent allusion to this subject, has brought down upon us explosions from Canons, thunders from Exeter Hall, protests from Radicals, growls from Tories, explanations from M.P.'s—a pretty good proof, we imagine, that there cannot be much to complain of in reality. We deprecated, and still do, the practice of making flowers of any kind the badges of party politics or religious sects, and for saying this we have apparently got as much into hot water as when the great boiler question bubbles over. The *English Churchman* for February 12, 1885, has an amusing article on the subject, but which, from fear of the consequences, we prudently refrain from reprinting.

— NEW CHRYSANTHEMUMS.—We are informed by Messrs. CANNELL & SONS, Swanley, Kent, that they have at last succeeded in importing two large consignments direct from the native home of the Chrysanthemum, and have every reason to hope that they will be unusually attractive, and give us an entirely new feature in the Chrysanthemum. Some of them have the commencement of a blue tinge, others are white and green, and some are peculiar broad-petalled kinds, single, after the fashion of a single Dahlia.

— GHENT FLORAL COMMITTEE.—At the last meeting the following Certificates were awarded:—

*Certificates of Merit.*—To *Brunswigia magnifica*, from the Compagnie Continentale d'Horticulture, of Ghent; to *Hæmanthus Kalbreyeri maximus*, from the Compagnie Continentale d'Horticulture; to *Odontoglossum guttatum*, from Vervæet & Co., of Ghent; to *Imantophyllum miniatum* var. *Président C. Bernard*, from M. Peeters, of Brussels; to *Cypripedium Haynaldianum* roseum, from the Compagnie Continentale d'Horticulture; to *Begonia hyb. nova*, from Desbois & Co., of Ghent.

*Cultural Certificates.*—To *Cœlogyne cristata*, from M. James Bray; to *Lycaste Skinneri*, from M. James Bray; to *Cypripedium villosum*, from Vervæet & Co.; to *Anæctochilus Dawsonianus*, from M. E. Pynaert van Geert, of Ghent; to *Hemitelia Cunninghami*, from Vervæet & Co.

*Honourable Mention.*—To *Phalænopsis amabilis*, from Vervæet & Co.; to *Odontoglossum Wilckeanum*, from Vervæet & Co.; to *Imantophyllum miniatum* var. *M. Snoeck*, of Gendbrugge; to *Imantophyllum miniatum* var. *Madame Wallaert*, from M. Peeters; to *Columnnea Kalbreyeriana*, from M. Desmet-Duvivier; to *Cattleya Trianae* sp. from Popayan, from Vervæet & Co.

*For Good Cultivation.*—To *Bertolonia Van Houttei*, from M. D'Haene; to *Phalænopsis Schilleriana*, from Vervæet & Co.

— BROMELIADS.—We have received the fourth part of M. ANTOINE's superb publication on the Bromeliaceæ entitled *Phyto-iconographie der Bromeliaceæ*, and containing plates xvi.—xx., and pp. 20—30 of text. The size of the plates is large folio. The plants figured are—

*Bromelia antiacantha*, tab. xx., with strong-spined leaves, and dense erect spikes of purple flowers.

*Vriesea scalaris* has spineless leaves, dilated at the base, pointed at the blunt end, and a long pendulous spike, with scanty yellow flowers, each about 2 inches long, disposed at wide intervals in two rows, so that they give the impression of a ladder or flight of steps.

*Vriesea inflata*, tab. xviii., has similar foliage, but dense erect broad spikes; the bracts boat-shaped, orange-red, nearly concealing the yellow flowers.

*Vriesea Jonghei*, tab. xvi., has long, recurved, spineless leaves, and slender erect spike of yellow tubular flowers, each about 2 inches long, and arranged rather loosely in erect spikes.

*Vriesea corallina*, tab. xvii., has rather broad obtuse pointed spineless leaves, and a two-ranked spike of flowers horizontally disposed; each flower is nearly 2 inches long, and yellow.

— ABERDEEN ROYAL HORTICULTURAL SOCIETY.—This well-supported Society intend to hold two shows at Aberdeen in the ensuing season, the first one beginning on July 29, and extending over three days; the other taking place early in the month of September, the exact date of which will be made known later. A Silver Cup is given with the premier prize in each of the great divisions, plants, cut flowers, fruit and vegetables, besides special prizes of various descriptions, medals, and a goodly sum of money in prizes.

— VITIS AMURENSIS.—This is a species wild in the mountains of Mongolia, producing fruit abundantly, and of which the Grapes are agreeable to the palate. It is cultivated by the Chinese, according to the Abbé DAVID.

— "LOCO" WEED.—The *Journal of Forestry* has an article on a weed growing in Texas and New Mexico which causes symptoms of intoxication in horses which graze on it. One company is said to have lost 400 animals through its effects. The most common "Loco" plant is said to be *Astragalus mollissimus*; other leguminous plants have a like evil reputation.

— THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The augmentation fund finally closes on February 28, and we are also informed that the sum of £500, promised by the unknown donor, has been paid into the Institution's bankers. This will enable the committee to make up the funded reserve to £21,000, from which an income of £630 per annum will be derived. A special general meeting of the subscribers will be held on Friday, March 13, at the Bedford Hotel, Covent Garden, London, W.C., to consider a recommendation from the committee as to certain modifications of the rules of the Institution; but more particularly to obtain the sanction of the subscribers to altering Rule No. 8, so as to increase the pensions by £4 per annum each.

— THE VEITCH MEMORIAL FUND.—The trustees have decided to offer the following Medals and Prizes during the present year, namely, one Medal and Prize of £5 to the Botanical and Horticultural Society of Durham, Northumberland, and Newcastle-on-Tyne; one Medal and Prize to the National Rose Society, and one Medal and Prize to the National Chrysanthemum Society. The Medals and Prizes are to be offered for subjects to be selected by the committees of the respective societies. The Trustees have also determined to place three Medals and £5 Prizes at the disposal of the committee which is to have charge of the Orchid Conference, to take place at South Kensington in May next. In all cases the awards are to be made in favour of *bonâ fide* gentlemen's gardeners and amateurs only.

— IRON PLATE STAGING.—This material in the form of ordinary corrugated-iron sheet has been put to a useful purpose by Messrs. LAING & CO., nurserymen, Forest Hill, S.E., for tables and side benches in the Orchid-house now being erected there. It is used in 10 feet lengths, and is supported by light T-iron rods, of 1½ inch in depth, and 1 inch square iron standards. A kerb of T-iron 1 inch in depth runs round the benches, &c., to prevent the shingle, spar, &c., from falling off. The supports are about 5 feet apart, at which distance the sheet-iron will support 2 cwt. on any part without "sagging."

— THE PLASTICITY OF PLANT STRUCTURE.—The internal structure of leaves of the same species often varies according to the situation and nature of the surroundings. If exposed to the light and air its palisade cells will be developed, its fibrous tissue will be well marked. If growing in water the inter-cellular and aerial passages will be large in proportion, and the fibrous framework will be thin and weak, inasmuch as the water supports the leaf, and obviates the necessity for a stiff framework. Some plants are much more plastic in relation to light and



to moisture than others, the plasticity being an hereditary endowment. Those plants possessing it in largest measure are naturally those best adapted to maintain themselves under different conditions, so that the possibility of cultivation depends much on the anatomical construction. STAHL was the first to indicate the relation of the palisade tissue to light, and his observations have been followed up by VESQUE in France and by VOLKENS in Berlin. The relation between the motility of the leaves of certain Conifers, and the presence of palisade cells, was pointed out by Dr. MASTERS.

— TOMATOS AND INSECTS.—A curious statement, deserving the examination of botanists at home,

like that of the Cape, that its peculiar powers are brought into play. Much the same power was once attributed, we believe, to the common Broad Bean, but we are afraid this plant does not "live up" to its character.

— CALLIPSYCHE AURANTIACA.—Of the three known species of this genus, the present one may well claim attention as a highly ornamental plant with striking and attractive flowers. The generic name, signifying beautiful butterfly, is not inappropriate, owing to the spreading oblique flowers and long protruding stamens, in this instance about 3 inches longer than the perianth. The flowers are laterally compressed and produced several together in a horizontal

— BRITISH BEE-KEEPERS' ASSOCIATION.—The annual general meeting of the British Bee-keepers' Association was held recently at 105, Jermyn Street. The report for 1884, which was taken as read, said that eighty-seven new members had joined the Association. The committee referred with great regret to the decease of two of the oldest members, namely, the Baroness DE ROTHSCHILD, of Gunnersbury Park, and the Rev. G. HARRIS, of Norwich. Fifteen members had withdrawn and twenty-three had been struck off the books. New county associations in connection with this central body had been formed in Cumberland, Carnarvonshire, Denbighshire, Flintshire, Monmouthshire, Nottinghamshire, Gloucestershire, and Pembroke-



FIG. 47.—VIEW IN THE GROUNDS AT NEMBLAND. (SEE P. 238.)

says the *Colonies and India*, comes from Cape Colony, where it is alleged that insects are observed to shun land on which Tomatos are grown, and the culture of this *Lycopersicon esculentum* is accordingly recommended in all cases where it is possible to grow it, under fruit trees for instance, since the Tomato will thrive in the shade of other trees, which few other plants will do, for the sake of the virtues attributed to it as a prophylactic against the inroads of insect pests. The popularity of the Tomato as an esculent is sufficiently great to repay the trouble of planting on a large scale even if its supposed virtues proved to be a myth, and any surplus supplies might easily be preserved in tins, and shipped to this country. It will be interesting to know whether this Tomato has been observed to exercise any such effect on insects elsewhere—in Canada, for instance, where the fruit is so popular—or whether it is only in warmer climates,

umbel, and of a deep green when first expanded, but this in a remarkably short time gives place to a golden yellow colour with somewhat paler margins. The greatest fault of the plant is in flowering at a time when the leaves are absent. This however is no serious drawback when associated with other plants. A flowering specimen may be seen in the Begonia house at Kew, and a figure in SAUNDERS' *Refugium Botanicum*, 167.

— ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—At the monthly meeting of the Council of this Society, held at their offices, 26, Charles Street, St. James', on Tuesday, the 3d inst., it was resolved that the annual election of pensioners should take place on Wednesday, June 24; and that fifty-four additional recipients should be elected, viz., ten males, twelve married couples, and twenty females.

shire, and others were in course of formation. During the year thirty-two candidates had undergone examinations for third-class certificates at ten centres, twenty-eight of them being successful. For second-class certificates there were eleven competitors at six centres, and seven were successful. The holding of a first-class examination had been deferred for want of candidates. The committee proposed at some future date again to bring the subject of practical bee-keeping before the Education Department, with the object of having it included in the education code. The Department had already declined that proposal. The committee referred with satisfaction to the part taken by the Association in the International Health Exhibition, and noted with pleasure the formation of honey companies on a commercial basis. The Association was in urgent need of more funds to enable it to meet the ever-growing demands for assistance made



by those counties where bee-keeping upon advanced and humane principles had made little progress. The report and balance-sheet were adopted, the usual votes of thanks passed, and the officers for the ensuing year appointed, the Baroness BURDETT-COUTTS being re-elected President.

— *ODONTOGLOSSUM NEBULOSUM*. — It is interesting to trace the close connection between this species and those belonging to the *O. Rossii* group. This is seen not only in the relatively small size of the plant and its habit, but most particularly in the form and construction of the lip. The limb is short and broadly ovate, and the claw is proportionately much longer than in *O. Rossii*, and produced into the same cuplike process answering to the crest in the latter, and striped with orange internally. The sepals and petals are ample and white, beautifully blotched or spotted with brown for more than half their basal length. A flowering specimen may be seen in the cool section of the Orchid-house at Kew. A fine variety also to be seen there has only a few spots at the base of the sepals and petals, and a large brownish-yellow blotch on the lip, instead of the numerous brown ones of the type. Several varieties are in cultivation, and this one is the same or similar to that named *O. n. candidulum*.

— MASSACHUSETTS HORTICULTURAL SOCIETY. — At a meeting of this Society at Boston, U.S., on the 24th ult., a very beautiful display of Orchids was made by SAMUEL R. PAYSON. *Cattleya Trianae* was shown in six varieties of different shades, and *C. labiata Percivaliana* in two varieties. *Phalenopsis amabilis* and the new and rare *P. Schilleriana* were also exhibited. The flower committee awarded a silver medal to Mr. PAYSON. C. M. ATKINSON, gardener to JOHN L. GARDNER, exhibited six pots of *Lily of the Valley*, for which a gratuity was awarded. HOVEY & Co. exhibited a collection of Camellias. CEPHAS H. BRACKETT showed fine Mushrooms and Brighton and White Spine Cucumbers, and a gratuity was awarded therefor.

— SMUTS AND CLUSTER-CUPS. — In the *Quarterly Journal of Microscopical Science* Mr. PLOWRIGHT gives the results of his examination of the life history of five species of Uredo (smut), as revealed by experimental cultivation. The experiments have been repeated in some cases twenty or thirty times. Altogether between 400 and 500 experiments are recorded. The experiments were made by infecting various plants with the spores of fungi. Thus the smut spores of *Poa trivialis* and *pratensis* (*Uromyces Poa*) produce characteristic *Æcidia* or cluster-cups on *Ranunculus repens* and *Ficaria*. Those of *Uromyces dactylidis* on *Dactylis glomerata* produce cluster-cups on *Ranunculus bulbosus*. Spores of *Puccinia Magnusiana* on the common Reed yield cluster-cups on *Ranunculus bulbosus* and *repens*. The spores of *Puccinia perplexans* on *Avena elatior* and *Alopecurus pratensis* form the *Æcidium* of *Ranunculus acris*. *Puccinia phragmitis* on the common Reed yields *Æcidia* on *Rumex obtusifolius* *hydrilapathum*, *Crispus conglomeratus*, and *Rheum officinale*. *Puccinia Scholeriana* growing on *Carex arenaria* produces by artificial inoculation the *Æcidia* of *Senecio jacobaea*. The specific identity of forms of very different appearance growing on plants of widely different character is thus proved.

— PANAX MURRAYI. — A splendid tree, 50 to 60 feet high, and then trichotomously branched. The leaves measure 3 to 4 feet in length, and are reflexed and pinnate, with ten to twelve pairs of ovate leanceolate green lobes. The flowers like those of the Ivy, but arranged in long erect panicles. It is a native of Queensland, and possibly of the South Sea Islands, and is a very handsome decorative plant for the stove or conservatory. It is figured in the *Botanical Magazine*, t. 6798.

— CYTISUS PROLIFERUS. — More than a hundred years have elapsed since this plant was originally introduced from the Canary Islands to our greenhouses, yet it is rare compared with such species as *C. canariensis* and *C. racemosus*, especially the latter. This is a white-flowered species, making its rarity all the more surprising, considering the prevalence of yellow in the genus. The flowers are rather freely produced in short axillary aggregated racemes or umbels along the gracefully arching branches. Some

old books describe the flowers as yellow—probably by mistake. The trifoliate leaves are silky on the underside as well as at the margins, and being above the average size for the species of this group, give the plant a distinct appearance. A good-sized specimen has been flowering for some time in a cool compartment of the T range at Kew. A figure of the plant was given many years ago in the *Botanical Register*, t. 121.

— NATIONAL CHRYSANTHEMUM SOCIETY. — At a meeting of the General Committee of this Society, held at the "Four Swans," Bishopsgate Street, E.C., on Monday evening, the 16th inst., E. SANDERSON, Esq., President, in the chair; it was reported that the trustees of the Veitch Memorial Fund had offered the Veitch Medal and a prize of £5 for competition at the annual exhibition to take place at the Royal Aquarium in November next, the conditions of the class to be thirty-six incurved blooms of Chrysanthemums, in eighteen distinct varieties. In addition, Mr. JAMES CRUTE offers special prizes in two classes, one for twelve plants of Chrysanthemums, incurved varieties, grown for specimen blooms, not less than two blooms on a plant; and the other for the same number of plants of Japanese varieties, under the same conditions, to be grown in CRUTE's patent concave flower-pots. The sum of £10 is offered as prizes in these two classes. The Secretary, Mr. WILLIAM HOLMES, announced that applications for affiliation under the recently issued regulations had been received from the Bristol, Yeovil, and Chelmsford and Essex Chrysanthemum Societies, the Canterbury Gardeners' Mutual Improvement Society, and the Ancient Society of York Florists; while several others had applied for the rules, with a view of applying for affiliation.

— RHODODENDRON CAVRONI ×. — This is a cross between *R. Gibsoni* and another species unnamed, raised by M. CAVRON, of Cherbourg. It is a shrub with oblong lanceolate glabrous bullate leaves, and trusses of broadly trumpet-shaped white flowers, flushed with rose, 3–4 inches in diameter, and very fragrant. It is figured in the number of the *Revue Horticole* for February 1.

— GREENHOUSE CLIMBERS FOR AMATEURS. — One is frequently asked by persons who have a small greenhouse and are not very well up in knowing the right class of plants to procure for it what could they get for a climber. Well there are any number of plants suitable for a house with or without heat that can be raised from seed in the spring, and form beautiful festoons and masses with only ordinary care. We refer to such plants as *Maurandias*, *Ecce-mocarpus*, the former lilac and white, the latter rich orange; *Thunbergias*, yellow and white, *Tropæolums*, various, and many others which may all be raised from seed sown now, and will soon form handsome climbers. Of course for a good house we would not recommend these, but *Habrothamnus*, *Fuchsias*, *Plumbago*, *Lapageria*, *Clematis*, *Hoya*, &c. These may all be successfully grown in a cool greenhouse.

— YORK GALA. — The annual exhibition of this Society takes place on June 17, 18, and 19. The prizes are on the same liberal scale as they have now been for some years. The schedule contains ninety-six classes for plants, flowers, fruits, and vegetables. Amongst them are prizes of £20, £14, and £8 for collections of sixteen stove and greenhouse plants, ten in bloom and six fine-leaved (open); £10, £8, £6, and £4 are offered in the principal class (open) for miscellaneous groups arranged for effect; £46 are given for Roses in pots; some £38 for cut Roses, and £56 for fruit—in all, nearly £600. We see the committee have introduced on additional regulation, to the effect that where exhibitors fail to name their productions the judges are empowered to pass them over. The growing practice shown by exhibitors to leave their exhibits unnamed is such that a rule of this kind is wanted. For gardeners, and those who know the plants, flowers, fruits, &c., competing, the naming is not necessary, but it is for the information of the public, who usually are wanting in such knowledge, yet having paid their money to see the display have a right to be able to make themselves so far acquainted with what they come to see.

— GARDENING APPOINTMENTS. — A. MCKINNON, late Head Gardener, to Major FINLAY, Burley Lodge, Newbury, Berks, as Head Gardener to Baron WILLIAM V. SCHRÖDER, The Rookery, Nantwich, Cheshire.

## FRUIT NOTES.

APPLES AND PEARS. — From the Apple Congress onwards all that has been since written in the *Gardeners' Chronicle* respecting Apples has been most interesting. I often think that in planting an orchard too great a proportion of early kinds are planted, so that when the new year comes Apples are much in request for dessert and culinary purposes; then there is a deficiency, which is a great pity, seeing that a little forethought would have obviated it. If the Royal Horticultural Society were to invite the gardeners of this country to send up a collection in the first week in February there are plenty of us who would respond; then we should have a true test of the keeping kinds, the names of which are readily selected from any good nurseryman's list now, and some of which will keep till next May. I quite agree with Mr. Barron about what he says of Cox's Orange Pippin. We had 6 bushels of it here this year, and during the day the fruit-room is pretty frequently visited by fruit eaters, but not an Apple was looked at till these were finished, and many preferred it to the Pears, of which we have a good selection. I would especially mention two valuable kinds just now in season, viz., the Sturmer Pippin and Dumelow's Seedling, generally known as Wellington; it is a very fine culinary sort, while the former is an excellent dessert kind; and although Golden Knob is not a first-class fruit, we cannot dispense with it, keeping, as it does, till so late in the year. I cannot agree with the Apple Congress, which scratched Golden Harvey. It is certainly a shy bearer, but very delicious, plump, and juicy.

### PEARS.

Any one looking over a fruit tree catalogue will see any number of Pears given as ripening in January and the two following months. With us, alas! it is not so; we have now only Catillac, Ne plus Meuris, Knight's Monarch, Vicar of Winkfield, and Olivier des Serres. The Vicar I shall do away with, but the last-named Pear is a superb kind—handsome, hardy, and well flavoured; where it requires a wall, as in the Midland and Northern Counties, it should always have one. A bishop once told me never to dish up together the two fruits I have now written about, and the reason given that it was an Apple which ruined the first Pair. *J. Rust, Eridge Castle, Sussex.*

### PEAR MADAME HUTIN.

In the *Bulletin d'Arboriculture* for December we find a coloured plate of this Pear, an excellent variety. The fruit is of medium size, broadly oblong-ovoid, with a long stalk set in a shallow basin, the skin yellowish, speckled with brown spots, especially near the stalk. Flesh yellow, juicy, fragrant. Season December to January. It was raised by M. Leclerc, of Laval, in 1841.

### MELON GLORY OF BRISTOL.

This is figured in the October number of the *Bulletin d'Arboriculture*, and is a small netted variety with red flesh and excellent flavour.

## Notices of Books.

Christy's Guide to Poultry Rearing. By T. Christy, F.L.S. London: Fenchurch Street, E.C. Price 6d.

This little brochure on hatching poultry by artificial means, and rearing them so as to be fit for the table as early as possible, may be of much service to those who are desirous of adding to their income by this remunerative small industry. Much useful information is given on the rearing of all kinds of domestic food birds and game birds. The methods given are suited either to the cottager with small means, or to the person of ample means.

Bulletin de la Fédération des Sociétés d'Horticulture de Belgique, 1882.

Somewhat late in the day comes the report of the Federation of the Horticultural Societies of Belgium for 1882. Great part of the volume is devoted to the transactions of the several constituent societies, which are of no great interest to outsiders. Then follows a translation of Mr. [Fawke's] *Hot-water Heating*, and the useful directory known as the *Correspondance Botanique* for 1884, which we have previously had occasion to notice.



## The Flower Garden.

### BULBS AND TUBERS.

THESE should now be examined, and the first batch of *Gladiolus* planted for early flowering at once. Choose a fine dry day for the work, and if the soil in which they are to grow is stiff put a little rough sand round the bulbs which will greatly assist them in coming away with clean growths. *Ranunculus*, *Anemones*, *Tigridias*, *Lilies*, *Tritonias*, and all similar bulbs should now be planted when the weather is mild and dry. The soil most suitable for the above-mentioned bulbs and tuberous rooted plants is a good light sandy loam, well trenched, with rotten dung thoroughly mixed with the staple, and then made quite firm before planting the bulbs. I always cover with leaf-mould after planting, to protect them from frost. The *Ranunculus* should be planted either in small masses, which then afford pretty patches of colour in the borders or mixed beds, or in small beds by themselves. But in whatever way is chosen, the ground needs good preparation. In beds it is a good plan to throw out the soil over the area of the bed to be planted, making the sunken part about 3 inches deep, level and firm. Place the roots about 5 inches apart each way, and then carefully put back the soil. Some persons plant in drills, but the roots do best when planted as above described.

The *Anemones* may also be so treated, allowing rather more depth and distance apart. *Tritonias* should have a warm sheltered quarter, and sloping well worked soil that will not get waterlogged. These and *Ixias*, *Babianas*, are well worthy attention in the warmer parts of the country.

The *Lilies* and *Tigridia pavonia* and *T. alba* are less susceptible to injury, and will grow, provided the ground is good, without any great amount of attention, both being, however, much benefited by having some well-rotted cow-manure and peat within reach of the roots.

### HERBACEOUS PLANTS.

Large masses of these may now be divided and vacant places filled up, rearranging the borders and beds, giving great care and attention to the effective and artistic in planning, so as to get pretty contrasts in colour of flower and form of leaf, taking care not to plant diminutive species in the rear of tall growing ones, although it is by no means satisfactory when all the plants are placed so as to make a smooth-faced bank. *W. Smythe, The Gardens, Basing Park.*

## FRUITS UNDER GLASS.

### PEACH-HOUSES: DISBUDDING.

*Early Division.*—As soon as the growths on the trees are forward enough for disbudding it should be attended to at once. This operation involves the removal of all superfluous shoots that will not be required to furnish the trees with fruit-bearing wood for the subsequent season, and it should be done gradually, as otherwise, when done in a wholesale manner, it must in some degree be detrimental. From personal observation, I have come to the conclusion that the best way to manage these shoots is to leave part of them untouched until they have made about four leaves, and then, whilst in a very young state, to nip out the top. This method tends to produce a supply of fruit-bearing spurs all over the trees, which in the case of very vigorous trees oftentimes are more fruitful than even the ordinary bearing shoots. As soon as the growths that are left are fit they should be tied in at the base; this, if properly done, is a material aid towards keeping the trees in a good form.

### RED-SPIDER.

In houses where the red-spider is likely to abound a strict search for them should be made without delay. If present they will be detected on the earliest developed foliage, and most probably near the heating apparatus. Any leaves which may be infested with this pest should, as far as possible without damage to the trees, be removed altogether, and be destroyed.

### TEMPERATURE.

This compartment should now be kept at about 55° at night and 65° during the day, with a range of from 75° to 85° by sun-heat. Under these conditions give air freely, and at other times a diminished quantity will suffice. Keep the trees well syringed every day both at morning and at shutting-up time in the afternoon likewise.

*Second Division.*—The trees here will be in blossom at about this time. See to the setting of the fruit occasionally, and proceed to disbud the trees as soon as they are ready in manner as before described: 50° at night, 10° more in the daytime, and from 70° to 80° from natural means, may rule here for the present month. Attend to airing, &c., as before advised.

*Late Division.*—The crops in these can be advanced or retarded according to requirements, where a regular supply of ripe Peaches and Nectarines is required from the beginning of May until the time those out-of-doors are fit for use. The first division should be started at the beginning of December, the second division about the middle of January, and the third towards the end of February. The latter only need to be encouraged by husbanding sun-heat, and giving the trees a little heat whenever conditions out-of-doors are such that they require it. *G. T. Miles, Wycombe Abbey.*



## Plants and their Culture.

### POTTING STOVE PLANTS.

MANY of the stove plants will thrive in a mixture of peat and loam in about equal proportions, as *Allamandas*, *Clerodendrons*, *Bougainvilleas*, *Stephanotis*, and *Vincas*, among the flowering kinds; and *Crotons*, *Dracenas*, *Pandanus*, and most of the *Palms* that are grown in a high temperature, among the foliage plants. *Palms* that are possessed of roots somewhat fine and wiry, will do better in a peat compost; on the other hand, those that have stout, fleshy roots should have more of loam given them. *Ixoras* will thrive best in good fibrous peat alone, potting firmly as with a Cape Heath. By this means the growth that is made will be sturdy and compact, and the plant found to remain in good condition at the root for a longer time. *Dipladenias* and *Hoyas* will succeed well under the same course of treatment. *Marantas* and *Cissus discolor* do best when potted lightly without any ramming of the soil.

We have always found *Alocasia Lowii* and *A. metallica* to thrive best in rough peat, sphagnum moss, and charcoal, with the pot filled up half-way with small pots and large crocks in order to provide an abundant drainage. It is also a good plan to elevate the centre of the plant some few inches above the rim of the pot. In repotting the *Alocasias* I like to carefully remove the greater part of the soil or even all of it if the same has become sour and exhausted, washing the roots if necessary. The foliage *Anthuriums* will also come under the same course of culture. If any potting is needed among the flowering section of *Anthuriums*, it had better be seen to at once, do not reduce these too severely or smaller spathes will result.

The South African *Asparagus plumosus nanus*, and *A. tenuissimus* are well worthy of the attention of the cultivator. For using in a cut state they are invaluable at any season of the year. I find they thrive best in loam, and that of a heavy character, as the plants advance in size. A temperate-house suits the first-named admirably, it never appearing to need any rest from active growth. *Gardenias* that are now showing their flower-buds had better be potted after flowering is over, then if the plants are straggling in growth they may be cut back rather hard, afterwards potted and placed in a brisk heat to induce them to make vigorous breaks again. The *Achimenes* had better be left for a few weeks longer before being started into growth, there will then be quite time enough to get them into flower at a season when they will be of the most service. *Gesperas*, too, will be all

the better if kept dormant for the present; this can easily be done by keeping the stock in a cool house. *James Hudson, Gunnersbury House Gardens, Acton.*

## The Kitchen Garden.

### SEED SOWING.

A GENTLE hotbed should now be prepared for making early sowings of the following seeds:—*Brussels Sprouts*, *Cauliflower*, *Cabbage*, and *Lettuce*. The beds for these should be raised to within 3 or 4 inches of the glass, as the soil will sink lower as the heating material beneath subsides. Frame room being a great consideration in most gardens, only a very limited space can be devoted to sowing and raising young plants for the kitchen garden. For the above sowings not much need be occupied, as a large number of young plants can be raised to the rough leaf stage under glass and afterwards pricked out in the open on a well prepared piece of ground that can be covered with mats on hoops, whence they can be transferred to their allotted quarters to come to maturity. *Brussels Sprouts* sown in February will be large enough to prick out in the open about the first week in April, and ready to plant out into their permanent position about the end of May. If earlier sowings of *Cauliflower* and *Lettuce* were made in boxes in January, and the number of plants derived therefrom are considered large enough for the early batch, the sowing as above recommended will not be necessary for these two kinds, but frame space will be wanted to prick them out under glass. Frames not being at command the *Cauliflowers* can be potted off in large 60's and placed in a cool house near the glass, and the *Lettuces* pricked out on a south border and protected on cold nights for a time. Where *Capsicums* are required in autumn some seed should now be sown in heat.

### CURLED CHERVIL AND RADISH.

On a narrow border, well sheltered, and in a sunny position, a bed of each of the above may now be sown. When sown place a piece of net over the *Radish* bed to ward off birds, and watch for those little depredators, the mice, which soon rummage over the beds in search of the seed. Should frost set in a little light covering placed on at night and removed after the frost has passed off in the morning will be of great advantage.

### PARSLEY

is generally sown in rows, and in the position in which it is to stand; but in all instances this method is not the most satisfactory. It can be sown in a prepared seed-bed similar to other seed, as it will stand transplanting (carefully) for forming edges, &c., with the greatest impunity. Of course it must receive a watering after being removed if the soil is dry.

### TURNIPS.

About March 1, soil being in good condition, a sowing of the above should be made out-of-doors in the lightest and most favourable soil for early development—*Early Milan* or a similar variety.

### NEW PLANTATIONS OF GLOBE ARTICHOKE.

Do not sow seed. It would be going a roundabout way of getting good varieties. The *Green Globe* is the best. Procure offsets from a well known stock that has been carefully looked over, and had varieties discarded. Pot the offsets into small 32-pots, place them in a gentle bottom-heat to start, and afterwards in a cool house prior to planting out, after sharp frosts may no longer be feared.

### BROAD AND LONGPOD BEANS.

Any sown in boxes in January, and that have been well exposed, should now be planted out.

### PEAS.

If the pot, or turf method has been chosen for raising the first earlies, they should now be ready to plant out. The necessary distance between the rows will depend on the variety. Pots with from eight to ten *Peas* in each should be planted 6 inches apart in the rows, afterwards press a little light soil into the centre of each lot; in order to divide the plants a little and induce them to grow outwards, draw a little soil up to them with the hoe. If a little light brushwood



can be put to them, it will be a great assistance, and the longer stakes (if required) can be placed later on. Some protection should be provided in readiness should sharp frosts prevail.

#### POTATOS.

Plant under south walls. *G. H. Richards, Somerley Gardens, Ringwood, Hants.*

## Florists' Flowers.

### LATE CHRYSANTHEMUMS.

THE special prizes offered by Mr. William Cullingford, through the medium of the National Chrysanthemum Society, to be competed for in July next, will operate to turn attention to a consideration of what are the sorts likely to be serviceable at this season of the year, and how the plants should be treated. As to the late flowering sorts, Mr. George Stevens of Putney furnishes the following as a select list:—*Iocurved varieties*: Angelina, golden-amber; Barbara, bronzy-yellow; Cherub, golden-amber; Eve, pale primrose; Lady Slade, pinkish lilac; Mr. Halliburton, ivory-white; Mabel Ward, golden-yellow; Princess Teck, bluish white; Venus, pink; White Venus, and Yellow Perfection. *Japanese varieties*:—Boule d'Or, golden-yellow; Ceres, delicate flesh colour; Jackson's Duchess of Albany, orange-buff; Ethel, white; Meg Merrilies, sulphur-white; Thunberg, golden-yellow; and Yellow Dragon. *Large Anemone-flowered varieties*:—Fleur de Marie, white; and pompon Anemone-flowered *Virginalis*. *Pompon varieties*:—Mdlle. Marthe, white; Golden Mdlle. Marthe, Rosinante, bluish-rose; Souvenir de Jersey, yellow; and Snowdrop, white. The foregoing are all well known varieties, and therefore easily procurable.

As a matter of course, in having good flowers in January, much depends upon the way in which they are grown. Mr. Stevens recommends that the sorts selected be potted about the second week in July into their flowering pots, and be grown on in the open air as long as it is considered safe to do so and frost holds off. Instead of taking the crown buds, that is, the one bud on each stem, the terminal ones, *i.e.*, those that appear on the side branches, should be taken, and the cooler the plants can be kept after they are housed the better, as this would assist the late production of flowers, provided, of course, that frost is not allowed to injure them. Under this treatment the varieties named might be expected to flower from the beginning of December until the middle of January.

The National Chrysanthemum Society do not require that any particular varieties, generally denominated late-flowering, be shown for Mr. Cullingford's prizes. All flowers in good condition in January will be accepted in competition. If any one can produce Mrs. George Rundle and its allies, or any other early flowering forms, in good condition at the beginning of 1886, all the more credit would be due to them. That it will be an interesting exhibit there is no doubt, and if one result should be the development of a race of what might be termed winter flowering Chrysanthemums, or introduce a system of culture that will greatly retard the usual season of blooming, then some substantial gain will flow from Mr. Cullingford's generous offer. *R. D.*

## THE TRUFFLE BEETLE.

NOWHERE in the whole range of Nature does there exist a greater need for the presence of the numerous tribes of Rypophagous insects, cleansers or scavengers, than in connection with fungi of various kinds, both above and below ground. Left to themselves to rot and decay these vegetable productions, from their soft structure, would soon become nuisances, but, as for example, every grower of Mushrooms is well aware, they are soon attacked by numbers of cylindrical white maggots or larvæ of different kinds of two-winged flies, which reduce them to a state of wet putrefaction which soon ends in their reduction to the parent earth from which they sprang. The Mushroom grub and fly are represented in our article in the *Gardeners' Chronicle*, p. 581, 1853.

In like manner the much-prized Truffle is attacked

by numbers, not only of the maggots of different dipterous insects, but also by the Truffle beetle and its larvæ represented (with an uninjured Truffle) in the accompanying illustration (fig. 48).

Many years ago we received, through the kind intervention of the late Professor Henslow, from Lady Braybrooke, a number of dipterous larvæ, chiefly of minute Tipulidæ found in the Truffles which occurred plentifully in the grounds of Lord Braybrooke's seat at Audley End, in Essex, together with specimens of the Truffle beetle and its larvæ, of which latter Mr. C. E. Broome also supplied us with specimens. These were of small size, and when dried they assumed the bent form represented in our cut, with the head of large size and convex, with strong jaws, much dilated at the base, a deep semi-oval incision in the middle of the inner margin, and terminated obliquely in two or three sharp teeth. The maxillæ are armed along the inner margin with a row of curved flattened spines. The upper lip is large, flat and porrected. The antennæ have the basal joint very short, the second and third joints longer and slightly thickened at the tips, the fourth joint small, terminated by a minute triangular appendage. The six legs are strong, and the body is terminated by a pair of short two-jointed appendages, each ending in a short seta.

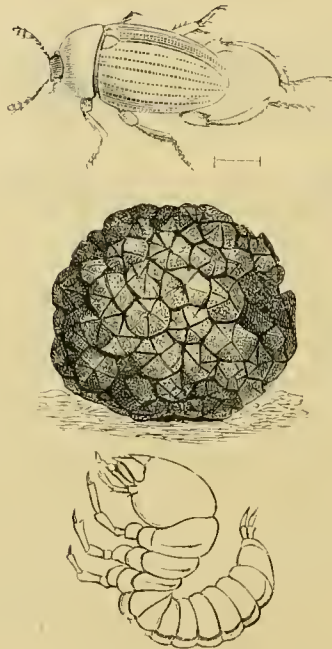


FIG. 48.—THE TRUFFLE BEETLE.

The perfect beetle (*Anisotoma cinnamomea*, Panzer) is the type of Latreille's genus, *Leiodes* (of which it is the largest species), measuring from 2 lines to 3½ lines in length; the larger specimens being males, distinguished by their large thickened hind legs, of which the femora are toothed on the under-side, and the tibiae are curved. The general colour of the insect is shining orange, or ferruginous ochre, oval in shape, convex, and highly polished, the club of the antennæ and tips of mandibles alone being black; the upper surface of the head and thorax is thickly punctured, and each of the elytra is faintly marked with eight rows of small punctures.

The females are smaller than the males, and the hind legs are neither thickened, toothed, nor curved. The antennæ have the seventh, ninth, and two terminal joints thickened, the eighth joint being smaller than the preceding and following joints. The four anterior tarsi are 5-jointed, but the hind pair has them more slender, and only four-jointed. Owing to its subterranean habits, infesting Truffles, it is not often found. It has occurred in Devonshire and Cornwall, and was found by the late Mr. Kirby and Professor Henslow at Lord Braybrooke's, at Audley End, in Essex, in some numbers. *I. O. W.*

BUMBLE-BEES. — Naturalists urge that bumblebees' nests should be carefully preserved, the insect being the most valuable we have in the fertilisation of fruit and other crops, their tongues being longer than those of honey-bees, and therefore better adapted to securing pollen and depositing it on other blossoms.

## ROYAL HORTICULTURAL SOCIETY.

THE following is the annual report of the Council for 1884, presented to the Fellows at the annual meeting, but which we were unable, owing to the pressure on our space, to give previously:—

"The usual accounts and balance-sheet are submitted to the Fellows.

"The Council have the satisfaction of being able to report that they have obtained from the Council of the International Inventions' Exhibition, 1885, for the Fellows and the former debenture-holders of the Society, privileges in connection with that Exhibition, of the same nature as those which gave so much satisfaction last year. They have arranged for a series of shows—the programme of which has been circulated among Fellows—which they hope will, for beauty and utility, fully maintain the reputation of the Society.

"The death of Mr. Mangles, whose abilities were unceasingly employed in the service of the Society, has deprived the Council of a colleague whose energy and assistance they highly valued; and they regret to have to announce the retirement of their President, Lord Aberdare, whose other engagements render his attendance at their meetings impossible. Lord Aberdare joined the Society when it was torn by dissension, in debt, and discredited; he retires from its Presidency when it is united, solvent, and advancing in a career of usefulness. The Council recommend Sir Trevor Lawrence, Bart., M.P., who has long been a member of their body, and whose name is well known to all lovers of horticulture, as his successor.

"The Council have under consideration the propriety of filling up the vacancy in the office of Assistant-Secretary.

"A report of the committee of the National Apple Congress, held last year, uniform with the Society's *Journal*, prepared by Mr. Barron, and edited by Professor Henslow, has been published by the Society, and may be obtained by Fellows on application to the Secretary.

"A Conference on Daffodils, under the presidency of Professor M. Foster, F.R.S., was held in the conservatory in April last, when most of the amateurs and leading cultivators of these interesting flowers contributed specimens; and papers were read on the classification and nomenclature of the genus, which elicited an unusual amount of interest on the part of those who were present.

"The Council propose to hold an Orchid Conference on May 12 and 13. The great interest taken in Orchids, the rapidity with which their cultivation is spreading, their singular structure and manner of growth, and their beautiful flowers, lead the Council to believe that such a Conference will be welcomed by horticulturists and botanists alike. A circular on this subject is issued with this report, for which the Council earnestly bespeak the consideration of all cultivators of Orchids.

"The gardens at Chiswick have been maintained in their usual high state of efficiency, and the practical work of the Society carried on as in former years.

"The trials by the several committees have been conducted in a thoroughly satisfactory manner. Those of the Fruit and Vegetable Committee comprised Peas, of which a large collection was grown, the newer varieties of Potatoes, Tomatoes, and Broccoli; and those of the Floral Committee, Caladiums, fine-folaged Begonias, Adiantums, and Pelargoniums.

"Some interesting experiments on the prevention of the Potato disease by what is termed the 'Jensenian method,' were conducted under the direction of the Scientific Committee, but owing to the exceptional dryness of the year they have not yielded sufficient materials for a trustworthy report.

"Facilities were again afforded to the committee of the International Potato Exhibition for testing new varieties of Potatoes sent to that body. It is satisfactory to learn that the accommodation thus afforded is much appreciated.

"Endeavours are being made to secure, for subsequent distribution amongst the Fellows, a supply of the tuberous-rooted species of *Solanum* which are now being introduced, and which are attracting considerable attention, as likely to lead to the improvement of the cultivated Potato.

"It is proposed that trials should be made by the Fruit Committee, during the present year, of the newer varieties of Peas, Beans, Cauliflowers, and Potatoes, and by the Floral Committee of Fuchsias, Caladiums, Carnations, Picotees, and Pinks, Phloxes, and the various sorts of Ivies. Fellows or others who may be cultivators of these plants, are invited to contribute for the purpose.

"The crop of Grapes in the great vinery and other houses was unusually good, but that of outdoor fruit, Apples and Pears in particular, proved a total failure, owing to the prevalence of spring frosts.

"During the past season 999 Fellows have availed themselves of the privilege of obtaining plants, &c., from



the gardens, the number of plants distributed amounting to 18,468, with 35,000 packets of seeds and 1977 packets of cuttings of vines and fruit trees.

"The Council are much indebted to many exhibitors for the assistance rendered by them in maintaining special displays of flowers, &c., in the conservatory during the season, which greatly added to its interest and attraction. Special mention may be made of the magnificent hardy herbaceous plants by Mr. T. S. Ware, of Tottenham; of the Gladioli from Messrs. Kelway; and of the Dahlias from Mr. C. Turner, of Slough. The Council will be pleased to make similar arrangements for the present year.

"A Fellow, a contributor during the past season, has suggested that many other Fellows would be pleased to lend from time to time interesting house plants which they can spare in small numbers, to add to the attraction of the conservatory and the enjoyment of the large numbers of people who will visit it during the Inventions Exhibition. The Council are willing to give effect to this suggestion, and will be happy to receive plants suitable for such purpose, which will be treated with the same care that is bestowed on the plants of the Society; but they cannot on behalf of the Society undertake any special responsibility in respect of them.

"The very successful shows of fruits and vegetable produce held in the conservatory during the past season cannot fail to have beneficial results. Special interest was taken in these by the many thousands of visitors who thronged the conservatory on the days when they were held. The wonderful exhibition of cottagers' produce may be specially mentioned.

## COLONIAL NOTES.

CHRISTCHURCH BOTANIC GARDEN.—Mr. J. B. Armstrong sends us a categorical denial of the charges brought against the garden by Mr. Mudd, and points out that it was visited by more than 20,000 persons last year, the population of Christchurch being only 35,000. Since the establishment of the garden more than a million of timber trees and other useful plants have been distributed free to various public bodies, such as Road Boards, School Boards, County Councils, &c., besides large numbers of ornamental, economic, and valuable plants of other classes; and it would not be difficult to prove that the value of these distributions has nearly, if not quite, equalled the whole cost of the garden during the whole period of its existence.

The following brief description of the park and garden, from the *Southern Provinces Almanac*, will help to show what has been done:—"The domain was originally reserved for a Government House, but it is now to all intents and purposes a Botanical Garden, although that name has never been officially applied to it. The whole extent of the ground comprising the domain (about 79 acres) is laid out as a public garden in the picturesque style; and, although only nineteen years old, many parts of the garden have already become very beautiful. We have here such a triumph of Art over Nature as is not often observable, seeing that a few years ago the site was a miserable wilderness of sand and shingle, the only shrubby vegetation being the Wild Irishman (*Discaria toumatou*) and the common Koromiko (*Veronica stricta*). Even when the present curator took charge of the garden there were not 200 kinds of plants in it, whilst now there are over 3000, and additions are constantly being made, although the great want of funds militates against the rapid increase of new and rare plants.

"Special attention is devoted to conifers, for which about 15 acres have been set apart as a pinetum. About 179 kinds of conifers have already been planted, and when they attain sufficient size the public will be able to inspect them and form an opinion as to their adaptability to the climate of the province. Another large piece of ground is devoted to native plants, of which there are an immense number of sorts, and where it is intended that specimens of all our native plants shall be preserved to show future generations of New Zealand what the original vegetation of the country was like. Another interesting department is that devoted to British plants, and containing about 500 species; this is perhaps the most interesting part of the garden to the old colonist, as he can see the old familiar plants of the English hedge-rows and mountain slopes. Unfortunately, the soil of the garden is rather too dry for British plants, and many of them are only preserved by constant attention. A similar collection of New Holland plants has lately been formed, and promises to be successful. Considerable attention has also been given to medicinal and economic plants

—of which there are large numbers in the gardens—and no doubt many of them will ultimately become sources of income to the colony. Of late years attention has been principally directed to the introduction of the class of plants known as hardy herbaceous perennials which are now so much sought after in England. The efforts in this direction have been fairly successful, many hundreds of beautiful flowers having been introduced through the agency of the garden, but much still remains to be done, as some of the finest plants of this class are still absent from the collection."

## BUDS OUT OF PLACE.

THE formation of buds in out-of-the-way situations has an interest for the gardener beyond that of



FIG. 49.—BUDS ON THE ENDS OF THE LEAVES IN CURCULIGO.

botanical curiosity, as it often affords a means of propagation which would otherwise be difficult, and sometimes unattainable. Our illustration (fig. 49), for the materials for which we are indebted to Mr. Watson, shows some buds on the tips of the leaves

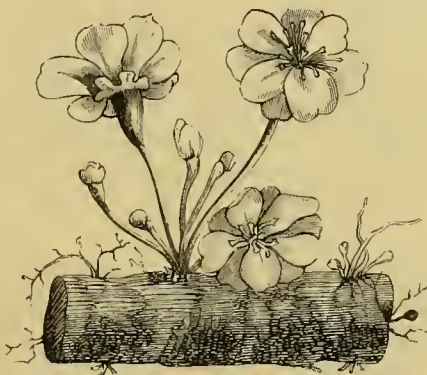


FIG. 50.—FLOWER BUDS ON THE ROOTS OF PYRUS JAPONICA.

of *Curculigo orchoides*. The frequency with which buds of similar character are formed on the fronds of Ferns is matter of common observation, and Mr. Dreury's recent discovery of reproductive organs on such buds, while still on the frond and without the intervention of a spore, opens up new clues towards the unravelling of the course of descent of these plants, and shows that the prothallium is, after all, only a form of bud. Another very interesting case of bud formation was that exhibited by Major Lendy before the Scientific Committee, recently, and which was figured in a late number of the *Gardening World*. This consisted in the production of leaf-buds from the surface of the aerial roots of *Phalenopsis Schilleriana*. Our young contemporary has earned the credit of having been the first, so far as we know, to note and figure the production of buds on the aerial roots of Orchids.

## HOME CORRESPONDENCE.

Mushrooms.—In recent numbers of the *Gardeners' Chronicle* mention has been made of a bunch of prolific Mushrooms. I have sent a bunch for your inspection, which, unless you count the very small buttons, does not come up in point of numbers to the one supplied by Mr. Breese, but which are of a useful size. They are grown in an unheated shed, and the bed was spawned at about 90°, soiled and beaten down, on November 29 left a day or two to test the heat, then covered with about 6 inches of long straw. I commenced to gather about a fortnight ago. In a heated Mushroom-house I never get such bunches. They grow away quicker, but the beds do not last so long in bearing as those grown in a cold place. The spawn I procure from Mr. George, of Putney, and use it in pieces about 1½ inch square. I am of opinion that the newer the spawn used the better, and the beds come into bearing quicker. *Newman F. Fuller, The Gardens, Idsworth, Horndean.*

Gladioli Planting.—Marquis of Lothian.—I am pleased to see Mr. Douglas (p. 188) recommending an immediate commencement of planting the corms, as hitherto it was not considered orthodox to do so so early. My stock are becoming so numerous that a number escaped my notice in the ground last November. Judge my surprise this morning to see several 4 and 6 inches grown over the ground; not the early kinds alone, but hybrids of *gandaveensis*. These will flower some weeks before those I am planting now, though if anything like severe frost comes they are sure to be seriously checked. Allow me to recommend Marquis of Lothian, a magnificent and robust flower, raised by Mr. Coddling, and sent out by Mr. A. G. Campbell, Gourrock. It is, I believe, as yet hardly known south of the Border. *W. J. M., Clonmel.*

Grape Mrs. Pince.—Many have been the adverse criticisms pronounced upon Mrs. Pince Grape, but where it succeeds well it has much to recommend it. It produces bunches freely, of large size and of very even proportion, and it is a variety which will bear cropping heavily; its colour is not always first-class, sometimes the berries are rather "foxy," more particularly in a wet season, when there is an absence of sunlight during the time it is colouring; it keeps well, and does not shrivel nearly so much as it is sometimes said to do, if attention be given to watering the border several times after it is ripe. It is of good flavour—which is that of a brisk Muscat—and which it retains as long as it is in good condition, which is usually to the end of January or early in February. *E. M. Molyneux.*

Violets Swanley White and New York.—It would hardly be possible to speak too highly of the lovely double white Violet, which with a little warmth will bloom all the winter, and yield a large quantity of blossom, very sweet and of a large size, and which have long foot-stalks, enabling one to gather and bunch it very readily. It has a hardy constitution, for we have it here in a cold pit, where the severe frost in the first week of January injured other sorts, but not this. Sometimes it is known under the name of Count de Brazza and White Neapolitan. New York is a double mauve coloured Violet, but little known, in the way of Marie Louise, but its superior as regards earlier blooming, larger, and very fragrant flower. There is not the least doubt that in the multitude of other things we do not pay sufficient attention to our Violets in summer. A light rich soil, a shady situation, occasional waterings, and constant removal of runners, are the four principal things to attend to. *J. Rust, Eridge Castle.*

Gas Lime in Gardens.—In answer to "T. B.'s" last communication on this subject (p. 217) I do not object altogether to the use of gas lime, but I differ with him as to the quantity he recommends to be applied. I know it is a useful agent if used in moderation, but I have seen land rendered useless for a time by a smaller dose than "T. B." recommends. What "T. B." has said on the subject simply amounts to this. On p. 58 "Gas lime should be applied to land half an inch thick to destroy slugs, &c., and allowed to remain three or four weeks before digging it in." On p. 217 he says:—"This will not do the least harm to any crop that may be put in afterwards."



On p. 86 he recommends it to be "applied to walks scattered on the surface in the way salt is applied, and allowed to remain three weeks, when it not only kills all the weeds, but also their seeds, and prevents anything growing for two years." Salt is not generally applied half an inch or even a quarter of an inch thick, and if the weeds will not grow for two years how does "T. B." prove that it will not do the least harm to vegetables? Moreover, a dressing of gas lime half an inch in thickness is equal, at a rough calculation, to 1414 bushels per acre, or a bushel to a piece of land less than 6 feet each way. *W. H. Divers, Ketton Hall.*

The Orchid Conference.—Narcissi had a Congress, but even a Conference is better than nothing to us poor bewildered growers. How the varieties multiply in those species which will not be in bloom when the much welcomed Conference will be held. Look at *Lælia anceps* now—one or two a week are sold, and now two are described as new varieties. These will not be seen at the show, and so those who are blooming them now have only the papers to read, and these are puzzling enough when we get shades of colour described. There are fewer really sanctioned named varieties of *Cattleya Mossiae*, *Mendelii*, *gigas*, *Warnerii*—which four will be at the show—than are now circulating and named in *Lælia anceps*. My drift is evident to any one (I hope it is, at any rate), that this Conference on Orchids wants to be kept going all round the year to get a really comprehensive system of naming and adjudicating on the varieties, growth, &c. Take again the myriads of forms of *Odontoglossum crispum*. They cannot be all there at once in two days of one month of the year. I am aware that what I point at would be a very arduous undertaking to expect of any one, but I do hope that the success of the May Conference will enable the Royal Horticultural Society, with so good an orchidist as its President, to have other meetings of this Conference at times when the bulk of midsummer, autumn, winter, and early spring Orchids are in full glory. The result to be attained will depend on the exertion and energy of the growers all over the kingdom. Including the collections in France and Belgium, the show has command of immense resources. The Narcissus growers worked in a body, and produced a result of their Congress beyond an outsider's expectation—I would say beyond their own. Let not us cultivators of this the highest and most lovely race of flowers be behind in our efforts, and let us show that the lead given us by a "meek Daffodil" can be taken up as it should be. Let there be no prudishness on the part of any one who has a good plant, well grown, though it be a bad variety, but let him show it; it may put the fine variety which may chance to stand near it into obscurity as to cultivation. Cultivation cannot be purchased at once, as a good variety can be. It would be a good thing, too, were there to arise from this Conference a reliable man who could name a new variety as well as Professor Reichenbach can. It is not always convenient to cut a whole spike and post it off. Moreover, the whole plant could be seen (which is a guide in naming hybrids of no mean calibre) were the Professor in England, and not in Hamburg. I am aware that I have here stepped on dangerous ground, but I do so fearlessly, and will say, for any one's satisfaction, and for that of Professor Reichenbach himself, that I have no wish for any one to supplant him [a rather difficult matter!], but rather that some one should take off his shoulders the onus of naming a plant which he only sees by its bloom, and this he well knows does not show its true colours when badly packed or dried, as he frequently must get them. To conclude, let me exhort all Orchid growers—the ones most unknown are those whom I would wish to see exhibiting, those who are well known will be there for a certainty (or ought to be)—to send what they have, be it a bad or good variety, old or new species, grown any way, large or small, if it is healthy, to send it to be seen, and let the Conference on Orchids be a flower show such as was never seen before. *Dr B. Crawshay.* [Prof. Reichenbach's labours are the outcome of a life of steady devotion and univalued opportunities. He would be the first to welcome an assistant, but such a one must be the product of many years' evolution. Who will pay for the services of such a man, first to educate him, and then to maintain him? Prof. Reichenbach's services are made for the benefit of science, and are all but gratuitously rendered. *Ed.*]

—The numerous varieties and forms, and the confusing hosts of names which belong to many

of the most popular of our cultivated Orchids, might be put into something like understandable order—many of the names discarded, and erratic names corrected—by the adoption of some such plan as was acted upon at the Daffodil Conference. But if the Daffodils were a difficult problem to solve, what will the Orchids be should they be as fully and completely represented as we expect they will? To help those who will not have an opportunity of comparing along with the committee the different forms of each species, would not it be a good plan to arrange the whole of the plants of each species in one group, so that the variations in form, &c., might be easily perceived? The genera might be similarly grouped; a geographical arrangement might also be adopted, or at least the New World plants might be placed on one side of the exhibition-room and the Old World plants on the other. As no prizes are to be awarded, surely exhibitors would not object to the arrangement here proposed. For the sake of accuracy in spelling, native country, parentage, and such-like information, which it is proposed to attach to each plant, it would be well if the Society requested intending exhibitors to forward a list of the plants they intended to contribute a few days before the opening of the exhibition. These lists could then be submitted to a good authority for correction, and then labels of uniform size, printed in something like the following manner, might be issued:—

# ODONTOGLOSSUM

CRISPUM.

*Var. Trianae.*

NEW GRENADA, 1868.

Exhibitor—SIR TREVOR LAWRENCE.

The cost of printing such labels would be small, the names and countries for each plant would be vouched for, though the Society would not, of course, be held responsible for the fitness of the name when affixed to any particular plant. We all know how difficult it is to read the labels supplied by some exhibitors, and errors in spelling are not always absent, whilst it is not always possible for some exhibitors to obtain information as to country and date of introduction for their plants. Bearing in mind that exhibitors are asked to contribute plants with nothing but thanks for their pains, it is not too much to expect the Society to willingly undertake to provide suitable, neat, and uniform labels for all the plants exhibited. At the Daffodil Conference, some of us that went to glean as much information as possible found it no easy matter in some cases to read the labels, whilst in not a few cases the labels could not be got at. As the first object of this proposed Conference is that of affording information to those interested in Orchids, and not merely to provide a pretty picture for loungers to stare at and admire, there are good reasons for the adoption of some such suggestions as those offered here. *W. W.*

Brussels Sprouts.—By far the finest batch of Brussels Sprouts I have seen for many years was at Hutton Hall, Guisborough; every plant was as equal as possible—in fact, I did not see a single plant which varied in any way from the main batch; the whole breadth was as if cast in a mould. The variety, Mr. McIndoe informed me, was Veitch's Exhibition, and which is without doubt a very fine Brussels Sprout. *R. Greenfield, Warwick.*

Preparation of Large Trees for Moving.—The span of human life in the present era of the world's existence, even in the case of those who live to be old, is of short duration compared with that of trees, the progress of which to a state of maturity is proportionately so much slower than that of man, that those who plant small trees do not live long enough to see much of the effect they produce. In the case of that favourite fruit the Pear, it used to be said that those who plant them plant for their heirs, and with the ordinary kind of trees planted to give effect or shelter there is still longer to wait. To shorten time in waiting is the manifest object of those who go to the trouble of planting large trees instead of little ones in the grounds about their dwellings or other conspicuous places, where the presence of such are required. Where work of this kind has to be done it often happens that enough forethought is not brought to bear on the

proceedings. In place of taking the precaution to previously prepare the trees by trenching round them, and severing the roots to within a movable compass, so as to admit of a season's growth before they are taken up, they are at once transferred from where they have been growing for perhaps a score of years or more with their roots unchecked in any way; the result of which is, that the progress made for a year or two afterwards is not near so much as it would be if the roots had been previously shortened back to the way named. The omission of this timely preparation of trees that are to be transplanted when much above the ordinary planting size is the less excusable when it is remembered how little labour cutting in the roots as described involves. To the too frequent absence of judgment and reasonable care in moving trees that have attained considerable size, is attributable the failures that occur and that have led many to the conclusion that it is better to plant small trees and wait for them to grow up, even in positions where it is desirable to have such as would give effect at once. In the case of deciduous kinds of a size such as under notice and that are intended for removal next autumn or winter, the sooner the root-shortening preparation is now completed the better, before there is any appreciable movement in the buds. With evergreens it is better to defer this work until the time that the drying March winds are over, especially in cases where the trees are large and in vigorous condition, as with such the root severance necessary is proportionately more felt than with smaller examples. *T. Baines.*

Pruning Dendrobiums.—When we have examples held up before us we are expected to give greater credence to them than any amount of theorising that might be indulged in; and when your correspondent mentions the fine plant of *D. Wardianum* at Wortley Hall, that has been regularly pruned after flowering, and then tacks on to this one others that have been treated in a similar manner, we are, no doubt, expected to believe that this course of treatment, more especially for this species, is the best that can be adopted. Now, I am not about to find fault with your correspondent for his statements, nor with the cultivator for his practice; but if we are advised to adopt the same plan and method, because of the success attending the practice at Wortley, I must certainly be allowed to use my own judgment, refer to the experience of most Orchid growers, and also feel myself compelled to utter a word of warning against the barbarous practice. It may happen that "J. S. W." has succeeded to his own satisfaction, and that year after year when he finds the growths sufficiently advanced and well-rooted he may cut away the old bulbs and imagines the new shoots are stronger for the operation. But that is not sufficient evidence. One clever *artiste* may walk across the circus on a slack wire, but should the audience leave in consequence, what would be the result? So I say to those, "You are now cultivating Orchids, and Dendrobiums especially. Don't cut the old bulbs away whilst they are green, and acting as storehouses of sap to the young and tender growths." *W. Swan, Fallowfield.*

Cucumber Growing.—Your correspondent, "F. B. T.," p. 187, makes reference to my inaccuracy of figures in giving the dimensions of the Cucumber-house which I wrote about some time since. When giving the height, 9 feet, and the width, 11 feet, I am sorry I omitted to give the length, which is 250 feet. I do not see how your correspondent can justly accuse me of any anxiety to bring my "pet variety under notice;" when he invited a successful grower to state the name of the sort he grew, &c., surely he will in all fairness grant the same privilege to me—if he thinks there is anything in a variety. *A. Smith.*

Centropogon Lucyanus.—Few stove plants are more useful than this, coming in as it does at a dead time of year, and lasting in flower for a considerable period, as after those at the end die away or are cut, the shoots break again and send out a further supply of bloom at the joints. In habit the *Centropogon Lucyanus* is shrubby, and branches up freely from the crown, the shoots reaching a height of from 1 foot to 2 feet in a season. The flowers are bright red, and in form and size much like those of the *Aschmannanthus*, which is likewise a valuable thing, now seldom seen



in hothouses. To have nice little plants of the Centropogon for furnishing, cuttings should be put in as soon as the plants have done blooming, and if kept in a brisk heat in a propagating box they soon strike, when they should be potted, and after being kept close for a few days, to give them a start, stood on a light shelf in a stove, or other situation where they can get the same temperature. During summer, the best place for them is a pit where they can be plunged and grown with similar soft-wooded subjects, as there they are more under control, and can be syringed freely and shut up early, so as to give a brisk heat with plenty of moisture. *J. S.*

**Wall Fruit Tree Protection.**—I note an article (see p. 146) on wall copings, which the writer recommends glass as the best and only safe means of ensuring a crop of fruit on walls. Too much has been spoken and written in favour of glass copings, which alone are all but useless, and the only persons benefited by them to any great or even appreciable extent have been the manufacturers and builders. For every hundred pounds spent throughout the country I believe the value of the fruit gathered over and above what would have been taken had a simple and intelligent system been followed would probably not amount to £5. As I said before, a 3-feet coping of itself is of little or no use during severe weather. There must be some protecting material suspended in front of the trees, and this will be found as useful if hanging from a 6-inch permanent slate coping as the same material would be attached to glass and secured 3 feet from the wall. Except in a very few cases the system of planting fruit trees in holes is totally wrong. In planting, place the roots above the ground line, and keep them there; we shall then hear less of spring frosts and bad crops. *A. L. H.*

## Reports of Societies.

### EDINBURGH BOTANICAL: Feb. 12.

THIS Society met at 5, St. Andrew Square, Professor Dickson in the chair.

The following communications were read:—

I. "The Geographical Distribution of Algae of the Firth of Forth," with exhibition of specimens. By John Rattray, M.A., B.Sc., Botanist to the Granton Station of Marine Observation.

II. "On the Development of Bifoliar Spurs into Ordinary Buds in *Pinus sylvestris*." By Professor Dickson, M.D., LL.D., F.R.S.E.

III. "Note on the Occurrence of *Carex salina* var. *kattagatensis*, F." By A. Bennet, F.L.S., Croydon, Surrey.

IV. "Report on the Excursion of the Alpine Botanical Club." By William Craig, M.D., F.R.S.E., F.R.C.S.E.

V. "Report on Temperatures for December and January, at the Royal Botanic Institution of Glasgow." By Robert Bullen, Curator.

**December, 1884.**—Frost was registered on eighteen mornings during the month, the lowest reading being 21°, or 11° of frost, during the nights of the 21st and 22d respectively. Total for the eighteen readings, 93°. The mean temperature was generally high during the day, the lowest readings being 32° on the 1st, 17th, and 23d, and 30° on the 22d and 28th. The highest readings were 48° on the 13th, and 50° on the 14th. Dull, showery, and often stormy weather prevailed during the first half of the month, accompanied by an occasional heavy downfall of rain and hail. Since the 19th the weather has been generally fine; vegetation is in a dormant state, and in striking contrast from the same month last year, when so many hardy plants were blooming prematurely.

**January, 1885.**—Frost was registered on nineteen mornings during the month, the lowest reading being 20°, or 12° of frost, during the night of the 21st. Total of the nineteen readings, 95°. Although the total record of frost is nearly the same as last month, the low temperature at night was continuous from the 11th to the 25th, and being assisted by the cold dry weather which prevailed at the time made its effects felt to a much greater degree. The highest day temperature was 47° on the 5th, the lowest 31° on the 23d, but on several other days the thermometer was at, or very little above, freezing point. The frequent frosts have had the effect of keeping vegetation in check. The rainfall has been light, and weather all that could be desired for the season.

VI. "Report on the Progress of Vegetation at the Royal Botanic Garden, Edinburgh, for January, 1885." By Robert Lindsay, Curator.

The weather of January was very favourable in regard to open-air vegetation. The temperature was uniformly cold throughout the month, but at no time excessively so. No extremes either of heat or cold having occurred vegetation has suffered very little in consequence—comparatively tender plants are

still uninjured in the open ground. Frost was registered on no less than eighteen occasions, amounting collectively to 72° as compared with 20° for the corresponding month last year. The lowest readings of the thermometer occurred on the 2d, 26°; 20th, 26°; 22d, 25°; 23d, 18°; and 24th, 22°. The highest morning reading was 40°, which was repeated on six mornings. The lowest day temperature was 32°, which occurred on the 23d of the month, and the highest 55°, on the 29th. West and south-west winds were frequent, and there were sixteen perfectly dry days.

The continuance of moderately cold dull weather during the month has had the effect of retarding the flowering of spring plants considerably. Of the forty selected plants whose dates of flowering are annually recorded, only two came into flower by the end of the month, viz., *Tussilago fragrans*, on the 7th; *Diondia epipactis*, on the 20th; while at the same date last year no less than sixteen were in flower. *Rhododendron atrovirens*, which opened its first flowers on January 10 last year, is not yet out. *Hazel* was in flower on January 14 last year, and February 4 this; *Snowdrop*, January 19 last year, February 5 this; *Tussilago alba*, January 18 last year, February 10 this.

On the rock garden eight species and varieties came into flower during the month, viz., single and double Primroses, Cowslip, *Diondia epipactis*, *Hepatica angulosa*, and three species of *Helleborus*. Last January eighteen were noted. Throughout the garden the most conspicuous plants in flower were the various species of *Helleborus*, *Jasminum nudiflorum*, *Erica herbacea alba*, *Garrya elliptica*, and *Andromeda floribunda*.

The following plants in pots were exhibited in full flower from cold frames in the garden:—*Cyclamen Coum vernum*, *Iris reticulata Krelagei*, *Muscari linguatum*, *Narcissus Bulbocodium monophyllum*, *Saxifraga Burseriana*, *S. B. var. major*.

## NOTTS HORTICULTURAL AND BOTANICAL: Feb. 11.

AT the monthly evening meeting, which was held at the Mechanics' Institute, the chair was taken by Mr. J. Radford. The attendance of members and friends for the first meeting of the season was most satisfactory, inasmuch as a hundred new members have been enrolled. The tables presented a lively appearance, being covered with plants, cut flowers, and vegetables. Mr. German, Malvern House, exhibited some nice pieces of Orchids, including *Odontoglossum crispum*, *O. c. guttatum*, *O. Inseayi*, *O. Pescatorei*, *O. P. nivale*, *Phalaenopsis amabilis*, also fine cut spikes of *Zygopetalum Mackayi*, which had been in flower in the conservatory since November. Mr. Edmonds, Bestwood Lodge, brought fine Camellias, also immense flowers of *Dendrobium Wardianum*. The same exhibitor showed fine specimens of May's Northway Prize Brussels Sprouts, the stems having a fine pyramidal form, studded with solid medium Sprouts. Mr. Thacker showed *Dendrobium Wardianum* in a large 60-pot, with one good growth carrying twenty-one fully expanded flowers. Mr. Edington, Woodthorpe Grange, exhibited *Dendrobium nobile* in small pots, well flowered; also good examples of *Mignonette*, with cut flowers of Camellias, Azaleas, Primulas, and Cinerarias; Mr. Walker, Hardwick House, fine sprays of *Passiflora quadrangularis*, completely covered with large expanded flowers. The same exhibitor read a paper on the cultivation of the Camellia, which was followed with a discussion by Messrs. Edmonds, Edington, Thacker, Graham, Thompson. A vote of thanks to the lecturer and the Chairman brought the proceedings to a close. (*A Correspondent.*)

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, FEBRUARY 18, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 30 years.	Dew Point.	Degree of Humidity.	
Feb. 12	29.96	+0.17	57.0	41.5	15.5	49.3	+10.4	47.2	93	W.S.W. 0.00
13	29.85	+0.05	52.5	43.5	9.0	47.4	+8.5	43.9	83	W.S.W. 0.00
14	29.57	-0.24	48.0	45.0	3.0	46.5	+7.7	44.1	92	W.S.W. 0.00
15	29.32	-0.50	50.0	45.0	5.0	47.7	+9.0	46.2	95	S.S.W. 0.10
16	29.06	-0.75	55.0	46.5	8.5	49.3	+11.1	49.2	98	S.W. 0.01
17	29.18	-0.63	50.0	37.0	13.0	41.3	+2.6	41.1	96	N.E. 0.23
18	29.51	-0.31	44.0	33.5	10.5	38.1	-0.7	33.2	82	N.W. 0.00
Mean	29.49	-0.32	51.1	41.7	9.4	45.7	+7.0	43.4	92	W.S.W. 0.04

Feb. 12.—Fine day; sun shining brightly at times. Fine night.

— 13.—Dull day and night. Fine.

Feb. 14.—Dull day and night.

— 15.—Rain from early morning till 9 A.M. Dull day and night.

— 16.—Rain all day and night.

— 17.—Rain in early morning; darkness from 11 A.M. till 12.45 P.M. Dull day and night.

— 18.—Very fine day and night.

**LONDON: Atmospheric Pressure.**—During the week ending February 14, the reading of the barometer at the level of the sea increased from 29.74 inches at the beginning of the week to 29.79 inches by 9 A.M., decreased to 29.47 inches by 5 P.M. on the 8th, increased to 30.04 inches by 5 P.M. on the 10th, decreased to 29.90 inches by 9 A.M. on the 11th, increased to 30.17 inches by 9 A.M. on the 12th, and was 29.72 inches by the end of the week.

The mean reading of the barometer for the week was 29.90 inches, being 0.47 inch higher than last week, and 0.07 inch below the average of the week.

**Temperature.**—The highest temperature in the shade in the week was 57°, on the 12th; the highest on the 10th and 14th was 48°. The mean of the seven high day temperatures was 51°.6.

The lowest temperature was 33°.5, on the 10th; on the 14th the lowest temperature was 45°. The general mean was 40°.3.

The greatest range of temperature in one day was 15°.5, on the 12th; the smallest was 3°, on the 14th. The mean of the seven daily ranges was 11°.3.

The mean temperatures were—on the 8th, 45°.9; on the 9th, 41°.1; on the 10th, 41°.2; on the 11th, 49°; on the 12th, 49°.3; on the 13th, 47°.4; on the 14th, 46°.5; and these were all above their averages by 6°.8, 2°, 2°.2, 10°, 10°.4, 8°.5, and 7°.7 respectively.

The mean temperature of the week was 45°.8, being 2°.8 higher than last week, and 6°.8 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 97°, on the 12th. The mean of the seven readings was 78°.9.

The lowest reading of a minimum thermometer with its bulb placed on grass was 21°, on the 10th. The mean of the seven readings was 31°.4.

**Rain.**—Rain fell on the 8th and 9th to the amount of 0.18 inch.

**ENGLAND: Temperature.**—During the week ending February 14, the highest temperatures were 58°, at Cambridge, 57° at Blackheath, 55° at Nottingham; the highest at Brighton was 50°.6, at Bolton 50°.9, at Preston 51°.5. The general mean was 53°.5.

The lowest temperatures were 30°.2, at Wolverhampton, 31°.2 at Cambridge, 31°.4 at Bradford; the lowest at Truro and Leeds 39°, at Preston 37°.5. The general mean was 34°.9.

The greatest ranges were 26°.8 at Cambridge, 22°.1 at Wolverhampton, 22° at Hull; the smallest ranges were 13°.5 at Blackheath, 14° at Preston, 15° at Truro and Leeds. The general mean was 17°.6.

The mean of the seven high day temperatures was highest at Truro, 52°.7, at Cambridge 52°.4, at Blackheath 51°.6; and was lowest at Bolton, 47°.1, at Sunderland 48°.2, at Preston 48°.4. The general mean was 50°.2.

The mean of the seven low night temperatures was highest at Truro 45°.3, at Plymouth 42°.7, at Leeds 41°.9; and was lowest at Wolverhampton, 36°.4, at Hull 37°.1, at Sunderland 38°.4. The general mean was 40°.2.

The mean daily range was greatest at Cambridge and Hull, 13°.9, at Wolverhampton 13°; and was least at Preston, 7°.2, at Truro 7°.4, at Plymouth 8°.3. The general mean was 10°.

The mean temperature was highest at Truro, 48°.6, at Plymouth 46°.5, at Leeds 46°.1; and was lowest at Bolton, 42°.4, at Wolverhampton 42°.5, at Sunderland 42°.9. The general mean was 44°.8.

**Rain.**—The largest falls were 0.93 inch at Truro, 0.72 inch at Bolton, 0.63 inch at Preston; the smallest falls were 0.18 inch at Blackheath, 0.20 inch at Cambridge, and 0.30 inch at Hull. The general mean fall was 0.49 inch.

**SCOTLAND: Temperature.**—During the week ending February 14, the highest temperature was 53°.6, at Aberdeen; at Dundee the highest was 49°.9. The general mean was 51°.7.

The lowest temperature in the week was 32°, at Aberdeen; at Paisley the lowest temperature was 34°.2. The general mean was 33°.1.

The mean temperature was highest at Glasgow,



44°.6; and lowest at Dundee, 40°.S. The general mean was 42°.6.

**Rain.**—The largest fall was 3.18 inches, at Greenock; the smallest fall was 1.24 inch, at Glasgow. The general mean fall was 1.60 inch.

JAMES GLAISHER, F.R.S.

## Enquiries.

"He that questioneth much shall learn much."—BACON.

**LUX-COLOR GAS AND OIL STOVES.**—A correspondent writes:—"Having a small lean-to greenhouse (24 x 8 feet), where a small greenhouse boiler cannot be fixed, I am desirous of finding some other mode of warming the house. Gas I have close by, which can be utilised readily, therefore I am anxious for reliable information respecting the effect of the Lux-Color stoves—if, from practical experience, they are found to entirely dispose of the deleterious products of combustion from gas, consequently not to be injurious to plant life."

## Answers to Correspondents.

**ADDRESS OF S. OWENS & CO.: D. Mason.** The address you inquire for is S. Owens & Co., Hydraulic and General Engineers, Whitefriars Street, London, E.C.

**BOOKS: Pomona. Botany for Beginners, and Plant Life** (Messrs. Bradbury, Agnew, & Co., Boulevard Street, E.C.).—P. Ingram. *Holt Castle; or, The Threefold Interest in the Land*, by Prof. Tanner (Chapman & Hall, 11, Henrietta Street, Covent Garden, W.C.).

**CAMELLIAS: Amateur.** The plants are badly infected with honeydew. Probably overhead washing with an insecticide containing a portion of sulphur, such as Gisburst's soap, would rid you of it.

**CATTLEYA PERCIVALIANA: W. J.** A very good example of this variety, but some superior ones are to be seen. The colour of the variety and prettily fringed lip are well seen in your flower. It will most likely improve in size under cultivation.

**EUCALYPTUS: J. S. E. Gunnii**, the hardiest of the genus.

**HOLLY PLANTING: W. Adams.** The best time to plant Hollies is the month of April, or early in May. Take advantage of wet weather.

**ICE-HOUSE AIR-INLETS: J. P.** If there is a drain at the bottom, properly trapped and furnished with a grating, enough air will get into the place for all purposes. A pipe in the roof, and air-bricks, are worse than useless.

**KEW: W. G.** The Temperate-house was built by Messrs. Cubitt, from the designs of Decimus Burton, in 1861. We cannot tell you the cost, but it was not defrayed from the proceeds of any legacy, but from a Parliamentary grant in the ordinary manner.

**NAMES OF PLANTS: F. L.** The Dendrobes were we regret to say, overlooked. 1, *Nephrodium molle*; 2, *Asplenium Adiantum nigrum*; 3, *Acacia cinerascens*; 4, not certain—there are about 500 varieties.—*Alfred Walker*. *Correa alba*.—U. 1, *Metrosideros stricta*; 2, *Sansiviera zebrina*; 3, *Polypodium ensifolium*.—*E. Kruyff*. *Senecio Ghiesbreghtii*.

**ROOTING BRAMBLE: A. D. W.** It may not be common, but yet it is the way to propagate the plants artificially.

**SCRUBBING BRUSHES: J. P.** Try Treloar & Co., Cocoa matting manufacturers, London.

**SHRUBS, &c., REMOVED: K. L.** If you planted the things you can remove them, or do what you like with them, during your tenancy, if all dues, such as rent, and value of repairs, owing to the landlord, are paid. But nothing may be removed of the nature of a fixture after the expiration of the tenancy without the permission of the landlord.

## CATALOGUES RECEIVED.

**WILLIAM FISHER**, Burton-on-Trent—Vegetable and Flower Seeds.

**E. G. HENDERSON & SON**, Maida Vale, London—Flower, Vegetable, and Agricultural Seeds.

**JAMES YATES**, Stockport—Vegetable and Flower Seeds. **F. & A. DICKSON & SONS**, Chester—Select Farm Seeds. **COMPAGNIE CONTINENTALE D'HORTICULTURE**, Ghent—Seeds and Novelties for 1885.

**JAMES BIRD**, Bridge Street, Downham Market, Norfolk—Kitchen Garden, Agricultural, and Flower Seeds.

**THOS. WOODFORD**, Atherstone—Vegetable and Flower Seed Catalogue.

**WAITE, NASH, HUGGINS & CO.**, London—Wholesale Agricultural Seed List.

**COMMUNICATIONS RECEIVED.**—M. D.—H. B. R.—Z.—J. B., Worthing.—R. T. C.—Canon.—Asa Gray (enclosure).—C. S. S. (enclosure).—J. H. H.—A. Taylor.—A. le Jolis, Cherbourg.—M., Tasmania.—Ginechona.—W. G.—T. F. R.—P. L., Belvoir.—E. B., Paris.—J. R.—Sir T. L.—R. W. A., Pietermaritzburg.—H. V.—W. W. A.—D.—H. Corveon, Geveva.—H. N. E.—J. H., Jamaica.—W. D.—J. Edmonds.—W. W.—S. E.—E. J.—J. D.—T. G.—J. Cowan.—Hon. Miss B.—W. D.—R. D.—W. L. M.—P. R.—K.—M. Foster.—T. B.—E. T. L.—J. F.—H. W.—J. S.—A. D.—C. W. S.—H.—C. P.—R. T. C.—De Mar.—A. McD.—W. E.—Aberia.—R. P.—R.—E. Tonks.—Wild Rose.—Visitor.—A. L. H.—D. M.

## Markets.

### COVENT GARDEN, February 19.

TRADE quiet, with supplies, although limited, quite equal to the demand, and prices unaltered. *James Webber, Wholesale Apple Market.*

#### FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 6-4 0	Lemons, per case ..	12 0-18 0
— Nova Scotia and ..	1 6-4 0	Pine-apples, Eng., lb. 1	0-2 0
Canadian, barrel 12	0-21 0	— St. Michael, each 2	6-8 0
Cobs, per 100 lb. ..	50 0-55 0	Pears, French, doz. 3	0-9 0
Grapes, per lb. ..	3 0-6 0		

#### VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz. ..	4 0-6 0	Lettuces, Cab., doz. 1	6-..
Asparagus, English, per bundle ..	3 6-10 0	Mint, green, bunch. 1	6-..
— French, bundle 15	0-20 0	Mushrooms, p. basket. 1	0-1 6
Beans, Eng., per 100 3	0-..	Onions, per bushel. 4	0-..
Beet, per doz. ..	1 0-..	— Spring, per bun. 0	6-..
Cabbages, per doz. 1	6-2 0	Parsley, per bunch. 0	4-..
Carrots, per bun. ..	0 6-..	Peas, per lb. ..	1 0-..
Cauliflowers, English, dozen ..	2 0-4 0	Potatoes, new, per lb. 0	9-1 0
Celeriac, per root ..	0 4-..	Radishes, per doz. 1	0-..
Celery, per bundle. 1	6-2 6	Rhubarb, bundle ..	0 6-..
Cucumbers, each ..	1 0-2 6	Salsify, per buod. 1	0-..
Endive, per dozen ..	2 0-..	Seakale, per punnet 2	0-2 6
Gaulic, per lb. ..	0 6-..	Small salad, per punnet ..	0 4-..
Herbs, per bunch ..	0 8-4 0	Spinach, per bushel 4	0-..
Horse Radish, bun. 3	0-4 0	Tomatoes, per lb. ..	2 0-2 6
		Turnips, bun. ..	0 5-..

POTATOS.—Magnum Bonum, 40s. to 70s.; Regents, 70s. to 90s.; Champions, 45s. to 60s. per ton. Markets have a downward tendency.

#### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz. 6	0-24 0	Ficus elastica, each 1	6-7 0
Arbor-vitæ (golden), per dozen ..	6 0-18 0	Foliage plants, various, each ..	2 0-10 0
— (common), dozen 6	0-12 0	Genista, 12 pots ..	12 0-18 0
Arum Lilies, dozen 9	0-15 0	Heaths, in variety, 12 pots ..	9 0-18 0
Azaleas, per dozen ..	18 0-42 0	Hyacinths, per doz. 6	0-9 0
Begonias, per doz. ..	6 0-12 0	Lily-of-the-Valley, 12 pots ..	15 0-24 0
Bouvardia, dozen ..	9 0-18 0	Marguerite Daisy, per dozen ..	8 0-15 0
Cinerarias, per doz. 9	0-12 0	Myrtles, per doz. ..	8 0-12 0
Cyclameos, per doz. 9	0-24 0	Narcissus, 12 pots ..	12 0-18 0
Cyperus, per dozen 4	0-12 0	Palms in variety, each ..	2 6-21 0
Dracæna terminalis, per dozen ..	30 0-60 0	Pelargoniums, scarlet, per dozen ..	4 0-6 0
— viridis, per doz. 12	0-24 0	Primula sinensis, per dozen ..	4 0-6 0
Epiphyllum, doz. ..	18 0-24 0	Solanums, dozen ..	9 0-12 0
Erica, various, doz. 9	0-18 0	Spiræa, per dozen ..	12 0-18 0
Euonymus, various, per dozen ..	6 0-18 0	Tulips, dozen pots ..	8 0-12 0
Evergreens, in var., per dozen ..	6 0-24 0		
Ferns, in variety, per dozen ..	4 0-18 0		

#### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches 2	0-4 0	Mignocette, 12 bun. 6	0-9 0
Arum Lilies, 12 blms. 3	0-6 0	Narcissus, Paper-white, 12 sprays ..	2 0-2 6
Azalea, 12 sprays ..	0 9-1 6	— French, 12 bun. 2	0-6 0
Bouvardias, per bun. 1	0-1 6	Pelargoniums, per 12 sprays ..	1 0-1 6
Camellias, per doz. ..	1 0-4 0	— scarlet, 12 sprays 0	9-1 0
Carationis, 12 blms. 0	6-3 0	Poissettia, 12 blooms 3	0-9 0
Cinerarias, per bun. 1	0-1 6	Primula, double, bun. 0	9-1 0
Cyclameo, 12 blooms 0	3-9 0	— sinensis, 12 bun. 4	0-6 0
Epiphyllum, 12 blms. 0	4-6 0	Roses (indoor), doz. 2	0-6 0
Eucharis, per doz. 4	0-6 0	— French, per doz. 1	0-3 0
Euphorbia jacquini-flora, 12 sprays ..	3 0-6 0	Tropeæum, 12 bun. 2	0-4 0
Gardenias, 12 blms. 8	0-12 0	Tuberose, per doz. 2	0-4 0
Heliotropes, 12 sp. ..	0 6-1 0	Tulips, 12 blooms ..	0 9-1 0
Hyacinths, Roman, 12 sprays ..	1 0-1 6	Violets, 12 bun. ..	0 9-1 0
Lapageria, white, 12 blooms ..	2 0-3 0	— French, bunch. 1	3-1 6
— red, ..	2 0-3 0	— Parma, French, per bunch ..	3 0-5 0
— blooms ..	1 0-2 0	Wallflower, 12 bun. 4	0-6 0
Lily-of-Val., 12 sprays 1	0-2 0	White Jasmine, bun. 0	6-1 0
Marguerites, 12 bun. 6	0-9 0		

## SEEDS.

LONDON: Feb. 18.—A quiet feeling continues to characterize the trade for farm seeds. As regards values there is no important alteration to be noted. The supply of every description is more than equal to the demand, and, as a natural consequence, extreme cheapness still prevails all round. Spring Tares sell freely at the advanced rates previously noted. Canary and Hemp seed are still a very dragging trade. Some good white Mustard is now offering at very moderate figures. Feeding Linseed is steady. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

## CORN.

At Mark Lane on Monday Wheat sales were difficult to effect. For good dry samples, however, offers of lower rates were not entertained. Though the imports of foreign Wheat into London are very moderate, and, under ordinary circumstances, should be firmer, still the stagnation of the trade is such as to prevent any perceptible effect. The market for flour was checked. Peas were rather firmer, and tended against buyers. Beans were quiet and unchanged. Oats were firm. The rates for Maize were steady. Barley was dull.—On Wednesday no revival of demand was noticeable for any kind of grain. Wheat and flour were more especially dull, and whilst prices were nominal from absence of business the tendencies were adverse. Barley, Beans, and Peas remained at late value. Oats were firm, but trade slow. Maize was quoted steady.—Average prices of corn for the week ending February 14.—Wheat, 32s. 10d.; Barley, 31s. 9d.; Oats, 20s. 11d. For the corresponding period last year:—Wheat, 37s. 3d.; Barley, 31s. 11d.; Oats, 19s. 10d.

## CONIFERS—CONIFERS.

**ABIES DOUGLASII**, 2-yr. seedling, 15s. per 1000; 2-yr. 1-yr. transplanted, 25s. per 1000; 12 to 18 inches, 8s. per 1000.

„ **GLAUCOA**, 2 to 3 feet, 12s. per dozen; 3 to 4 feet, 18s. per dozen.

The glauca variety is a grand ornamental tree, of dense compact habit, with different shades of colour.

„ **ENGELMANNI**, 6 to 9 inches, 4s. per dozen.

„ **MENZIESII**, 9 to 12 inches, 8s. per 100; 2 to 3 feet, 16s. per 100.

„ **ORIENTALIS**, 2 to 3 feet, 16s. per 100; 3 to 4 feet, 25s. per 100.

„ **PARRYANA**, 9 to 12 inches, 9s. per dozen; 12 to 18 inches, 12s. per dozen.

„ **GLAUCOA**, 12 to 18 inches, 60s. per dozen.

**ARAUCARIA IMBRICATA**, 1-yr., 1-yr. transplanted, 20s. per 100.

**CEDRUS ATLANTICA**, 2-yr. seedling, 2s. per 100.

„ **DEODARA**, 9 to 12 inches, 12s. per 100; 18 to 24 inches, 50s. per 100.

**CUPRESSUS LAWSONII**, 2-yr. seedling, 10s. per 1000; 2-yr., 1-yr. transplanted, 20s. per 1000; 3 to 4 feet, 40s. per 100.

„ **ERECTA VIRIDIS**, 12 to 18 inches, 20s. per 100; 18 to 24 inches, 40s. per 100.

„ **LUTEA**, 9 to 12 inches, 50s. per 100; 12 to 18 inches, 75s. per 100.

„ **MACROCARPA**, 2-yr. seedling, 8s. per 100; 12 to 18 inches, 20s. per 100.

„ **NUTKAENSIS**, 1-yr., 1-yr. transplanted, 10s. per 100.

**LIBOCEDRUS DECURRENS**, 2-yr. seedling, 8s. per 100; 2 to 3 feet, 40s. per 100.

**PICEA CONCOLOR**, 2-year seedling, 20s. per 100; 9 to 12 inches, 12s. per dozen; 12 to 18 inches, 18s. per dozen; 18 to 24 inches, 24s. per dozen.

Veitch, in his *Manual of Coniferæ*, makes concolor synonymous with lasiocarpa. Our concolor are as distinct from lasiocarpa as magnifica is from nobilis.

„ **GRANDIS**, 6 to 9 inches, 20s. per 100; 9 to 12 inches, 40s. per 100.

„ **LASIOCARPA**, 12 to 18 inches, 18s. per dozen; 2 to 3 feet, 24s. per dozen.

„ **MAGNIFICA**, 9 to 12 inches, 18s. per dozen; 12 to 18 inches, 24s. per dozen.

„ **NOBILIS**, 2-yr., 1-yr. transplanted, 6s. per 100; 9 to 12 inches, 6s. per dozen; 12 to 18 inches, 9s. per dozen; 18 to 24 inches, 12s. per dozen.

„ **NORDMANNIANA**, 6 to 9 inches, 2s. per dozen; 9 to 12 inches, 3s. per dozen.

„ **PINSAPO**, 2-yr. seedling, 6s. per 100.

„ **VEITCHII**, 4 to 6 inches, 12s. per dozen.

„ **WEBBIANA**, 12 to 18 inches, 12s. per dozen.

**PINUS ARISTATA**, 4 to 6 inches, 6s. per dozen; 6 to 9 inches, 9s. per dozen; 9 to 12 inches, 12s. per dozen.

„ **BOLANDERII**, 12 to 18 inches, 4s. per dozen; 2 to 3 feet, 12s. per dozen.

„ **CEMBRA**, 18 to 24 inches, 3s. per dozen.

„ **INSIGNIS**, 2-yr. seedling, 6s. per 100.

„ **JEFFREVII**, 2-yr., 1-yr. transplanted, 10s. per 100; 12 to 18 inches, 50s. per 100.

„ **MURICATA**, 2-yr., 1-yr. transplanted, 12s. per 100.

„ **PARVIFLORA**, 4 to 6 inches, 6s. per dozen; 9 to 12 inches, 12s. per dozen.

„ **PEUCE**, 2 to 3 feet, 18s. per dozen.

„ **PINEA**, 2-yr. seedling, 5s. per 100.

**TAXUS**, 10 distinct varieties, 12 to 18 inches, 6s. per dozen; 18 to 24 inches, 9s. per dozen.

**THUJA LOBBII**, 2-yr. seedling, 3s. per 100.

„ **OCCIDENTALIS**, 2-yr., 1-yr. transplanted, 2s. per 100.

„ **STANDISHII**, 12 to 18 inches, 12s. per dozen; 18 to 24 inches, 18s. per dozen.

**THUIOPSIS DOLABRATA VARIEGATA**, 9 to 12 inches, 3s. per dozen; 12 to 18 inches, 6s. per dozen.

## FOREST TREES.

**BEECH**, Common, 2-yr. seedling, 5s. per 1000; 18 to 24 inches, 15s. per 1000.

**BIRCH**, 1-yr. seedling, 3s. 6d. per 1000.

**CHESTNUT**, Horse, 1-yr. seedling, 8s. per 1000.

**HAZEL**, 2-yr. seedling, 8s. per 1000.

**HOLLY**, 1-yr. seedling, 4s. per 1000.

**LARCH**, 2-yr. seedling, 5s. per 1000.

**OAK**, English, 1-yr. seedling, 4s. per 1000.

„ Turkey, 1-yr. seedling, 10s. per 1000.

**SCOTCH FIR**, Native, 2-yr. seedling, 1s. 6d. per 1000.

**SILVER FIR**, 2-yr. seedling, 5s. per 1000; 9 to 15 inches, 25s. per 1000.

**SPRUCE FIR**, Norway, 2-yr. seedling, 1s. 6d. per 1000; 9 to 12 inches, 6s. per 1000.

„ Black American, 2-yr., 1-yr. transplanted, 20s. per 1000.

„ White American, 2-yr., 1-yr. transplanted, 7s. 6d. per 1000; 9 to 12 inches, 20s. per 1000.

**SYCAMORE**, 1-yr. seedling, 3s. per 1000; transplanted, 12 to 18 inches, 10s. per 1000; do., 18 to 24 inches, 15s. per 1000.

## ROSES.

**DWARF**, budded low on Manetti, 25s. per 100.

**GLOIRE DE DIJON**, TEAS, and NOISSETTES, worked on the Seedling Brier in the open ground, 40s. per 100.

## GENERAL PRICE LIST

sent Free on application.

**MORRISON BROTHERS,**  
NURSERIES, ABERDEEN.



**COWAN'S PATENT ORCHID POTTERY.**

We are now Booking Orders for this Pottery, which consists of  
**POTS, PANS, BASKETS and CYLINDERS,**  
in various designs, specially adapted for  
Orchids of all kinds.

*Illustrated CIRCULARS, with prices and all particulars, free on application.*

**ORCHIDS.**

We have at present a large stock of **EAST INDIAN, SOUTH AMERICAN,** and other **ORCHIDS,** which we offer at moderate prices.

*Prised LIST on application.*

**IMPORTATION of ORCHIDS.**

We are constantly receiving fresh **IMPORTATIONS of ORCHIDS** from our **COLLECTORS,** and shall be glad to forward particulars of each importation, as received, to all who kindly favour us with their names and addresses.

**THE LIVERPOOL HORTICULTURAL CO.**

(JOHN COWAN), LIMITED,  
THE VINEYARD AND NURSERIES,  
GARSTON, near LIVERPOOL.

**COWAN'S VINE & PLANT MANURE.**

Manufactured by  
**THE LIVERPOOL HORTICULTURAL CO.**

(JOHN COWAN), LIMITED,

And sold by them and all Nurserymen and Seedsmen.

**IMPORTANT NOTICE.**

Having made and sold this Manure under the Name of **THOMSON'S VINE AND PLANT MANURE,** for the past three years, we are now making and selling it under the name of

**COWAN'S VINE and PLANT MANURE,** and we guarantee that the high character which this Manure attained under the former name shall be maintained under the present one. An attempt is being made to create an impression that we are now making and selling an inferior article. To this we give an unqualified denial. Every ingredient in our Manure is of the best quality, as experience will continue to prove. See that all *Bags and Tins* bear our Registered Trade Mark

Bags containing :—  

1 cwt.	3/4 cwt.	1/2 cwt.	1/4 cwt.	7 lb.	2 1/2 lb.
18s.	9s. 6d.	5s.	3s.	2s. 6d.	1s.

Quantities of 1 ton and upwards sent carriage free.

*Circulars, with full particulars, on application.*

Prices to the Trade on application to

**THE LIVERPOOL HORTICULTURAL CO.**

(JOHN COWAN), LIMITED,  
THE VINEYARD AND NURSERIES,  
GARSTON, near LIVERPOOL.

**VEGETABLE SEEDS, } Of the Best Quality,  
FLOWER SEEDS, } and at  
Moderate Prices.**

**CINERARIA, } And other Choice  
CALCEOLARIA, } FLOWER SEEDS,  
PRIMULA, } A Specialty.**

*CATALOGUES free on application.*

All Seeds Carriage Free. A Discount of 5 per Cent. for Cash.

SEED WAREHOUSE :—

**39, BOLD STREET, LIVERPOOL.**

**GRAPE VINES.**—The Company have still a fine Stock of Fruiting and Planting Cane.

**TEA ROSES.**—A fine Stock still on hand, suitable for immediate Forcing.

**FERNS.**—An immense Stock of Adiantum, Pteris, and other useful Ferns.—Prices and particulars on application

**ORNAMENTAL TREES and SHRUBS.**—The Company have a fine Stock of Ornamental Trees and Shrubs suitable for Pleasure Grounds, Public Parks, &c.

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**THE LIVERPOOL HORTICULTURAL CO.**

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THE VINEYARD AND NURSERIES,  
GARSTON, near LIVERPOOL.

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**HORTICULTURAL BUILDERS AND HOT-WATER HEATING ENGINEERS,  
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.**

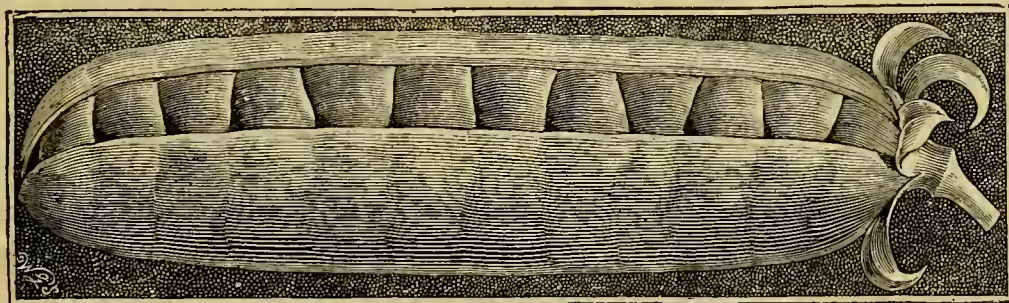
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**SHARPE'S EARLY PARAGON PEA.**

THE EARLIEST  
WRINKLED MARROW.

SEALED PACKETS.

One Pint 2s. 6d.; Half-pint 1s. 6d. each.



SEALED PACKETS.

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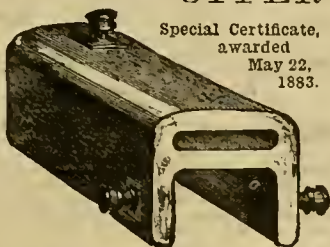
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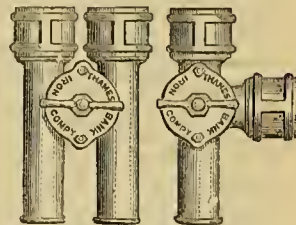
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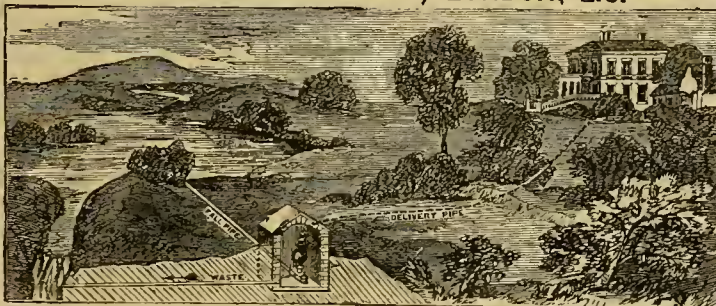
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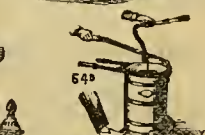
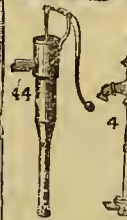
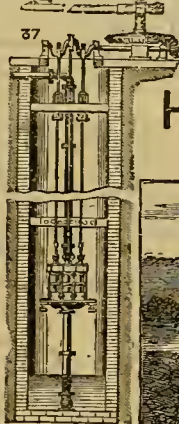
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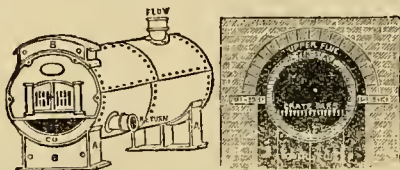
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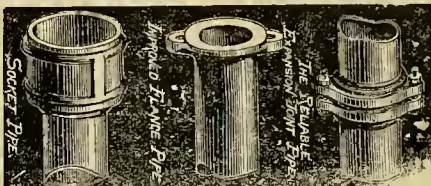
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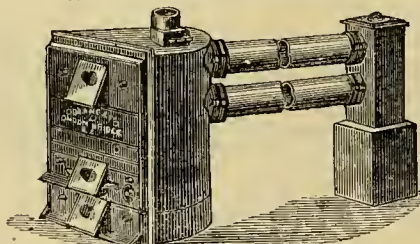
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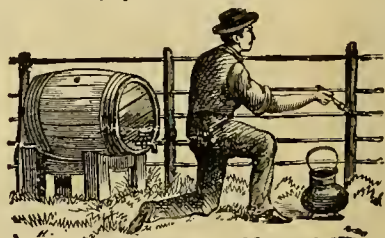
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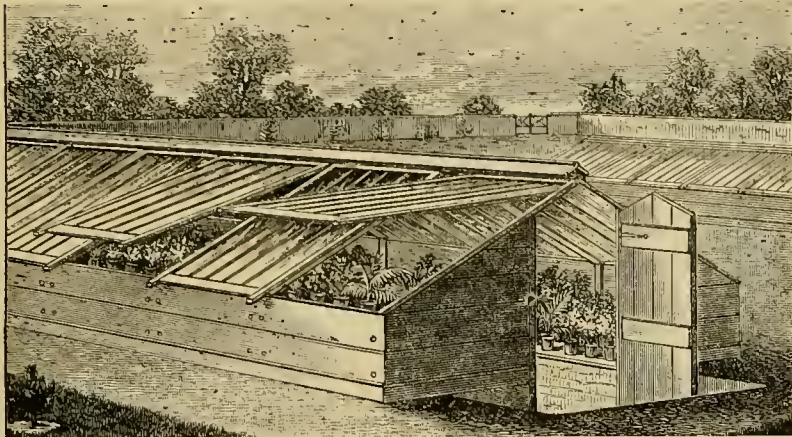
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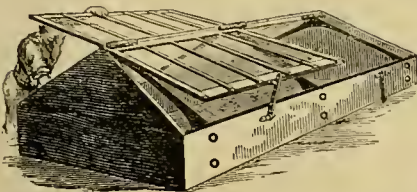


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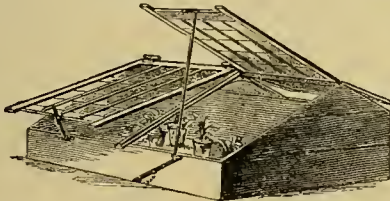


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Size.	Length.	Width.	Price.	Packing Cases.
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12 " " 3 " "	3	12	0	
12 " " 4 " "	4	12	6	
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No. 74.—Three-quarter Span-roof Garden Frame.



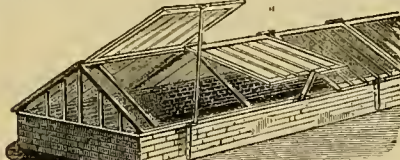
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Size.	Length.	Width.	Price.	Packing Cases.
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No. 3 .. 12 " .. 6 " .. 6 5 0 .. 6 0				
No. 4 .. 16 " .. 6 " .. 8 0 0 .. 7 0				

Height in front, 11 inches, back 22 inches, centre 32 inches. Lights made to turn over. Set-ops for ventilating.

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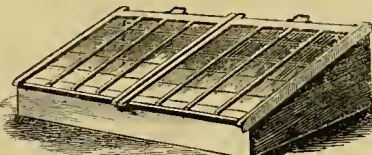
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Length.	Width.	Price.	Packing Cases.
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24 " .. 5 " .. 9 2 6 .. 7 6			
30 " .. 5 " .. 11 2 6 .. 9 0			
12 " .. 6 " .. 6 10 0 .. 5 0			
18 " .. 6 " .. 9 0 0 .. 6 6			
24 " .. 6 " .. 11 10 0 .. 8 0			
30 " .. 6 " .. 14 0 0 .. 9 6			

Made to any length. See Catalogue for larger sizes.

No. 75.—Melon and Cucumber Frame.



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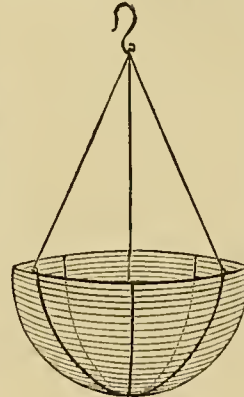
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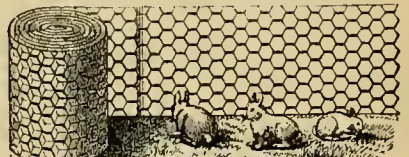
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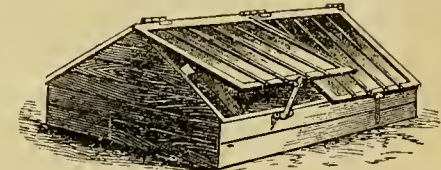
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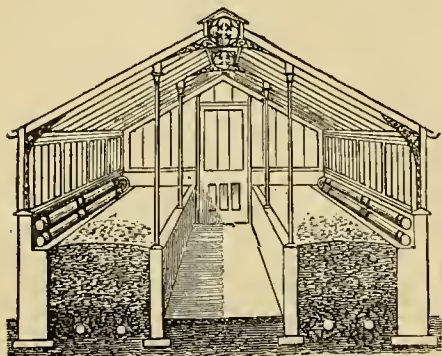
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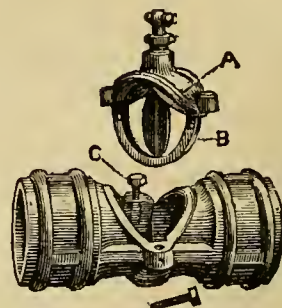
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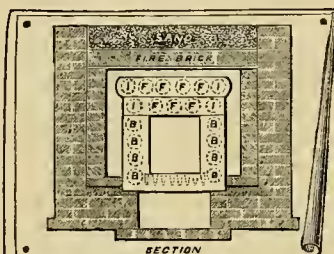
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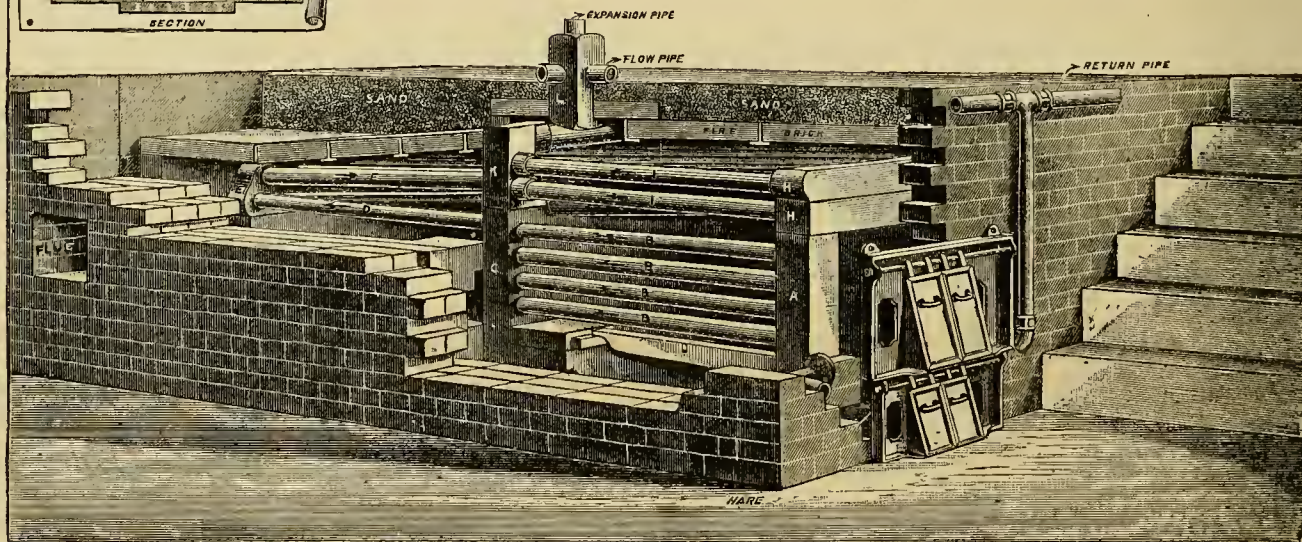


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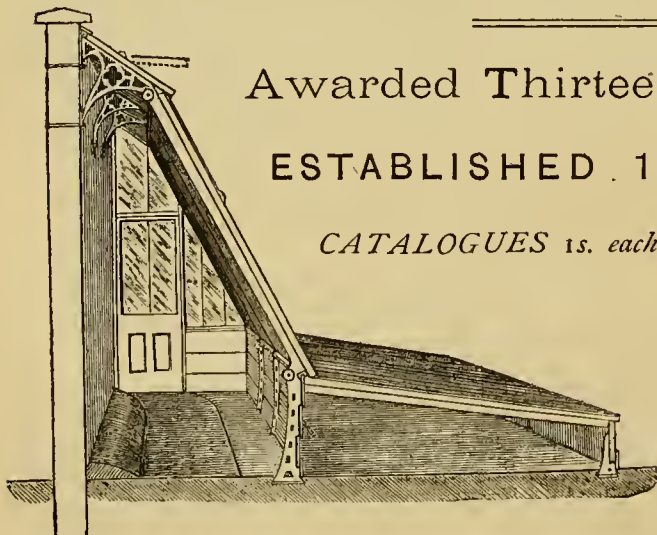
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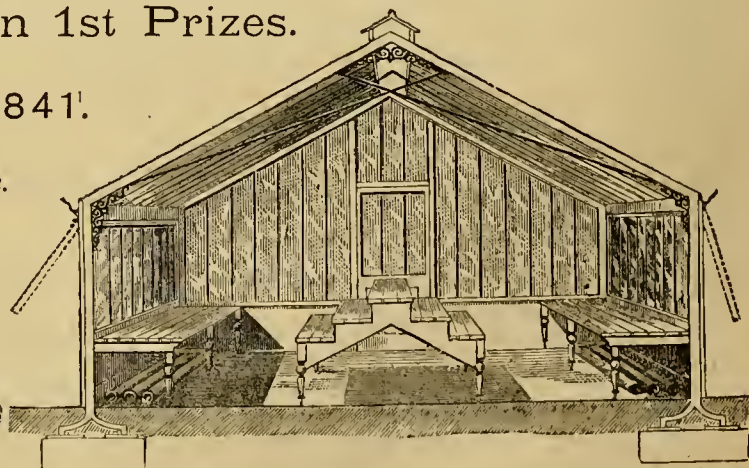
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HY. CLARKE and SONS, Wholesale Seed Merchants, 39, King Street, Covent Garden, W.C.

**MY PRICE LIST, for 1885, of ORCHIDS**  
and CALADIUMS, may be applied for directly, or from WERNER MEYER, Esq., Hamburg.  
H. LIEZTE, Rio de Janeiro, Caixa 644.

**TO THE TRADE.**  
**BROAD BEANS.**  
H. AND F. SHARPE have fine samples of  
WINDSOR and LONGPOD BEANS to offer. Samples and Prices may be had on application.  
Seed Growing Establishment, Wisbech.

**TO THE TRADE.**  
**CUCUMBER SEEDS.**—Rollison's Telegraph, Veitch's Tender and True, carefully selected stock, which may be relied on. Price on application.  
GEO. COOLING and SON, Seedsmen, &c., Bath.

**California large Flat Yellow**  
New Seed. Price on application to JACOB WRENCH and SONS, 39, King William Street, London Bridge, E.C.

## Garden and Flower Seeds.

**JOHN DOWNIE, SEEDSMAN, 144, Princes Street, Edinburgh,** begs to intimate that he is now sending out the finest stock of the above that money can buy, and as J. D. is now in business solely on his own account, most of the Flower Seeds have been saved under his own supervision, and may be thoroughly relied upon.

## Rhododendrons.

**IRELAND and THOMSON** have a magnificent collection of all the finest named varieties covered with flower-buds, also many thousands of Seedlings, Hybrids and Ponticums. Samples and Prices on application.  
Nurseries: Craigleith, Comely Bank, and New Golden Acre, Granton Road, Edinburgh.

## Trade Price Current.

**PETER LAWSON and SON (Limited),** Edinburgh, will be glad to Post their CATALOGUE of Garden and Field Seeds upon application.

**GLADIOLI.**—Twenty Acres. The largest collection in Europe. CATALOGUES free, with Cultural Directions.  
KELWAY and SON, Langport, Somerset.

**HERBACEOUS and ALPINE PLANTS.**—Now is the season to plant and insure success. Write for R. H. VERTEGANS' Pocket CATALOGUE, and make your choice from his unrivalled collection.  
Chad Valley Nurseries, Edgbaston, Birmingham.

## To the Trade.

1885.—NEW FLORISTS' FLOWERS.—1885.  
**OUR SPECIAL LIST** of the above is now ready, and will be forwarded on application. We are introducing this year many novelties of sterling merit, and the plants are strong and healthy.  
R. B. LAIRD and SONS, successors to Downie & Laird, Royal Winter Garden, Edinburgh.

## Hyacinthus candicans.

**BUDDENBROG BROS., BULB GROWERS,** Hillegom, near Haarlem, Holland, offer the above, splendid white flowering bulb, at 50s. per 1000.

## Gardenias—Gardenias.

**JOHN STANDISH and CO.** have to offer a splendid lot of GARDENIA PLANTS, clean, bushy, and well set, at the undermentioned prices for Cash with order:—In 5-inch pots, 18s. per dozen; in 6-inch pots, 27s. per dozen; in 8-inch pots, 40s. per dozen.  
Royal Nurseries, Ascot.

**FOR SALE,** a quantity of good healthy-grown PINES. For particulars apply  
EDMUND P. DIXON, The Nurseries, Hull.

**GRAPES THIS YEAR.**  
FRUITING CANES, 7s. 6d. and 10s. 6d. each.  
PLANTING CANES, 3s. 6d. to 7s. 6d. each.  
Leading kinds, perfectly ripened without bottom-heat.  
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

**Cauliflower Plants, Autumn-Sown,** strong, 2s. 6d. 120, 18s. 1200.  
**CABBAGE PLANTS, HERBS, LETTUCE, &c., PLANTS,** cheap, carriage paid. LIST free of  
EDWARD LEIGH, Ivy House, Cranleigh, Surrey.

**TOMATO.**—The best flavour and finest for private use, Vick's Criterion. True selected seed, imported from America free by post, 6d. per packet.  
POPE and SONS, Seedsmen, 120, Market Hall, Birmingham Nurseries, Birmingham.

**SQUELCH and BARNHAM,** Long Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatoes, Cucumbers, choice Flowers, &c.

**SQUELCH and BARNHAM,** giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

**SQUELCH and BARNHAM.**  
ACCOUNT SALES sent daily, and CHEQUES forwarded weekly.  
BANKERS and TRADE REFERENCES.  
BASKETS and LABELS supplied.

**WISE and RIDES, Covent Garden, W.C.,** are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS, CUCUMBERS, TOMATOS, FRENCH BEANS, Gros Colmar and Alicante GRAPES.

## To Nurserymen.

**WANTED,** 300 or 400 strong plants of common FURZE, from 12 to 18 inches high.—Address, with price, to FRANK DAVIES, The Gardens, Easing Park, Godalming.

## English Oaks.

**WANTED,** 150 strong, transplanted, well-rooted English OAKS, from 10 to 12 feet, or 12 to 14 feet in height. State price, &c., to  
JAMES VEITCH and SONS, Royal Exotic Nursery Chelsea, S.W.

## To Potato Growers and the Trade.

**WANTED,** Beauty of Hebron and White Elephant POTATOS. State quantity and price to  
C. FIDLER, 104 Friar Street, Reading.

**PAUL'S, WALTHAM CROSS.**—ROSES, TREES, EVERGREENS, SHRUBS, CLIMBING PLANTS, FRUIT TREES, GRAPE VINES, CAMELLIAS, BULBS, SEEDS, of every description, of the best quality, and low in price. See Priced Descriptive CATALOGUES, free by post.  
WM. PAUL and SON, Paul's Nursery, Waltham Cross.

**DWARF ROSES,** very cheap.—100,000  
Leading Sorts, strong, well-grown Plants, on the Seedling Brier. Rose LIST and Prices on application.  
FRIEDRICH MÜLLER, Pinneberg, near Hamburg.

**ROSES.—ROSES.—ROSES.**—Fifty choice Perpetuals sent on receipt of remittance for 21s. purchaser's selection from 400 best varieties. List of names on application. Twenty-four choice Standards, or Half-standards, 21s.  
JAS. WALTERS, Mount Radford Nursery, Exeter, Devon.

**PRIVET,** strong bushy oval-leaved, 4 to 5 feet, suitable for Hedges. Common LAURELS, strong, bushy, 3 to 4 feet. Samples and Prices on application to  
T. JACKSON and SON, Nurseries, Kingston-on-Thames.

**SURPLUS STOCK.**—Beautiful Specimens of ORNAMENTAL and EVERGREEN TREES, in perfect condition for removal, at extraordinarily low prices.  
Special LIST, just published, on application.  
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

**BARR'S COLLECTIONS OF SEEDS** for Flower or Kitchen Garden, for Home or Abroad. Purchasers can make any alterations they please. CATALOGUE free on application.  
BARR and SON, 12 and 13, King Street, Covent Garden, W.C.

**TWO HUNDRED THOUSAND LARCH,** native. Transplanted last year, 9 to 15 inches, strong, good roots. No reasonable offer refused. Samples and price sent to any address.  
Apply to WILLIAM TRESEDER, Nurseryman, Cardiff.

**GIANT SCARLET BROMPTON STOCK.**—Producing splendid large double flowers with spikes 1½ to 2 feet long. New Seed, grown in 1884, price 1s. and 1s. 6d. per packet, post-free.  
JOHN ETHERINGTON DIXON, Seed Grower, Gainsborough.

**LARCH.—LARCH.—LARCH.**—Special Cheap Offer to clear ground, 3 feet and over, 20s. per 1000. Also SPANISH CHESTNUT, 5 to 6 feet. Seedling OAK, and other FOREST TREES.  
GEO. CHORLEY, Coaster's Nursery, Midhurst.

**LOVEL'S STRAWBERRY PLANTS.**—GREENHOUSE, 5s. per 100, 40s. per 1000.  
GARDEN, 2s. 6d. per 100, 20s. per 1000.  
Sample and Pamphlet, post-free, 4d.  
W. LOVEL and SON, Strawberry Growers, Driffield.

**SEEDLING BRIERS,** very cheap.—500,000  
fit for immediate working and budding next summer. Price and Sample, post-free, on application.  
FRIEDRICH MÜLLER, Pinneberg, near Hamburg.

## Chrysanthemum Seed.

**JOHN LAING and CO.** have a limited quantity of Choice Japanese to offer at 1s. 6d. per packet. Now is the time to sow.  
The Nurseries, Forest Hill, S.E.

**THOMAS HEWITT and CO., Solihull.**—Celebrated strain of Tuberos-rooted BEGONIAS. First Prizes and Certificates at many of the leading shows, 1884. Prices: Dry Roots, singles, from 3s. per dozen. Seed, in Sealed Packets: choice mixed, singles, 1s. and 2s. 6d. per packet; ditto, double, 2s. 6d. and 3s. 6d. per packet.

**ELLAM'S DWARF and EARLY MARKET CABBAGE.**—The two best Cabbages for Autumn or Spring. 6d. per packet, free by post.  
CATALOGUES on application.  
POPE and SONS, Seedsmen, 120, Market Hall, Birmingham Nurseries, King's Norton.

**ASPARAGUS.**—Extra strong three and four years stuff. Samples and prices on application to  
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, Middlesex.

**ASPARAGUS (Conover's Colossal).**—Four years, fine strong Roots, 5s. per 100. Cash with order.  
JOHN ETHERINGTON DIXON, Seed Grower, Gainsborough.

**LILIAM AURATUM.**—Special Offer.—Another large consignment just to hand. Splendid firm sound BULBS, 6 to 8 and 8 to 10 inches in circumference, 28s. and 35s. per 100, 45s. and 6s. per dozen. Cheapest for quality ever offered. Samples twelve stamps. Please order quickly.  
Messrs. MORLE and CO., 1 and 2, and 162A, Fenchurch Street, E.C.

**SEED POTATOS.**—Special Offer.—Old Ash-leaf, 7s.; Myatt's and Rivers' ditto, 5s.; White Elephant, 6s.; Early Rose, 5s.; Magnum Bonum, 4s.; Beauty of Hebron, 6s.; Reading Hero, 5s. per bushel. Less quantities, 3d. per peck more: bags 3d. each. All true and free on Rail.  
MORLE and CO., Child's Hill Farm, N.W.; small quantities at, and letters to be addressed, 1 and 2 Fenchurch Street, E.C.



## SALES BY AUCTION.

**Important Sale of English-grown Camellias,** beautifully set with bloom-buds, AZALEA INDICA and other GREENHOUSE PLANTS, 400 fine Standard and other ROSES, selected FRUIT TREES, Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, DAHLIAS, LILIAM AURATUM, &c.

**MESSRS. PROTHEROE AND MORRIS** will SELL BY AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, March 3, at 12 o'clock precisely.

On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

## Tuesday Next.—Established Orchids.

**MESSRS. PROTHEROE AND MORRIS** will SELL BY AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, March 3, at half-past 12 o'clock precisely, about 400 lots of ESTABLISHED ORCHIDS, from various collections, including Dendrobium Farmeri roseum, Anguloa Ruckeri, Cypripedium mexicanum, a specially fine and dark variety of Cattleya Trianae, with over twenty bulbs; Cereus, Decaloma, and many other species; also some valuable ZINNIA, rare INDIAN LILIES, and 5000 Berlin crowns LILY of the VALLEY.

On view morning of Sale, and Catalogues had.

## Tuesday Next.—Warminster, Wilts.

**Re J. Wheeler.** Liquidation. IMPORTANT SALE OF VALUABLE FREEHOLD PROPERTIES.

To Nurserymen, Builders, and Others.

**MESSRS. PROTHEROE AND MORRIS** in conjunction with Messrs. Harding & Sons are instructed to SELL BY AUCTION, at the "Bath Arms" Hotel, Warminster, on TUESDAY, March 3, at 3 o'clock precisely, by order of the Trustees, the valuable FREEHOLD NURSERY GROUNDS, with comfortable DWELLING-HOUSES, OUTBUILDINGS and OFFICES, extensive HOTHOUSE and GREENHOUSE ERECTIONS, BRICK PITS, &c., and the GOODWILL of the Old-established BUSINESS; also several productive GARDENS, possessing choice FREEHOLD BUILDING SITES, the whole conveniently situated in the Town of Warminster, near the Railway Station, and only three hours' journey from London. Offering an excellent opportunity to Nurserymen requiring a thoroughly genuine Old-established Business and others desirous of securing Land in the best part of the Town for Building Purposes. The purchaser or purchasers of these Properties will have the great advantage of securing, at unreserved Auction prices, any of the Trees and Shrubs growing in the Grounds at the extensive SALE of NURSERY STOCK, commencing WEDNESDAY, March 4.

Particulars and Conditions of Sale may be had on the Premises, at the place of Sale, of Messrs. SPARKES and POPE, Solicitors, Exeter and Crediton; of Messrs. CHILTON and GREEN-ARMYtage, Solicitors, Bristol; of Messrs. WAKEMAN and BLACK, Solicitors, Warminster; of Messrs. HARDING and SONS, Auctioneers, Frome and Warminster; and of Messrs. PROTHEROE and MORRIS, Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

**Wednesday Next.—Lilium auratum, Roses, Plants, &c.** **MESSRS. PROTHEROE AND MORRIS** will SELL BY AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, March 4, at half-past 12 o'clock precisely, 6000 unusually fine and sound bulbs of LILIAM AURATUM, just received from Japan in splendid condition; also a fine lot of imported JAPANESE IRIS, in thirty varieties (see plates); 2000 Double AFRICAN TUBEROSES, 1000 Standard, Half-standard, and Dwarf ROSES, from English Nurseries; English-grown CAMELLIAS, beautifully set with buds; and other PLANTS; an assortment of Hardy English-grown LILIES, CARNATIONS, GLADIOLI, BEGONIAS, GLOXINIAS, and a variety of HARDY PLANTS and BULBS.

On view morning of Sale, and Catalogues had.

## Wednesday Next.

To the Trade.—6000 LILIAM AURATUM.

**MESSRS. PROTHEROE AND MORRIS** will SELL BY AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, 6000 exceedingly fine BULBS, just received from Japan.

On view morning of Sale, and Catalogues had.

**Wednesday Next and Following Days.—Warminster.**

In Bankruptcy.—Re James Wheeler, Nurseryman.

HIGHLY IMPORTANT TO THE TRADE AND OTHERS extensively engaged in Planting.

GREAT CLEARANCE SALE of about 40 ACRES of NURSERY STOCK.

**MESSRS. PROTHEROE AND MORRIS** (in conjunction with Messrs. Harding & Sons) will SELL BY AUCTION on the Premises, the several Nurseries at or near Warminster, Wilts, on WEDNESDAY NEXT, March 4, and four following days, at 12 o'clock precisely each day, without reserve, by order of the Trustee, with concurrence of the Mortgagees, the whole of the valuable NURSERY STOCK, extending over 40 Acres, including an enormous number of Trees of young growth, and an extraordinary stock of large Conifers, Evergreen and Deciduous Shrubs, invaluable to the Trade, Noblemen, Gentlemen, and others largely engaged in planting. The Stock is too extensive to mention in an Advertisement, but the following may be noted:—40,000 Laurels of sorts, 4000 Yews, 5000 Green Hollies, 10,000 Rhododendrons, 50,000 Larch, 35,000 Ornamental and Forest Trees, 7000 Privet, 14,000 Firs, 20,000 Hazel, 15,000 Thorns, 8000 Fruit Trees, &c.

May now be viewed. Catalogues had on the Premises; of Messrs. PROTHEROE and MORRIS, Auctioneers, 67 and 68, Cheapside, London, E.C.; Messrs. HARDING and SONS, Auctioneers, Frome; Messrs. WAKEMAN and BLECH, Solicitors, Warminster; Messrs. SPARKES and POPE, Solicitors, Exeter; Mr. W. H. PHILLIPS, Accountant, 1, Small Street, Bristol; and of Messrs. CHILTON and GREEN-ARMYtage, Solicitors, Bristol.

## Friday Next.—Very Valuable Importations.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. F. Sander to SELL BY AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, March 6, at half-past 12 o'clock precisely, very large and fine importations of ORCHIDS from Mexico, consisting of the rare and valuable Odontoglossum Inseleyi leopardinum and splendens; large masses of Oncidium tigrinum (and Odontoglossum nebulosum); also a specially fine large-bulbed Odontoglossum, from Mexico, Cervantesii. Mormodes luxatum cernuum, Odontoglossum Philatopsis, Cypripedium Schlimii, Odontoglossum Pescatorei, Cattleya choconensis, white Lælia anceps, Peristeria, a great lot of Odontoglossum citrosomum album and roseum, and many other ORCHIDS; also a grand specimen with twelve flower-spikes of Lælia elegans Russelliana or species, the finest plant of elegans in existence.

On view morning of Sale, and Catalogues had.

## Tuesday, March 10.

LÆLIA ANCEPS SCHROEDERIANA, new pure white LÆLIA ANCEPS.

**MESSRS. PROTHEROE AND MORRIS** are favoured with instructions from Mr. F. Sander to SELL BY AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, March 10, at half-past 12 o'clock precisely, a small but especially fine importation of LÆLIA ANCEPS SCHROEDERIANA, Rehb. f., several great masses being amongst them.

This is undoubtedly the finest white variety ever offered. The whole flower is very large and pure white, and entirely distinct from any of the white forms; the throat striped crimson, and the lip extra broad and square, and an inch across or even more. Mr. Edward Klaboch, who has collected every plant in flower, states that this variety is particularly rare and that the flowers are of great substance, far surpassing anything he has seen. He considers it the finest white Lælia anceps ever introduced. Every plant received will be included in this Sale, and there are no more coming. Lælia anceps Schroederiana is described by Prof. Reichenbach as follows:—

"There are before me twenty-seven brilliant dried lips, and a dried flower. The colours are purest white, the disc between lateral lacinie is orange, and the projecting keels running in the base of mid-lacinia are even deeper orange; there are three to five crimson-purple longitudinal, and several forked lines radiating outwards. So much for the colour. The complete flower would appear to surpass the dimensions of Lælia anceps Dawsonii. The petals seen are remarkably broad. The great merit of the plant consists in the lip, which is broad, with short nearly rectangular blunt side-lacinia. The mid-lacinia is very broad, blunt, emarginate, and this lip is quite novel to me." "The result of the description would be that the value of this remarkable white flower is admirably enhanced by the beauty of the great square and flat lip. This very ornamental Orchid bears fully the name of one of our most excellent orchidists, Baron Schröder, and it gives me great pleasure to attach the Baron's name to such a glorious Lælia."

It is one of the most recent and most brilliant introductions of Mr. F. Sander.

On view morning of Sale, and Catalogues had.

## Chelmsford, Essex.

HIGHLY IMPORTANT SALE of valuable Specimen STOVE and GREENHOUSE PLANTS, &c., by order of Mr. Thomas Harris (that well-known Plant Grower), who is giving up exhibiting.

**MR. BURLEY** will SELL BY PUBLIC AUCTION, and without reserve, on the Premises, Baddow Road, Chelmsford (about fifteen minutes' walk from the Chelmsford Railway Station, Great Eastern Railway), on THURSDAY, March 5, at 12 half-past 12 o'clock precisely, the whole of the valuable COLLECTION of STOVE and GREENHOUSE PLANTS, including grand specimens which have been exhibited at all the principal shows in the Eastern Counties with marked success. The whole of them are in the best possible health, and ready for exhibiting this season. Among these will be found native examples of Anthurium Scherzerianum (the best variety) with over 300 leaves, Dracæna Cooperii and D. amabilis, Maranta zebrina and M. Veitchii, Aralia elegantissima, 5 feet by 3 feet 6 inches; Allamanda Hendersonii and A. grandiflora, 4 feet 6 inches by 3 feet; Croton majesticus, 5 feet 6 inches by 5 feet; C. Andréanus, 6 feet by 4 feet; C. undulatus, 4 feet by 3 feet 6 inches; C. Queen Victoria, 3 feet by 3 feet; fine specimens of Bougainvillea glabra, 4 feet 6 inches by 4 feet; Stephanotis, Elvaston Castle variety, 4 feet 6 inches by 4 feet; Areca Verschaffeltii and A. Whitei, 7 feet by 6 feet; Chamaecyparis humilis, 5 feet by 5 feet; Aphelandra purpurea, Dracophyllum gracile, Phoradendron prolixa, 3 feet 6 inches by 6 inches by 3 feet 6 inches; Statice profusa, 3 feet by 4 feet; S. brassifolia, Tremandra verticillata, 4 feet 6 inches by 4 feet 6 inches; Rhynchospermum jasmoides, 4 feet 6 inches by 4 feet; Cycas revoluta, 5 feet by 6 feet; Yucca variegata, 5 feet 6 inches; Kalosanthus coccinea, 3 feet by 3 feet; grand specimen Erica, and choice Davallias and other Ferns, large well-shaped Fuchsias, a quantity of fine specimen white Camellias and Roses, best exhibition kinds, and many other fine specimens too numerous to mention. Also a large well-made EXHIBITION PLANT VAN, on Springs and Patent Axle.

On view the day prior and morning of Sale. Catalogues may be had on the Premises; of Mr. THOS. HARRIS, as above; and of the Auctioneer and Valuer, High Street, Brentwood, Essex.

The First Portion of the Valuable Collection of Specimen STOVE and GREENHOUSE PLANTS, the property of

**MR. E. TUDGEY**, Exotic Nurseries, Waltham Cross, will be offered by AUCTION on March 10, on the Premises; also autumn-flowering Hardy wooded ERICA, PALMS in 4-inch pots, and about 1000 PIERIS SEROTINA in 4-inch pots. Also two Exhibition Plant VANS in good repair.

Catalogues to be had on application to E. TUDGEY.

## Wednesday Next.—(Sale No. 686a.)

PLANTS from Belgian, French, and English Nurseries.

**MR. J. C. STEVENS** will SELL BY AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 4, at half-past 12 o'clock precisely, a consignment of choice-named Indian AZALEAS Hybrid RHODODENDRONS, PALMS in variety, AZALEA MOLLIIS, and other PLANTS from Ghent, 1000 first-class Standard and Dwarf ROSES, of sorts, from well-known French and English growers; Hardy Flowering SHRUBS, Ornamental STOVE and GREENHOUSE PLANTS, CARNATIONS, PICOTEES, PINKS, and other Border PLANTS, LILiums, GLADIOLI, and other Hardy BULBS and ROOTS.

On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 686r.)

ESTABLISHED and IMPORTED ORCHIDS, &c.

**MR. J. C. STEVENS** will SELL BY AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 5, at half-past 12 o'clock precisely, an importation of ODONTOGLOSSUM CRISPUM (ALEXANDRA) the best type, in splendid condition; White LÆLIA ANCEPS, in fine condition; ONCIDIUM KRAMERIANUM, Established; MAISON DEVALLIAS, in variety, and some fine Established but unwounded plants of ODONTOGLOSSUM ALEXANDRA, from Messrs. Shuttleworth, Carder & Co. Also about 100 lots of good Established ORCHIDS, including 2 plants of Cattleya exoniensis, C. Skinneri oculata, Lælia elegans alba, Cypripedium Crossianum, Dendrobium Schroderi, and other good things; a fine lot of Epidendrum vitellinum majus, Cattleya citrina, Lælia anceps, and other good imported ORCHIDS, from Mr. G. Marriott; 5000 splendid Bulbs of LILIAM AURATUM, from Japan; 2 cases of ARAUCARIA EXCELSA, each containing several hundred plants, &c.

On view morning of Sale, and Catalogues had.

## Stoke Park, Slough.

**STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.** **MR. J. C. STEVENS** has received instructions to SELL BY AUCTION, on the Premises, as above, without the least reserve, on MONDAY and TUESDAY, March 16 and 17, at half-past 12 o'clock precisely each day, the COLLECTION of STOVE and GREENHOUSE PLANTS formed by E. J. Coleman, Esq., comprising fine Standard, Half-Standard, and Pyramid Azaleas, Camellias, Orange Trees, Eucharis, Crotons, Dracænas, Greenhouse Rhododendrons, &c.; also the ORCHIDS, including many specimen plants of Dendrobium nobile, Cattleyas, Lælias, Odontoglossums, Phalaenopsis, Cælogyones, and other species; a quantity of Callas, Fuchsias, Primulas, Pelargoniums, Bouvardias, Strawberry Plants, &c.

On view Saturday prior and mornings of Sale, and Catalogues had on the Premises, or Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

## Heaton Park, Lancashire.

IMPORTANT SALE of RARE and CHOICE ORCHIDS, PALMS, TREE FERNS, and VALUABLE STOVE and GREENHOUSE PLANTS, GARDEN IMPLEMENTS, TOOLS, and OUTSIDE EFFECTS.

**MESSRS. ARTINGSTALL and HIND** beg to notify that they are favoured with instructions from the Executors of the late Earl of Wilton, to SELL BY AUCTION, in the Gardens of Heaton Hall, near Manchester, on MONDAY and TUESDAY, March 2 and 3, commencing at 12 o'clock each morning, the whole of the choice HORTICULTURAL PRODUCTIONS, IMPLEMENTS, TOOLS, and MISCELLANEOUS EFFECTS.

May be inspected on the Saturday prior to Sale. Descriptive Catalogue will be prepared, and may be obtained on application to Mr. BAILLIE, Head Gardener; or from the Auctioneers, 45, Princess Street, Manchester.

To Nurserymen, Florists, Gardeners, and Others. FLORIST'S BUSINESS.

**FOR SALE**, by Private Treaty, as a going concern, all that well known and remunerative FREEHOLD BUSINESS PREMISES, called Guildford Street Nurseries, within two minutes' walk of the Barton Railway Station, Hereford, the property of Uriah Hain, Florist, who is relinquishing business on account of declining years. The Property comprises a modern and substantially brick-built Residence, called Blenheim House, with several Perches of Freehold Garden Ground, a number of Span-roof and Lean-to Glass Houses, with Hot-water and other Heating Apparatus, Hot and Cold Pits, and Potting Sheds; together with the Stock-in-Trade, consisting of a well-grown and healthy lot of Bedding, miscellaneous assortment of useful Greenhouse and Hardy Outdoor Plants, in popular demand; small collection of useful Nursery Stock, Horticultural Requisites, Tools, and absolute Goodwill. A splendid opportunity for an enterprising young man or gentleman's gardener with small capital desirous of retiring from service. One-half or so of purchase money can remain on mortgage, if required. For further particulars, apply to GEO. H. BARLOW, Estate and Property Agent, Hereford.

## Seedsman, Florists, &amp;c.

**TO BE DISPOSED OF**, the oldest established SEED BUSINESS in Coventry, centrally situated. Apply to WEST and DOWNES, 45, Cross Cheaping, Coventry.

**FOR SALE**, by Private Contract, the STOCK and GOODWILL of a NURSERYMAN and LANDSCAPE GARDENER, which has been carried on successfully for the past 35 years by the late Mr. Cowdrey and his Father, the late Barton Road and St. James' Nurseries, Edgbaston. The Nurseries, which are well stocked, are situated in the most fashionable suburb of Birmingham, and command a large and good trade. Price exceedingly low. For full particulars and Cards to View apply to FLEETWOOD and GOODEVE, Auctioneers, 42, Cherry Street, Birmingham.

**TO BE DISPOSED OF, a WHOLESALE and RETAIL SEED BUSINESS.** A splendid going concern. One of the finest in existence, doing a large and profitable trade. An unusual opportunity. Apply (by letter only) to Messrs. PROTHEROE and MORRIS, 67 and 68, Cheapside, London, E.C.

**TO BE DISPOSED OF, a good FLORIST, SEED, and JOBBING BUSINESS**, in a main thoroughfare about 7 miles from London. All in thorough working order.

Address B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Important to Florists, Nurserymen, Market GROWERS and OTHERS.

**TO BE LET, on LEASE, or SOLD** with possession, the valuable FREEHOLD ESTATE known as Osborn's Nursery, Sunbury, Middlesex, comprising 17 Acres of excellent Land with Dwelling-house, Steading, Sheds, and all the extensive range of modern and recently-erected Greenhouses. The Estate having a frontage of 100 feet to the high road, possesses a great prospective value for Building purposes. Full particulars may be obtained of Messrs. PROTHEROE and MORRIS, Auctioneers, 67 and 68, Cheapside, E.C.

**TO ECONOMISTS.—CLERGYMEN, &c.** possessing influence, obliged, by pecuniary circumstance to unwillingly retrench in their "garden purchases," will be met in a most fair and liberal spirit, to their entire satisfaction by communicating with ALPHA, T. W. Hannaford's, 73, Ludegate Hill, London, E.C.

**JOHN KENNARD'S HORTICULTURAL** Sundries, Peat, Loam, Sand, and Berkshire Potter Depot. Catalogue post-free of every Horticultural Requisite Swan Place, Old Kent Road, S.E. Established 1854.

## To Landed Proprietors, &amp;c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUND, and REMODELLING existing GARDENS. Plans prepared 115, Listeria Park, Stamford Hill, N.

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**PROTHEROE and MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS**, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.



**THE PARKS, & C., COMMITTEE** of the METROPOLITAN BOARD OF WORKS meet at the Office of the Board, Spring Gardens, S.W., on WEDNESDAY, the 11th day of March, 1885, at 12 o'clock at noon precisely, and will then be prepared to OPEN TENDERS by persons who may be willing to CONTRACT for the CONSTRUCTION and ERECTION of a PLANT-HOUSE and OTHER WORKS in connection therewith in Southwark Park, Bermondsey. Persons desirous to submit Tenders may inspect the Drawings and Specification, and obtain Form of Tender and other particulars, on application to the Architect of the Board, at the Office, Spring Gardens, between the hours of 9 A.M. and 4 P.M. (or on Saturdays, between the hours of 9 A.M. and 2 P.M.), until Tuesday, the 10th day of March, 1885. The Tenders, which must be on the form supplied from this Office, and be addressed to the Clerk of the Board, are to be delivered at the Office before 4 o'clock on the last-mentioned day, and no Tender will be received after that hour. Any Tender which is not fully filled up in every particular will be rejected.

The Committee do not bind themselves to accept the lowest or any Tender.

J. E. WAKEFIELD, Clerk of the Board,  
Spring Gardens, S.W., February 25, 1885.

**ASH**, common, 2 to 3 feet, clean, 17s. per 1000. **ELMS**, 1½ to 2 feet, 14s. per 1000; 2 to 3 feet, 17s. per 1000; English, 3 feet, 25s. per 1000. **LARCH**, 14 to 24 inches, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 4 feet, 18s. per 1000; 4 to 5 feet, 24s. per 1000. **SPRUCE** FIR, 1 to 1½ foot, 12s. per 1000; 1½ to 2 feet, 13s. per 1000; 2 to 2½ feet, bushy, 16s. per 1000. **SCOTCH FIR**, 2 to 2½ and 3 feet, 18s. per 1000. **SILVER FIR**, 4 yrs. transplanted, 22s. per 1000. **HAZEL**, 2 to 3 feet, 20s. per 1000. **OAKS**, 18 to 20 inches, 16s. per 1000; 2 feet, 20s. per 1000. **PRIVET**, Evergreen, 2 feet, 15s. per 1000; 1 to 1½ foot, 12s. per 1000; **OVALIFOLIUM**, 2 to 2½ feet, 30s. per 1000; Oval, 1 foot, 20s. per 1000. **SYCAMORE**, 1½ to 2 feet, 14s. per 1000. **THORN**, 1½ to 2 feet, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 3½ feet, 18s. per 1000. **APPLE**, Crab, 2 yrs., fine, 3s. per 1000. **DOG ROSE**, 1 yrs., fine, 6s. per 1000. **MANETTI STOCKS**, 20s. per 1000. **IVY**, Irish, strong, 60s. per 1000. **HONEYSUCKLE**, sempervirens, yellow, 25s. per 1000. **LAURELS**, Common, 2 yrs., fine, 22s. per 1000. **SEA BUCKTHORN**, 2 feet, 20s. per 1000. **HYPERICUM CALYCINUM**, 1 foot, 10s. per 1000.

CATALOGUE on application to  
GAILIES MITCHELL, Nurseryman, Stranraer N.B.

**Special Offer of Roses.**  
**JOHN STANDISH AND CO.** have to offer all the leading and most popular varieties, well rooted and of the best quality, at the following rates:—  
**STANDARDS**, 15s. per dozen, 46 per 100.  
**HALF STANDARDS**, 12s. per dozen, 90s. per 100.  
**BUSHES**, 8s. per dozen, 50s. per 100.  
For cash with Order.  
Royal Nurseries, Ascot.

**Rhododendrons.—Rhododendrons.**  
**JOHN STANDISH AND CO.** have to offer many thousands fine bushy Plants of **PONTICUM RHODODENDRONS**, exceedingly well grown and well-rooted, from 1 to 2½ feet in height, suitable for covert planting, 9 to 12 inches, at 30s. per 100; 12 to 15 inches, 42s. per 100; 16 to 24 inches, 55s. per 100; 24 to 30 inches, 75s. per 100.  
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An immense quantity of Standards, Half-standards, low budded on Manetti and on Briar roots. Best Trading sorts are disposable as well. 300,000 Own Roots of every kind—Perpetuals, Noisette, Tea, Moss. The whole at an exceptionally low price.  
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100,000 **BRIER SEEDLINGS**, 1 yrs. and 2 yrs. transplanted, all fine stocks, for sale at very low prices, from 4s. to 6s. and 4s. per 1000; transplanted 2 years, 6s. to 10s. per 1000.  
CATALOGUE, published in English, will be sent on application to  
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GAILIES MITCHELL, Nurseryman, Stranraer, N.B.

**SPECIAL OFFER FOR CASH.**  
**CAMELLIA, ALBA PLENA**, in 8-inch pots fine plants, well set with bud, 42s. per dozen.  
**ERICA WILMOREANA**, in bud and in flower, in 6-inch pots, 21s. per dozen.  
**SEAFORTHIA ELEGANS**, in 5-inch pots, good furnishing plants, 21s. per dozen.  
**JOHN STANDISH AND CO.** Royal Nurseries, Ascot.

**New Kidney Potato.**  
**BIRD'S DOCTOR BOB.**—This is the earliest Kidney variety in existence; a very heavy cropper, as many as sixty tubers of all sizes have been counted at a root. It is a seedling from Early King. After a trial of several years it has never taken disease. Eyes very shallow; a good cooker, and fine flavour. 5s. per stone.  
JAMES BIRD, American Nurseries, Downham Market.

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**IRELAND AND THOMSON** have an extensive and healthy stock of Seedling and Transplanted Forest Trees, including Ash, Alder, Elm, Austrian Pine, from 6 in. to 2½ feet; Scotch Fir, Larch, Spruce, Black Spruce, Laricio, Beech, Thorns, Maple, Oak, Poplars, Thora Quick, Chestnuts, Hazel, &c. Special offers on application.  
Nurseries: Craigleith, Comely Bank, and New Golden Acre, Granton Road, Edinburgh.

**ARBOR-VITÆ**, American, 2 yrs., 25s. per 1000. Chinese **ARBOR-VITÆ**, 1 yrs., fine, 10s. per 1000. **SWEET BAY**, 8 to 9 inches, transplanted, 10s. per 1000. **BOX**, Tree, 4 inches, 30s. per 1000. **GOLDEN JAPAN BOX**, transplanted, 12s. per 1000. **COTONEASTER MICRO-PHYLLA**, 6 to 8 inches, 40s. per 1000. **CLEMATIS FLAMMULA**, 1 and 2 yrs., 20s. per 1000. **CLEMATIS VITALBA**, 2 yrs., 20s. per 1000. **CUPRESSUS MACROCARPA**, 1 yrs.; transplanted, 60s. 1000. **CUPRESSUS LAWSONIANA**, 4 to 6 inches, 50s. per 1000. **LAUREL**, Colebie, 1 yrs., 30s. per 1000. **Portugal LAUREL**, 1 yrs., 25s. per 1000. **PINUS INSIGNIS**, 1 yrs., fine, 40s. per 1000. **PINUS EXCELSA**, 2 yrs., 45s. per 1000. **PICEA NORDMANNIANA**, 1 yrs., 45s. per 1000. **RETINOSPORA PLUMOSA**, 6 to 8 inches, 10s. per 100; **R. SRAU-ROSA**, 6 inches, 10s. per 100. **THUIA TARTARICA**, 6 to 8 inches, transplanted, 10s. per 100. **THUIA COMPACTA**, 8 inches, 8s. per 100. **THUIA LOBBII**, 9 to 12 inches, 80s. per 1000. **THUIOPSIS DOLABRATA**, 6 to 8 inches, 12s. per 100. **English YEW**, 2 yrs., 30s. per 1000; 2 yrs., transplanted, 50s. per 1000.

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**JOHN STANDISH AND CO.** beg to offer the under-mentioned finely grown and well-rooted shrubs:—  
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Golden and Silver, 2 to 2½ feet, 30s. per dozen.  
**PRIVET**, Oval-leaved, 2 to 3 feet, 7s. 6d. per 100.  
**BERBERIS DARWINII**, 2 to 2½ feet, 25s. per 100.  
**YEW**, English, 2 to 2½ feet, 50s. per 100.  
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**LIMES**, Standard, stout, 5 to 7 feet stems, 18s. per dozen.  
**PRUNE**, fine stout stuff, 2 to 3 feet, 40s. per 100.  
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True Variety.  
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Young plants, 1 to 1½ foot, 4s. per 100.  
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Strong bushy plants, 3 to 4 feet, 4s. 5s. per dozen.  
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Extra strong plants, fine specimen pyramids, 4s. to 4s. 3 per Standards with nice heads, 4s. to 4s. 3 per dozen.  
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Note.—Masses or groups of **Prunus Pissardi** and **Acer Negundo** folia variegata, when planted together produce a very splendid decorative effect. L. PAILET can supply by the thousand, **ACER NEGUNDO**, low budded, Half-standards and Standards, from 4s. 10s. to 4s. 8s. per 100, according to size.  
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**DWARF-TRAINED APPLES**, 30s. per dozen.  
" " **APRICOTS**, 42s. per dozen.  
" " **NECTARINES**, 42s. per dozen.  
" " **PEACHES**, 42s. per dozen.  
**GOOSEBERRIES**, mixed, 25s. per 100.  
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Red, 25s. per 100.  
White, 25s. per 100.  
**JOHN STANDISH AND CO.**, Royal Nurseries, Ascot.

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**SEED POTATOS.**  
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LIST of SEED POTATOS is now ready, and can be had on application. It comprises the best kinds in cultivation, and the prices are very reasonable.  
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**ARBOR-VITÆ**, American, 2 to 3 feet, 50s. per dozen, 30s. per 100; 3 to 4 feet, 6s. per dozen, 40s. per 100; 4 to 5 feet, 10s. per dozen, 65s. per 100; 5 to 6 feet, 12s. per dozen.  
**CUPRESSUS LAWSONIANA**, 2 to 2½ feet, 6s. per dozen, 40s. per 100; 2½ to 3 feet, 10s. per dozen, 60s. per 100; 3 to 4 feet, 15s. per dozen, 80s. per 100; 4 to 5 feet, 18s. per dozen, 120s. per 100.  
**HOLLIES**, Green, 9 to 12 inches, 12s. per 100; 12 to 15 inches, 15s. per 100; 15 to 18 inches, 20s. per 100; 1½ to 2 feet, 50s. per 100; 2 to 2½ feet, 85s. per 100; 2½ to 3 feet, 120s. per 100.  
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Prices on application.  
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Pronounced by competent judges to be the finest Pea ever eaten. Prizes of 30s. and 20s. per Forty Pods will be given at the Royal Horticultural Society's Show in July. Sold in Half-Pint Packets, post-free for Fifteen Penny Stamps.  
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The best Market TOMATO.  
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SUPERB COLLECTION. Fine bulbs. Post-free. 12 distinct and beautiful varieties, 6s. and 12s.; 12 choice and rare varieties, 21s.; 12 new and golden-leaved varieties, 42s.; 50, choice collection, 50 varieties, 63s.

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grandiflora alba  
(True).

A charmingly beautiful variety, with very fine ivory-white flowers, with large red blotches on a yellowish ground in the centre. A striking and splendid novelty.

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The finest variety in cultivation, either for exhibition or profitable crop.

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Early, enormously prolific, and of strong, vigorous growth. A new variety, of exquisite flavour.

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SINGLE-FLOWERED.

Containing the pick of all recent introductions.

Collection of 25 choice named vars.	.. ..	4s. 6d.
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Packets of mixed colours, 67, and 15.		

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(LIMITED),

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### VEGETABLE, FLOWER, and FARM,

Carefully Selected,

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OF NEARLY ALL THE

BEST AND NEWEST VARIETIES IN COMMERCE,

EITHER FOR EXHIBITION PURPOSES, OR FOR GARDEN OR FIELD CULTIVATION.

LIBERAL TERMS to TRADE BUYERS.

JOHN WATKINS,

Fruit and Potato Grower,

POMONA FARM, WITHINGTON, HEREFORD.

## A SPECIALTY.

Rhododendrons and other American Plants,  
Grown in Sandy Loam.

A superb Collection of all the leading varieties in cultivation. Also thousands of RHODODENDRON PONTICUM and HYBRIDS for Plantations and Coverts.

A Sample Dozen of well-budded Plants of the best varieties for 24s.

Larger Sizes, from 30s. to 42s. per dozen.

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## EDELWEISS.

The Star-shaped Everlasting of the Alps.

## LAVATERA ARBOREA VARIEGATA

The Variegated Tree Mallow.  
A grand plant, 8 feet in height, with large variegated foliage.

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Silver-foliaged Bedding Plant.

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The Golden King-Cup.

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The Yellow-flowered Tree Lupin.

## MIGNONETTE GOLDEN QUEEN.

Very compact, good pot variety. Flowers tipped with yellow.

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Same habit as above. Flowers tipped with crimson.

## MIGNONETTE PYRAMIDALIS gigantea

Very large Flowers.

## MIGNONETTE MILES' SPIRAL.

Largely used for Pot culture.

## MYOSOTIS PALUSTRIS semperflorens.

The Finest Forget-me-not. Constant bloomer. Rich blue.

## PANSY REDDISH STEEL-BLUE.

With red and white edge.

## PANSY PURPLE, with

White edge.

## PANSY PURPLE, with

Yellow edge.

## PANSY PLUM-VELVET,

Very handsome, rich colour, Very free bloomer, with crimped edge.

Seeds of all the above Choice Specialties now ready. For prices per packet, per ounce, or per pound, see our Wholesale Seed CATALOGUE, free on application.

WATKINS & SIMPSON,

SEED AND BULB MERCHANTS,

EXETER STREET, STRAND, W.C.



## ANTHEMIS TINCTORIA

var. pallida.

The most beautiful of all the hardy Marguerites; flowers delicate sulphur-yellow, abundant bloomer. First-class for cutting, and should be grown freely wherever cut flowers are in demand.

9d. each, 8s. per dozen. Carriage free.

DANIELS BROS., The Town Close Nurseries, Norwich.



## B. S. WILLIAMS'

IMPROVED MUSHROOM

SPAWN, per bushel of s. d.

fourteen cakes .. 5 0

For Outdoor and Indoor Culture.

Victoria and Paradise Nurseries,

Upper Holloway, London, N.

## WILD FLOWERS

OF NORTH AMERICA.

Our Most Desirable PERENNIAL PLANTS for Cultivation—SEEDS, &c.

Orchids, Ferns, Lilies, Aquatics, Alpine and Sub-Alpine Plants.

Botanical and Common names given. Send for CATALOGUE. EDWARD GILLET, Southwick, Mass., U.S.A.

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## SEED POTATOS. TOOLS &c

BEST QUALITY—CARRIAGE FREE.

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## JAMES DICKSON & SONS

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108 EASTGATE ST. CHESTER



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The Tram Cars pass the Gates of the Nurseries.



## EXPIRATION OF LEASE.

Several Acres of Nursery, containing a valuable Stock, continue to be offered at a nominal price; the lease cannot be renewed.

	Ordinary Price.	Reduced to
RHODODENDRONS, Standard, 4000 to select from, of finest-named kinds, perfect specimens, from 1½ to 5 feet through the head	105/- 10/6	31/5 5/-
" Bush, do., 5, 6, 7, and 8 feet high	42/- 21/-	15/- 10/5
" Dwarf and Sweet-scented, 1 to 2½ feet high, consisting of R. fragrans, Wilsoni, Govenius, &c.	2/6 ..	1/5 -/9
ANDROMEDA FLORIBUNDA; fine plants, well set with bloom, 1 to 3 feet high	1c/5 2/6	5/- 1/-
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A fine lot of P. NORDMANNIANA, T. LOBBII, WELLINGTONIA, CUPRESSUS, RETINOSPORA, THUOPSIS DOLABRATA, and many others in fine condition for removal	1c/5 5/-	5/- 1/-
ORNAMENTAL TREES—Fine specimens of Limes, Laburnums in vars., Horse Chestnut, Scarlet Chestnut, Sorbus, Thorns of sorts, Maples, Fraxinus aucubaeifolia, Scarlet Oak, and Poplar, 6 to 15 feet high	10/6 3/6	5/- 1/6
LIGUSTRUM OVALIFOLIUM, 2 to 4 feet, per 100	20/- ..	10/- ..
" common, 1 to 2½ feet		
LAUREL, common, 1 to 3 feet		
" caucasica, 1 to 2½ feet		
" Portugal, 1½ to 3 feet		
MAHONIA AQUIFOLIA		
BROOM, White		
WEVS, Irish		
ROSES, Dwarf, Moss, Teas, and Climbers		
CLEMATIS, fine stuff, in great variety; Virginia Creepers, Ampelopsis Veitchii		
ILEX SHEPHERDI, a fine lot of perfect specimens, 6 to 9 feet; smaller, 1 to 3 feet		
THUJA LOBBII, 3 to 4 feet		
RETINOSPORA AUREA, 6 to 15 inches		
CUPRESSUS ERECTA VIRIDIS, 1 to 3 feet		
WELLINGTONIA GIGANTEA, 3 to 5 feet		
MAHONIA AQUIFOLIA, 12 to 18 inches		

No reasonable offer refused; or quotations will be given.

Collections of SHRUBS and TREES for general planting, 2 to 6 feet high, 25s. to 75s. per 100.

Extra large Fruiting APPLES, PEARS, and CHERRIES, to clear, 1s. each.

SPIRÆA PALMATA, fine forcing clumps. The largest stock in Europe, 15s. and 10s. 6d. per 100.

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LAVENDER, fine bushy stuff, 3s. per dozen, 15s. per 100.

PERIWINKLE, 10s. per 100.

Thousands of other things too numerous for an advertisement are on offer, and inquiries or a visit will be found very advantageous.

Book to Sunningdale Station S.W. Rail.

CHARLES NOBLE, Bagshot.

## PRIZE COB FILBERT TREES.

Gentlemen desirous of obtaining the true

## WEBB'S PRIZE COB FILBERT TREES

for Autumn and Winter Planting, should send their Orders as early as convenient to

Mr. COOPER, F.R.H.S.,

CALCOT GARDENS, READING, BERKS.

of whom alone the various sorts can be obtained.

Price LISTS on application.

## NOVELTIES for 1885.

GLOXINIA GESNERIODES,

LAVATERA ARBOREA

VARIEGATA,

IMPATIENS SULTANI

rosea and alba,

MYOSOTIS sylvatica

compacta aurea,

VERBENA hyb.

coccinea

fol. aureis

## NEW BEGONIAS.

B. incomparabilis

(Queen of Bedders),

B. hybrida gigantea,

B. semperflorens coccinea.

Petunia fimbriata fl.-pl.

(Lady of the Lake).

Primula fimbriata atrosanguinea,

&c.

Illustrated CATALOGUE post-free,

From HARE & HAUSSLER,

SITTINGBOURNE, KENT.

## THE NEW RASPBERRY

LORD BEACONSFIELD (a Seedling).

The finest Raspberry and best cropper ever known. First-class Certificates, Royal Horticultural Society, 1883. Strong Canes, 15s. per dozen, £5 5s. per 100; 4 feet Fruiting Canes, 9s. per dozen, £3 per 100. Usual allowance to the Trade.

A. FAULKNER,

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## SEEDS.—SEEDS.—SEEDS.

CHARLES TURNER'S  
DESCRIPTIVE CATALOGUE  
of New and Select Varieties of every Class of Seeds for the  
Garden, is now ready.  
THE ROYAL NURSERIES, SLOUGH.

## SPECIAL CULTURE OF

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A large and select stock is now offered for sale.  
The Illustrated and Descriptive CATALOGUE of FRUITS  
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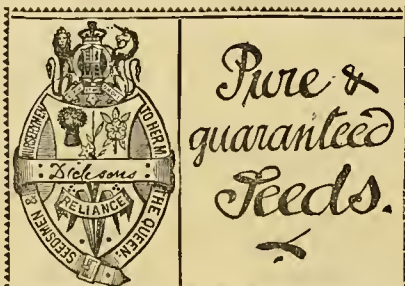
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All well transplanted and strong, at reduced prices  
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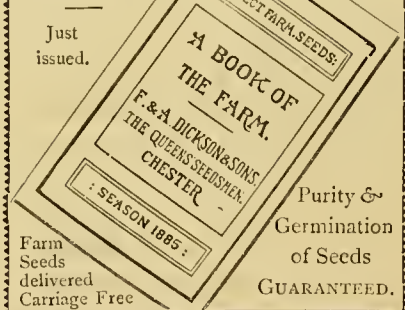
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Farm  
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Purity &  
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GUARANTEED.

F. & A. Dickson & Sons  
The Queen's Seedsmen  
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## BIDDLES & CO.,

## THE PENNY PACKET SEED COMPANY,

LOUGHBOROUGH, LEICESTERSHIRE,

Supply 3000 varieties of FLOWER SEEDS, in Packets, at One Penny each, including the choicest sorts, viz. — Asters, Balsams, Calceolarias, Cyclamens, Pansies, Petunias, Phlox Drummondii, Primulas, Salvias, Stocks, Verbenas, &c. All seeds being of the best quality in small quantities, the packets must be regarded as economical, not cheap. We recommend our various collections of twelve varieties for 1s.

All kinds of VEGETABLE SEEDS, of best quality, by weight, and also in Penny Packets.

Send for CATALOGUE, gratis (500 Illustrations). Save expense and buy a large selection in small packets.

50,000 GLADIOLUS BRENCHELYENSIS  
to be sold off at 5s. per 100—grand bulbs.

## FERNS A SPECIALTY.

Hundreds of Thousands of  
FERNS AND SELAGINELLAS,  
for Stove and Greenhouse Cultivation, and Outdoor Ferneries.  
ABRIDGED CATALOGUE  
of over 1200 Species and Varieties free on application.

LARGE CATALOGUE (Price 1s.), containing 75 Illustrations of Ferns and Selaginellas, valuable "Hints on Fern Culture," and other useful and interesting information.

W. & J. BIRKENHEAD,  
FERN NURSERV, SALE, MANCHESTER.

## Specialties for 1885.

## ILLUSTRATED LIST

Of Choice New Seeds for Gardeners  
and Amateurs.

Sent free to all Customers.

E. J. JARMAN,

The People's Seedsman,

CHARD, SOMERSETSHIRE.

## For Present Sowing.

The earliest in cultivation, dwarf and compact in habit, head firm and pure white, and well protected by the foliage. It stands dry weather better than any other variety.

Mr. GILBERT says it turned out the best of all he grew last season.

Mr. E. STEPHENSON, Thorganby Hall, says:—"Your 'President' Cauliflower is not only the earliest but the most useful I have ever grown; we can plant it 3 or 4 inches closer than any other variety. The heads are very white and compact. I have grown it ever since it came out: I recommend it to all my friends."

Post-free on receipt of postal order or stamps for 1s. 6d.

WILLIAM E. MARTIN, Seed Merchant, Hull.



## CUTBUSH'S MILL- TRACK MUSHROOM

SPAWN.—Too well known to require description. Price 6s. per bushel (12 extra per bushel for package), or 6d. per cake; free by Parcels Post, 1s.

None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.

WM. CUTBUSH AND SON  
(Limited), Nurserymen and Seed  
Merchants, Highgate Nurseries, N.

## ANTHONY WATERER

Invites attention to the following LIST of  
well-grown and properly rooted NURSERY  
STOCK:—

- HOLLIES, Common Green, 3, 4, 5, 6, 7, 8 to 10 feet high.
- " laurifolia, ditto, [10 feet high.]
- " myrtifolia, ditto, many thousands.
- " Scottica, 3 to 8 feet.
- " Yellow-berried, altaclarensis and others.
- " Variegated, of sorts, 3, 4, 5, 6, 8 to 10 ft.
- " Waterer's splendid plants, 3, 4, 5, and 6 feet, 8 to 15 feet in circumference.
- " Golden Queen, 3, 4, 5, 6, 7, 8 to 10 feet, hundreds of beautiful specimens.
- " Perry's Weeping Holly, on straight stems, with beautiful heads, ten to fifteen years' growth, hundreds.
- " new Golden Weeping, a large number of very beautiful plants.
- BOX. Green and Variegated, 3, 4, 5, 6 to 7 feet, many thousands.
- VEVS, Common, 3, 4, 5, 6 to 10 feet, thousands.
- " Golden, of all sizes up to 10 feet. We have many thousands as Pyramids, Globes, Standards, in point of variety and size unequalled.
- " Irish, 5 to 10 feet, hundreds, [thousands.]
- CUPRESSUS ERECTA VIRIDIS, 3, 4, 5, 6 to 8 feet.
- " Lawsoniana lutea, 3, 4, and 5 feet, hundreds of beautiful specimens.
- THUOPSIS DOLABRATA, 3, 4, and 5 feet, hundreds.
- RHODODENDRONS, many thousands, 3, 4, 5, 6, 7, 8, to 10 feet. The plants are covered with buds.
- AZALEAS, Hardy, the finest varieties known, 2, 3, 4, and 5 feet high, thousands.
- JUNIPERS, Chinese, 7, 8, and 10 feet high.
- " Chinese Golden, 3 to 6 feet.
- JUNIPERUS VIRGINIANA GLAUCA, 3 to 5 feet.
- ABIES CANADENSIS, 4 to 7 feet, hundreds.
- " DOUGLASSII, 3 to 5 feet, thousands.
- " GLAUCA, 2 to 4 feet, hundreds.
- " ORIENTALIS, 5, 6 to 10 feet, hundreds.
- " HOOKERIANA, 3 to 5 feet.
- " PARRYANA GLAUCA, 1½ to 2 feet, hundreds.
- PICEA CONCOLOR, 2 to 4 feet, hundreds.
- " GRANDIS, 5 to 7 feet.
- " LASIOCARPA, 3 to 5 feet, hundreds.
- " MAGNIFICA, 2 to 3 feet, hundreds.
- " NOBILIS, 1½ to 3 feet, thousands.
- " NORDMANNIANA, 6, 7, to 10 feet.
- " PINSABO, 6 to 10 feet, hundreds.
- " PUNGENS, 1½ to 2 feet, thousands.
- PINUS CEMBRA, 6 to 8 feet.
- CEDRUS DEODARA, 6 to 9 feet, hundreds.
- " LIBANI (Cedar of Lebanon), 3 to 5 feet.
- THUJA OCCIDENTALIS LUTEA, 3 to 6 feet, hundreds.
- THUOPSIS BOREALIS, 3 to 5 feet, hundreds.
- RETINOSPORA OBUSA AUREA, 3 to 6 feet, hundreds.
- " PISIFERA AUREA (true), 3 to 6 feet.
- " PLUMOSA AUREA, 3 to 5 feet.

Knap Hill Nursery, Woking Station, Surrey.



TUESDAY, March 10.

# LÆLIA ANCEPS SCHRÖDERIANA.

## NEW PURE WHITE LÆLIA ANCEPS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. F. Sander, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, March 10, at half-past 12 o'clock precisely, a small but especially fine importation of LÆLIA ANCEPS SCHRÖDERIANA, Rchb. f., several great masses being among them.

This is undoubtedly the finest white variety ever offered. The whole flower is very large and pure white, and entirely distinct from any of the white forms; the throat is striped crimson, and the lip extra broad and square, and an inch across or even more. Mr. Edward Klaboch, who has collected every plant in flower, states that this variety is particularly rare, and that the flowers are of great substance, far surpassing anything he has seen. We consider it the finest white Lælia anceps ever introduced. Every plant received will be included in this Sale, and there are no more coming. Lælia anceps Schröderiana is described by Professor Reichenbach as follows:—

"There are before me twenty-seven brilliant dried lips and a dried flower. The colours are purest white, the disc between lateral laciniae is orange, and the projecting keels running in the base of mid-laciniae are even deeper orange; there are three to five crimson-purple longitudinal, and several forked lines radiating outwards. So much for the colour. The complete flower would appear to surpass the dimensions of Lælia anceps Dawsoni; the petals seen are remarkably broad. The great merit of the plant consists in the lip, which is broad, with short, nearly rectangular, blunt, side laciniae. The mid-lacinia is very broad, blunt, emarginate, and the lip is quite novel to me."

"The result of the description would be that the value of this remarkable white flower is admirably enhanced by the beauty of the great square and flat lip. This very ornamental Orchid bears fitly the name of one of our most excellent orchidists, Baron Schröder, and it gives me great pleasure to attach the Baron's name to such a glorious Lælia."

It is one of the most recent and most brilliant introductions of Mr. F. Sander.

*On view morning of Sale, and Catalogues had.*

# THE FRUIT OF THE FUTURE.

## NEW MAGNIFICENT BLACKBERRY, "THE WILSON JUNR."

In spite of the fact that Blackberries will grow "anywhere" in reason, and everybody likes them, it is yet a puzzling reality that it is only with great difficulty and at a high figure that we can purchase them in our markets.

Surely, then, it must be apparent to all farseeing "fruit growers" that instead of glutting the markets with Gooseberries, Currants, &c., they have here a fruit which, if planted upon any given area of land, will prove far more profitable than any other hardy fruit that could be grown. And why?

Simply because for half-a-dozen years ahead, at least, the stock throughout the country will not have time to become so great as to exceed the demand.

Landowners, Stewards, and Gardeners, who have each year to show a balance-sheet "of profits," have here a very simple, safe method of for some years obtaining highly profitable results. Planted 3 feet by 8 feet requires at the rate of 18½ plants to an acre.

Gardeners also who grow for house consumption will find this fruit a valuable assistant. It will stand any treatment, and do well where other fruits would fail.

Whilst, however, we have the matter under consideration, do not let us fall into the mistake of planting any variety so long as it is a "Blackberry." Why not, for the sake of a slightly additional first expense, obtain the very "cream" of the family; or in other words, procure stocks of the hardiest, largest, most delicious, and most productive?

By pursuing this procedure the result repays the grower tenfold for the slightly additional first expense incurred.

It was this reasoning that caused us to give the subject our most careful study; the result of which is, we offer a variety, the grandest of the group, producing enormous berries, measuring on an average ¾ inches around, lengthwise, and the same dimensions crosswise. (This will give an idea of the profit to be derived from its culture as a market commodity.) The berries are also glossy black, very early, of exquisite flavour, and enormously productive—the heavy load of fruit often bending the canes to the very ground.

We can offer strong plants at 1s. 3d. each, 12s. per dozen, 85s. per 100, carriage paid.

We can offer other varieties as follows:—"LAWTON," "KITTA-TINNY," "PARSLEY-LEAVED" (*Rubus fruticosus laciniatus*), WILSON'S EARLY," at 9d. each, 8s. 6d. per dozen, 63s. per 100.

VICCARS COLLYER & CO.,

NURSEYMEN, SEEDSMEN, &c.,

CENTRAL HALL, LEICESTER (where all Letters are to be addressed), and

CENTRAL NURSERIES, GLENFIELD, near LEICESTER.

A. W. CREWS, Manager.





## SEASON 1885.



Is now offered to the Public for the tenth year, and the Manufacturers have again much pleasure in stating that it is still increasing in popularity.

They are, however, sorry to find that it is still necessary to CAUTION the Public against, under any circumstances, accepting it, unless in their PACKETS or SEALED BAGS, as they will not be responsible for its genuineness under any other conditions.

Where no Agent resides in the neighbourhood they will forward a Sample Bag, carriage paid, on receipt of Cheque or Post-office Order.

Sold in Packets, ONE SHILLING each, and in

## Sealed Bags,

7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
2/6	4/6	7/6	12/6	20/-

**CLAY & LEVESLEY,**  
TEMPLE MILI. LANE,  
STRATFORD, LONDON, E.

Clay & Levesley also supply CRUSHED BONES, BONE DUST, PERUVIAN GUANO, SULPHATE OF AMMONIA, and NITRATE OF SODA, of the best quality only.

**GUINEA BOX of SPECIALTIES.**—We again offer a choice Collection of CARNATIONS and other POPULAR PLANTS, package and carriage free, for One Guinea, consisting of Six Pairs each choice Show Carnations, Pinks, and Pinks to name; twelve true old Crimson Cloves, twelve border Carnations, twelve Pyrethrums, double, named; twelve Show and Fancy Dahlias (dry roots). Half the above, 11s.

J. BRUNNING AND CO., Great Yarmouth Nurseries.

**CHOICE HERBACEOUS, ALPINE, and ROCK PLANTS** in great force at PAUL AND SON'S Broxbourne Nursery. Catalogues at the "Old" Nurseries, Cheshunt, N.

Hollyhock and Balsam Seed.

**F. T. SMITH AND CO.** offer, in sealed Packets, HOLLYHOCK, in collections of 12 superb double varieties, named and coloured, separate, 3s. 6d.; do., in six varieties, 2s.; do., mixed, in 12 colours, 1s. 6d.; do., in six colours, 1s. BALSAMS, finest double, in nine colours, separate, 2s. 6d.; do., mixed, 2s.; half the quantity, 1s. West Dulwich Nursery, London, S.E.

**AMONGST THE BEST**

NEW ROSES are:—H.P. GLOIRE LYONNAISE, strong dwarfs, 8s. each. TEA, SUNSET, the new American yellow, 5s. each. H.P. MERVILLE DE LYON, the new White H.P.'s. H.P. WHITE BARONESS, the new White H.P.'s. H.P. GRANDEUR OF CHESHUNT, the freest perpetuals. ALPHONSE SOUPERT, ECLAIR, and the best of the new French Roses. ROSE SPECIES and SINGLE ROSES, strong dwarfs. STANDARDS, as fine as in the autumn, of Hybrid Perpetuals. Magnificent STANDARDS of TEAS, now out of danger from frost.

DWARF TEAS, in pots and in ground, by the 100 or 1000

Special Offer of Dwarf Roses.

All the best old sorts, in magnificent plants, our selection, 60s. per 100. PAUL AND SON, The "Old" Nurseries, Cheshunt.

**ANTHONY WATERER** has to offer:—

ASH, 4 to 6 feet.  
BIRCH, 3, 4 and 5 feet.  
SPRUCE, 2½, 3, 4, and 5 feet.  
SPANISH CHESTNUT, 3, 4, and 5 feet.  
LARCH, 4 to 6 feet.

All stout and well rooted.

ANTHONY WATERER, Knapp Hill Nursery, Woking, Surrey.

**SKY-BLUE DELPHINIUM** (DELPHINIUM BELLA DONNA, true).—Extra strong plants, from open ground, of this rare and lovely variety, price 4s. and 6s. per dozen.

DELPHINIUMS in great variety, extra strong, from open ground, 4s. and 6s. per dozen.

GENTIANA ACAULIS, extra strong clumps, from open ground, 4s. and 6s. per dozen.

THE WESTERHAM NURSERIES AND SEED CO. (late John Cattell), Westerham, Kent.

**NEW WHITE PLUME CELERY** (Henderson's).—Seed direct from New York, 6d. per packet, tree by post.

CATALOGUES free on application. POPE AND SONS, Seedsmen, 120, Market Hall, Birmingham Nurseries, King's Norton.

**ASPARAGUS.**—True Giant, 2, 3, and 4-yr. Fine sample 100 or 1000, with price, on application. JAMES BIRD, Nurseryman, Downham.

**HOLLY HEDGE.**

The best of all Evergreen Fences.  
10 to 15 inches, 1s. per 100.  
15 to 18 inches, 20s. per 100.  
18 to 24 inches, 40s. per 100.

These plants, which are grown in sandy loam, are beautifully rooted, and remove with perfect safety.

JOHN CRANSTON, King's Acre, Hereford.

**LARCH**, strong transplanted, 2 to 2½, and 2 to 3 feet, 1s. 6d.; extra transplanted, 3 to 4 feet, 15s. p. 1000. QUICKWOOD, strong, 6 years old, 4 years transplanted, 30s. per 1000; 4 years transplanted, 25s.; smaller, 15s. to 20. SPRUCE FIR and SCOTCH, all sizes up to 3 feet, and extra transplanted.

Also good FRUIT TREES.

Any quantity at low prices. No charge for packing. Apply to W. JACKSON AND CO., Nurseries, Bedale.

**ASPARAGUS.**—Strong 2-yr. and 3-yr. Connover's Colossal, 2s. and 2s. 6d. per 100, 15s. and 20s. per 1000. Bags included. Special quotations for large quantities. E. QUINCEY, Fulney, Spalding.

**CARNATIONS, PICOTEES, and PINKS.**

—Having a large stock of strong, finely rooted Plants of the above, we beg to offer them at the following low prices:—Choice Show CARNATIONS and PICOOTES, to name, our selection, 12s. per dozen pairs; purchaser's selection, 15s. to 18s. ditto. PINKS, Show varieties, our selection, 4s. 6d. to 6s. per dozen pairs. Old Crimson CLOVES (True), 3s. per dozen. Mixed CARNATIONS, for borders, 3s. per dozen. PYRETHRUMS, choice Double varieties, 3s. per dozen. Carriage and package free for cash with order.

J. BRUNNING AND CO., Great Yarmouth Nurseries.

Seed Potatoes.

**JOSIAH H. BATH,**  
York Street, Borough Market, S.E.,  
Offers the following varieties of SEED POTATOS:—

Rivers' Royal Ashleaf.  
Myatt's Prolific Ashleaf.  
White Elephant.  
Beauty of Hebron.  
Snowflake.  
Schoolmaster.  
Early Rose.  
Magnum Bonum.  
Fortyfold.  
Scotch Regent.  
York Regent.  
Paterson's Victoria.  
Redskin Flourball.  
Reading Hero.  
Dalmahoy.  
Early Don.

And other leading varieties. Prices on application.

**ASPARAGUS**, grand Roots for Forcing, 2s. per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d. per 100. SEAKALE, forcing, 2s. 6d. per dozen, 16s. per 100; planting, 2s. per dozen, 12s. 6d. per 100. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

## CHARLES SHARPE & CO.'S SPECIALTIES, 1884-5.

**SHARPE'S  
PEA.**

2s. 6d. per pkt.

**TRIUMPH.**

Finest Dwarf Blue Wrinkled Marrow. Best flavoured and heaviest cropper—sixty-nine pods, with nine to eleven Peas in each, gathered from one plant.

**SHARPE'S  
PEA.**

2s. 6d. per p'nt.

**PARAGON.**

Hardest and earliest large Wrinkled Marrow. Successive crops can be had for four months. First-class Certificate, R.H.S., 1884.

**SHARPE'S  
PEA.**

1s. per quart.

**PROLIFIC WHITE  
MARROW.**

An excellent, large-podded, prolific White Wrinkled Marrow.

**SHARPE'S  
PEA.**

1s. per quart.

**INVINCIBLE.**

Fine, long-podded, Blue Marrow. Peas deep green. A fine Market Garden Pea.

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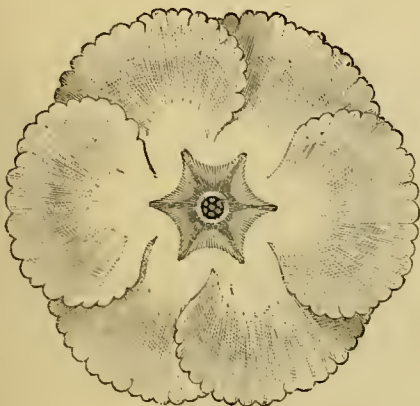
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THE

## Gardeners' Chronicle.

SATURDAY, FEBRUARY 28, 1885.

### TEA-HOUSES.

NOT coffee-palaces, nor those abodes of virtue which Sherard Osborne thought he had found in Japan, but which he found out afterwards to be very much the other way; but houses in which Tea Roses are and may be grown, and which are rapidly increasing all over the country. They range from the tiny house of the suburban lover of Roses to the grand unequalled house of the Cranston Company at Hereford, the finest of its kind in the kingdom; and as glass is so cheap, and the return for all labour and care expended so full and generous, the wonder is that more persons do not "put up" glass-houses for them.

In advocating this I do not mean the forcing of Teas; I would, had I my choice (which, alas! I have not), prefer to have an unheated to a heated house, so as to bring the Roses on in the spring, and not in the winter, and to have them more like those which we can get out-of-doors in a favourable season. But why, it may be asked, advocate Teas alone, and not include other classes of Roses as well? There are many reasons for this. Owing to their greater substance and absence of bright colours they are able to bear better the glare of light to which they are exposed. I never see a hybrid perpetual growing in a house but what I think of a poor lark in a cage—how out-of-place it is, and how much happier it would be in the open. The Tea Rose is like the canary. You feel that it is quite in its place, that it does not care for the sweets of liberty, nay, that it rejoices in protection from the cold and wet which it would inevitably have to endure were it free; and although in some of the more favoured parts of our island Tea Roses may be safely trusted out-of-doors, yet in other parts they have but a miserable existence, something like the poor canary would have if it ever escaped from its cage. Then, again, their habit of constantly blooming is an immense advantage, for, cut them as you may, you may always reckon on a succession of flowers, while the delicacy of the colour entitles them to that care which a house can best offer them. It is true that a great deal which was formerly held to be truth concerning them has had to be abandoned. The supposed difficulty of growing has been considerably lessened, this having been greatly helped by the introduction of more robust varieties. There is a tendency when people write about Tea Roses to indulge in very "highfalutin" writing, and to go off in sentimental raptures over their beauties. I would like to avoid this, but one cannot help saying something as to their refined delicacy of tints, their pleasing perfume, and great substance. This latter is very remarkable, so much so that I have known a bloom of Souvenir d'Elise do duty at two shows some days apart, and there is no hybrid perpetual that will do this. This same property makes them so valuable as cut Roses for vases or stands. You put a fine bloom of Charles Lefebvre or Duke of Edinburgh into a vase, in a few hours it begins to



show symptoms of loss of colour, and by the evening it has become dull and slaty looking. A bloom of *Souvenir d'Elise* or *Catherine Mermet* will in the same time have not only not deteriorated but improved in size and appearance.

I have seen many of these unheated Tea Rose-houses—and there are a few things which, I think, ought to be observed by all who make or use such structures, whether they be large or small, because there are a few things to be provided against which often mar the success of indoor cultivation—the chief of these being mildew. It is painful to have the beautiful foliage of the Tea Rose destroyed as to both its appearance and vitality by this unsightliness, and although it is almost impossible entirely to guard against it, yet something may be done to prevent it—one of these is thoroughly ripened wood. I do not pretend to any scientific knowledge on the subject, but I do most strongly think that one of the best means to prevent it is to have thoroughly ripened wood, and for this reason I would advise all who may desire to build such houses to arrange so that the top lights may be removable, so as towards the end of summer, and before the autumn rains set in, to leave the house fully exposed, and to allow the wood a chance of being hardened and autumn growth checked. Another point is to secure good ventilation when the lights are all on. So much has been said and written on the subject of ventilation from a scientific point of view, that one is almost afraid to mention it, but one thing to be borne in mind is that ventilation does not mean a through draught: to the delicate foliage of many of the Teas this is injurious, and it should therefore be avoided. Again, there ought to be, as every one tells us, top ventilation; so that the heated air as it ascends may escape. I think this is especially needful for the prevention of mildew. There seems to be some connection between its appearance and great changes of temperature; when this can be avoided so much the better, and if in very sunny weather the house gets uncomfortably warm, and cold nights supervene, it would tend to this. I do not think that many people experience how cold a night may be after a bright sunny day, even in July or August. The coldest ride I ever recollect was some—ah, well! I will not say how many years ago. I was, as a boy, travelling up from Bristol to London outside the "Highflyer;" the day had been very hot indeed; and, as boys, we thought the nights would be equally warm, and so we had nothing extra but thin camelot cloaks (the fashion of those days) to put on. Ah! to write of it makes one feel cold. Heavy dews and thick mists covered the ground, and the cold was piercing. Now, I suppose that the sensitive leaves of the Tea Rose would feel such a change as much as our skins did; and so, while providing for the most thorough ventilation, take care to avoid exposing your plants to draughts.

I think that there can be no question as to the manner in which the plants should be treated: pots should be avoided, and they should all be planted out. The best arrangement that I have seen is one where there is a central bed, a walk round it, and borders round the house. In the central bed standards are used, and all growers know how well this class of Roses does on the standard Brier; half-standards may form the second row on each side, and dwarfs the outside row. These dwarfs should be on the seedling Brier—by far the most suitable stock for the Tea Rose. Dwarfs should be planted in the borders also, while here and there a strong growing Tea or Noisette should be planted to run up the rafters, giving a rich harvest of bloom and also a certain amount of shade, which is by no means an injury to the plants growing underneath. In the matter of soil and pruning there is little to be said, there being but little difference, if any, between what is suitable for outdoor cultivation and the house. It must be remembered that when it is sometimes said you require lighter soil for Teas than for other classes, that it is not the Rose but the stock which has to be thought of, and that as in most cases this is the Brier, and the Brier is a gross feeder, and delights in strong loamy soil, so whether it forms the stock for Teas or hybrid perennials, this suits it best. Watering is of course a matter to be well thought of, and where good supplies of rain-water are to be had, this is best for the plants. Frequent syringing is also needed to keep down attacks of red-spider and aphides, the former being an especial pest in

dry weather. When mildew does make its appearance, the dusting of the plant with sulphur is perhaps the best remedy, although some have professed to find Fir-tree oil as effectual, and not so unsightly. It is well, if large flowers are desired, to apply liquid manure occasionally—but let all avoid the house for a day or two after its application, for you do not get the "perfumes of Araby the blest" if you venture in. In the same way fumigating must be resorted to whenever green-fly makes its appearance; indeed, it is better, on the system that prevention is better than cure, to be beforehand, and to fumigate occasionally to prevent its appearance.

With regard to choice of sorts, I think that the following would be a good one:—Take for the rafters *Maréchal Niel*, *Belle Lyonnaise*, *Bouquet d'Or*; and if you want a charming Rose for a button-hole, *Allen K. Richardson*, a very strong grower, although giving a small flower, but for this purpose unapproachable, and from the manner in which I have seen ladies flutter round a stand when it has been shown, I am sure it would be always acceptable in a bouquet. *Celine Forestier* might also be added; then there are such lovely Roses as *Alba rosea*, the best of the creamy white Teas; *Aona Ollivier*, *Catherine Mermet*, *Caroline Kuster*, *Comtesse de Nadaillac*, *Devoniensis*, *Etoile de Lyon*, *Innocenta Pirola*, *Jean Ducher*, *Madame Charles*, *Madame Cusin*, *Madame Lambard*, a light red, very vigorous, and most varied in its colouring, becoming darker in autumn; *Madame Margottin*, *Madame Welche*, *Madame Villermoz*, *Marie van Houtte*, a most vigorous growing Rose and most lovely in colour, especially when the pale primrose petals are edged with pink; *Niphetos*, the most popular and best of all the white Teas, *Perle des Jardins*, a very beautiful dwarf yellow Rose; *Rubens*, *Souvenir d'Elise Vardon*, a most lovely Rose but not quite so vigorous in habit as might be desired; *Souvenir de Paul Néron*, and *Souvenir d'un Ami*. These I think are the *crème de la crème* of the Tea Roses, and a house planted with these would be a source of constant enjoyment. I have seen such houses, and while they may lack the brilliancy of colour which houses of other flowers may give, I am quite sure that for every true lover of what is chaste, refined, and beautiful in the demesne of Flora, there is nothing which would so well repay the loving care that would be bestowed upon it. *Wild Rose*.

## New Garden Plants.

CYPRIPEDIUM LEUCORRHODUM, n. hyb. art.

A fine fresh English Orchid, raised at the Royal Exotic Nursery of Messrs. Veitch & Sons. The seed-bearing plant was *Cypripedium Roelzii*, the pollen parent *C. Schlumii* album. Its leaves are very broad and firm. The strong peduncle at hand has short, stiff hairs. Bracts triangular, acute, convolute, not equalling the dark purple ovary, that has exceedingly short scarce hairs. The flower is nearly that of *Cypripedium Roelzii* in shape, the tail-like petals being of medium length. Their ground colour is pure white. Petals beautifully margined with purple, and with very stiff purple hairs at the base inside. The upper sepal has some purple wash while the conchoid connate sepal ("inferior") is pure white. Lip with purple sac, the projecting square edges at the base of the sides deep purple outside, while the remaining part of the involved lateral laciniae is sulphur-coloured. There are brown spots inside at the bottom of the lip. Stamens irregularly square, being broader in front with numerous black-purple hairs on each side. The plant would appear to have good *avenir*. *H. G. Rehb. f.*

MASDEVALLIA WALLISII STUPENDA, n. var.

I FEEL persuaded this is the grandest *Masdevallia* sight I ever enjoyed. It is not so much for the length of the tails, but for the immense development of the triangles of the sepals, that the plant rivals most probably anything seen in Europe, not excepting the grand *Masdevallia Winniana*. Looking to the average flowers of *Wallisii*, our neophyte may claim to beat them by 2½ to 2½ inches. The tails are fine chocolate-coloured on the outside of the sepals, the same colour is seen at the apex of the triangular parts, mostly on the upper sepal. The ground colour is a light sulphur, and the internal disc around the internal

organs is orange. At each side of the petals stands a small cushion-like white place covered with numerous small scarlet spots. Some large chocolate-coloured spots are spread over the triangles on both sides, and the inside shows a splendid *richesse* in hairs; petals and lips normal. When looking over my collection I found the same thing kindly given me by Mr. Shuttleworth, who may have been the lucky discoverer of this phenomenal creature. I have to thank for the flower Sir Trevor Lawrence, Bart., M.P., P.R.H.S., who sent it to me on December 18 last. Having asked as to the peduncle, I got a highly interesting answer, coincident with observations of mine made in other genera (e.g., *Cœlogyne*). I hope Sir Trevor will favour our readers with those observations. *H. G. Rehb. f.*

CYPRIPEDIUM CARDINALE, Rehb. f.

A very fine branched peduncle with several flowers and buds is at hand, proving once more how many discrepancies arise amidst those mules. The petals stand at a right angle, and are not deflexed, and the purple of the lip is much darker than it was in the original flower of September, 1883. *H. G. Rehb. f.*

## THE VICTORIA REGIA.

A SHORT time since we were enabled, through the courtesy of Abraham Dixon, Esq., to give an illustration (fig. 6, p. 19) of the finely grown specimen of *Victoria regia* in his stove aquarium at Cherkley Court. In that illustration the great sustaining power of the leaf was exemplified by the fact, that on one leaf a young lady was seen comfortably seated in a chair placed on the leaf, while on the other, a young lad in sailor's costume appropriately illustrated the powers of floatation. The distribution of the weight over the immense surface of the leaf affords an obvious explanation of its supporting power. The view of the under-surface of the leaf which we now give (fig. 51), shows the arrangement of the ribs of the leaf radiating from the top of the leaf-stalk and connected by smaller transverse ribs, which thus form a series of separate pockets or compartments, adding enormously to the strength and powers of resistance of the leaf and suggestive to the engineer of methods of obtaining great strength and amount of surface with relatively small outlay of material.

## AN INVITATION TO JAVA.

THE study of vegetable anatomy and of the physiology of tropical plants cannot be carried out on an extensive or satisfactory scale at home, where the specimens are few, and grown under glass. In order to thoroughly investigate the growth and progress of these plants, it is necessary to have abundance of material at hand in all stages of growth. This want is to be supplied by the spirited enterprise of Dr. Treub, the Director of the famous Botanic Garden of Buitenzorg, Java. Dr. Treub invites European botanists to spend a few months in Buitenzorg, where literary and every other facility is afforded for their investigations.

Dr. Treub has, with the consent of the Dutch Government, established a physiological laboratory. The usual reagents, small bottles necessities for work, are placed at the disposal of the botanists. Alcohol, bottles, and herbarium-paper, which the visitor may wish to use for his collections, will be furnished at the expense of the visitor. Dr. Treub will assist the investigations by procuring materials for investigation, and by furnishing any information desired.

The botanic garden proper, founded in 1817 by Professor Reinwardt, consists of 91½ acres, and contains more than 9000 species; each species is represented by two plants. The directorate consists of a director and a sub-director; the garden work is carried on by a head gardener and an assistant gardener and by several native workmen.

The agricultural garden is 6 miles from Buitenzorg. This garden contains 172 acres, and was founded in 1876. Another botanic garden is situated on the slopes of the volcano of Gede, at an elevation of about 4500 feet.

The botanical museum, in the centre of Buitenzorg, near the garden, contains the herbarium and a collection of vegetable productions preserved dry and in alcohol. The same building contains the library and the garden offices. A small place in the museum ground is reserved for drawing and photography.



Buitenzorg is situated in one of the most beautiful parts of Western Java, and about 36 miles from Batavia, at the base of a great mountain, Salak.

There is an idea that people visiting the tropics are necessarily subject to serious maladies, but this is erroneous, especially with regard to Java. The chances of illness are less than those entailed during a winter in Europe. Dr. Treub does not pretend that a stranger

very frequent, for a continual drought, as in the east of Java, is unknown in Buitenzorg. The temperature is not so high as represented; the maximum at mid-day is between 28° and 29° Cent. (83° to 85° Fahr.) in the shade. In the dry season the thermometer reaches 31° Cent. (88° Fahr.) The evenings, nights, and mornings are fresh, temperature varying between 22° and 25° Cent. (72° to 77° Fahr.) The cost of

## ORCHIDS FOR AMATEURS.

(Continued from p. 176.)

**WATERING THE PLANTS.**—The greatest difficulty with the novice is the watering of his plants, and even the most experienced growers are often doubtful when water should be given and when it should be withheld. Too liberal a supply is

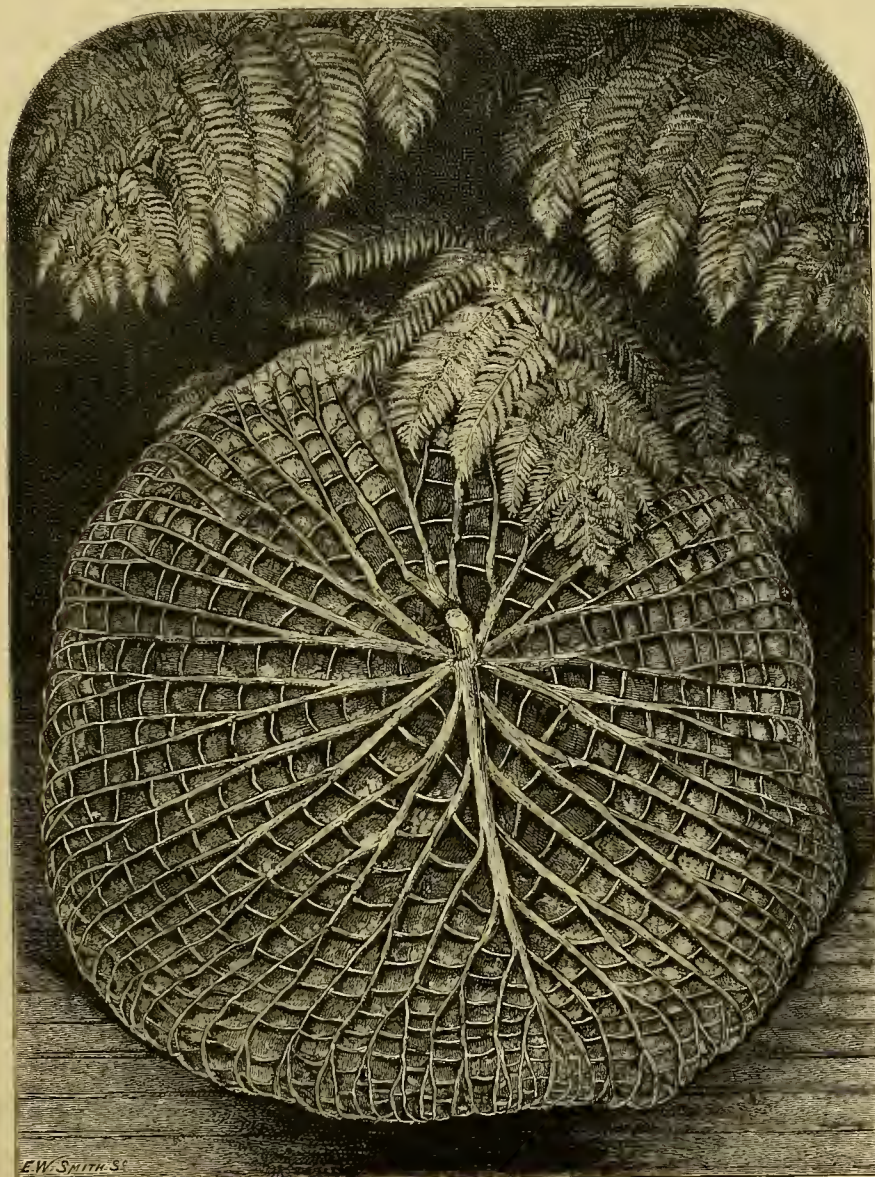


FIG. 51.—UNDER-SURFACE OF LEAF OF VICTORIA REGIA. (SEE P. 270.)

going to dwell there for four or five months cannot fall ill, but he asserts that the chances of taking a serious illness are not greater than if he stayed at home or travelled in Europe during the winter.

The best time for a botanist to visit Buitenzorg is from October to April. It is the wet season, and the heavy and frequent rains are sometimes troublesome, but it is the coolest and the healthiest season, and the one in which vegetation is most luxuriant. Moreover, even in the rainy season, it seldom rains before mid-day, and as for the so-called dry season rain is

living in Buitenzorg would not exceed 450 francs per month (£18). This includes hotel and excursion expenses, but if it is intended to travel in the interior of Java the expenses will be increased considerably. But there is no need to go far from Buitenzorg to get a good idea of tropical vegetation. Six months would be long enough to spend in the Garden of Buitenzorg, and it should not cost more than 5000 francs (£200). Dr. Treub suggests that scientific societies and like associations should assist the botanists of their countries to pass a few months in Buitenzorg.

often fatal to their welfare and too little water produces starved growths and gives rise to disease; some plants only flourish with abundant supplies, and others resent the slightest excess. When the plants are growing rapidly, if they are well drained and have plenty of air it is hardly possible to give too much water, but great care must always be taken lest water should lodge in the young shoots or about the stems or bulbs close to the compost. The compost should always be allowed to get dry before a second watering. Nothing is so deleterious as giving a little



water at a time and repeating the watering frequently. The surface of the compost is always kept wet and the deeper portion dry by this means, the bulbs and young shoots are destroyed, and the ends of the roots (which are the absorbent organs), remain dry.

As a rule dipping the pots, when it can be done, up to the rim, and afterwards syringing the sphagnum on the surface with a fine rose, is the best treatment. In summer the pots need dipping twice or three times a week, or even oftener if they become dry, but this only applies to plants which are growing. *Masdevallias* and *Odontoglossums* need more water than *Cattleyas* and *Lælias*; *Cypripediums* also need liberal supplies. Dendrobies in the growing season must not be allowed to suffer for want of water. *Oncidium*s must not get dry, but no plants are more liable to lose their young shoots if these are wetted.

Syringing the leaves of *Orchids* needs great judgment, but I am certain no plants will succeed unless the leaves are frequently wetted. It is usual with many growers to syringe the plants just before closing the house for the night, and I believe there can be no greater mistake. Syringe them in the early morning and no harm will occur, unless the ventilation of the house is neglected in the day.

#### ATTACKS OF BACTERIA.

One of the most dreaded diseases in *Orchids* is "spot." A small speck of decay appears on a leaf and rapidly spreads. This condition is often attributed to over-watering, but I am very doubtful about this. The decay is due to the development of a vegetable parasite (bacterium), and unless the decayed part is at once cut out the disease spreads to the whole plant. It generally occurs in very warm close weather, and I am sure want of ventilation is the cause of its prevalence.

Plants draw up moisture by the roots and give it off from the leaves. Water is taken in by the healthy roots of an *Orchid* very rapidly. Last autumn a plant of mine of *Dendrobium Wardianum* was forgotten; its bulbs were found hanging over the rim of the pot, limp and flaccid. I thought it was quite done for; however, I dipped the pot to the rim, and then put it back into its place. Two hours later I went into the house, and to my surprise the plant was looking as well as ever; I could scarcely believe my own eyes.

#### EVAPORATION.

With such power of imbibing water by the roots it is evident that *Orchids* must give off water very rapidly by the leaves and the surfaces of the bulbs, which appear to act as leaves. The water taken from the soil contains ammonia and salts in solution, and these are needed for the nourishment of the plants, the water is given off, and the salts and ammonia are elaborated by the plant; if the air is saturated with moisture the plants are starved and soon die. A moist atmosphere is necessary, but it should never be so saturated that the plants cannot dry, or healthy circulation of fluid from the roots to the leaves and of sap from the leaves to the roots is stopped, and I believe that such stagnation favours the development of bacterium. The leaves often absorb instead of giving off water, but this occurs when the roots are inactive or dry.

A *Cattleya Leopoldi* of mine made a bulb 30 inches long in six weeks last summer with three huge fleshy leaves. To do this it must have taken in many gallons of water, otherwise it could not have obtained the needful supply of salts and ammonia, the whole of this water must have evaporated from the leaves, and no sooner was the bulb finished than it threw up a spike of twenty fine flowers. Such a result could never have been obtained without evaporation, and to ensure this a plentiful supply of air is necessary. Water without a free circulation of air is death to the plants in summer.

When a plant is flowering it needs far less water than when growing, and when it rests only enough water must be given to keep the bulbs from shrivelling. After resting most *Orchids* start making roots; during this they need a little water, but not too much or the root-growth will be checked—merely a slightly moist compost, and the water should be supplied from below by dipping the pot. Nothing is more likely to destroy the young roots than keeping their soft pith-like surface wet. *Conerva* grows upon them: they turn green and perish.

#### SYRINGING.

In winter syringing is quite out of the question, so it is with all *Orchids* which have no healthy roots; the

leaves must then be sponged frequently, or the plants inverted and their leaves dipped into water and allowed to drain well before they are again placed upright. I have established *Cattleyas*, *Lælias*, and *Oncidium*s in this way which would certainly have died under any other treatment.

Rain-water must be used, and it must be as warm as the air in the house, and it should be even 5° or 10° warmer except in very hot weather. There is a great prejudice against watering plants in the sun, but I never find any harm accrue from this if the water is warm; although cold water would be very deleterious. The leaves should not be syringed in the hot sun, as drops of water act as burning lenses and destroy the leaves, and the rapid evaporation tends to cool the plants and check their development. The evaporation from the leaves of *Orchids* is very rapid, and that is why they need a damp atmosphere, as they lose water too rapidly in a dry one. But again they cannot stand a saturated atmosphere.

Plants with thick fleshy leaves require less frequent waterings than those with thin paper-like leaves; the latter especially suffer from drought, and as the leaves are too delicate to sponge, such plants must be dipped or syringed; those which are leafless, as *Vanda teres* and *Hooker* require perhaps less water to the roots than any, but need frequent syringing, and as there are no cups to collect water, no injury can occur. The flowers of all *Orchids* are at once destroyed by water, and must on no account be wetted, but the unopened buds are not injured; indeed, they are generally improved by being wetted. For two years I have always dipped *Oncidium fuscum* into the tank, immersing the flowering-buds two or three times a week, and they have been greatly benefited by the process. All the American *Orchids* have their flower-buds plentifully watered in a state of Nature, and open their magnificent blossoms as soon as the sun dispels the clouds. I believe many flowers are greatly damaged by the drying of the flower-buds. Those of *Cattleyas* and *Lælias* are protected by sheaths from the rains until they pierce them, and it is then that they seem to suffer from drought in our hothouses. Moth *Orchids* especially should have their leaves wetted every day, and in summer mine often have water lying upon them half the day. B. T. L.

(To be continued.)

### LATHYRUS SILVESTRIS.

As a decorative garden plant this will never rival the widely-grown *L. latifolius*, popularly known as the Everlasting Pea. The flowers, as well as the leaves, are smaller than those of the latter, but in other respects it is no mean competitor for a reasonable share of the cultivator's attention; and, considered in the light of a British plant, it acquires more interest for, and a stronger claim upon, every lover of our native wildings. It varies considerably in a state of Nature, both with regard to the breadth of the leaves and the colour of the flowers. Broad leaved forms occur, by which the plant has been mistaken for *L. latifolius*, thereby causing some of the older botanists to assume that the latter, if not indigenous, was at least naturalised, from the frequency of its occurrence. A more important variation, however, is seen in the colour of the flowers. A figure of the plant in Smith's *English Botany*, t. 1004, may represent the type with washy-green or greenish-yellow flowers, suffused and veined with purple, but it gives a very poor idea of the attractiveness displayed in some wild varieties. On the North Downs, in the neighbourhood of Bletchingly, spreading about in the wildest luxuriance over the rubble of a chalk pit, is a form with a bright rose-coloured standard and purple wings. In summer, when in full flower, it forms a veritable wild garden, the attractiveness of which, and its enjoyable character, is greatly augmented by the undulating and ever-changing aspect of the ground, together with such choice natives as *Clematis vitalba* and *Echium vulgare*.

Now, in addition to the growing of this species in the ordinary mixed collection of herbaceous plants, advantage might be taken of its habit in clothing rocky or stony places, whereby a new and desirable feature could be introduced in many an uninteresting corner or wayside on the private demesne. Once established, no further trouble with it is necessary, as it is able to compete with most kinds of vegetation, and the long climbing stems may be allowed to ramble over the ground, or cling to whatever support comes in the way. A. F.

### FROM A BUCKINGHAMSHIRE GARDEN.

FEBRUARY 1.—"Gloomy winter's now awa!" Suddenly, without any warning as it were, winter is away. There's a new sound in the air, "a new face at the door." And the sound is the rooks' consultation in the tops of the great Elms (they always arrange matters on a Sunday); while in the garden, the air seems full of the voice of birds. Through the budding branches and the thickness of the winter greens is woven a network of melody, where a thousand little finches twitter, and blackbirds and thrushes just lightly touch their long silent notes. And there's a vision of the sweetest face in all the world—the first pale glimpse of spring with her Snowdrop crown. It was but yesterday the Snowdrops had scarce begun to show in silvery points above the earth—to-day the slender stalks have risen 2 inches high! There are pure white double Primroses and a few coloured, in every part of the garden, where so late as yesterday there seemed to be none. Even the yellow of a Winter Aconite, or the azure of Squills, begin to show here and there. I do not know if the sap does actually rise at the touch of spring, but there has come a fresher green in the broad blue green Iris leaves, and the ends of the long Rose sprays are flushed with emerald, and a warmer green glows through the prickly Junipers. This first awakening comes rather later than usual. Though the season has been so mild, it was unusually dark, and in my garden diary for December I find fifteen days marked "very dark." In January there were indeed days when we beheld the sun, but it has been mostly a reign of darkness, and earth's stars, which are the flowers, are few.

These Snowdrops! year after year they come again to test our appreciation of form and simplicity, and every year their triumph is assured. I challenge you to show me the grandest bell-flower born of tropic suns that can compare in its attributes of perfect grace with our English Snowdrop. I mean the large old single Snowdrop.—I will have nothing to do with the double, as a Snowdrop. The Snowdrop is in itself a lesson of form and colour—from the straight, long oval of the tube, out of which spring three sweet oval lobes, to the delicate pencilling in Nature's loveliest green of the threefold inner cup. And you will observe there is no over-luxuriant fulness, all is severely, tenderly restrained, as are the lines of a Greek statue. And then the colour! it is pure as fresh-fallen snow upon an alpine peak. The hanging of the bell, too, is a wonder of firm lightness; so light that with a breath it swings, so strong it will upheave the snow-drift. One lovely detail must not be forgotten: it is the folding inwards of the lobes along each outer edge, giving a peculiar grace which hard lines here could never have. But an attempt to describe the Snowdrop must fail; I know of no words simple enough, nor any language rich enough to give its perfect beauty. Dear innocent of home! There are exiles under skies of eastern drouth whose brave hearts faint with longing if they do but for a moment dwell upon the thought of your cold loveliness.

February 14.—The happy birds are keeping St. Valentine's Day, and I have found an Echo! There is ever a weird charm in the mysterious presence which makes such arbitrary choice of some special spot, building or rock, and lives there for ever silent and unknown until awoken by chance, and then is so warily on the watch, ever ready to start up and mock the passer-by with a hollow imitation of his voice or foot-step. Doubtless there is some scientific explanation, but it does really seem that Echo is a capricious being, and will come and go much as she pleases; else why is it that, after haunting a place for years, she will sometimes disappear one day without rhyme or reason, and never come back? I have not thought of it for many a year; but at this moment I remember like yesterday a lovely Echo, or group of echoes, somewhere in Switzerland; I think it was on the Grindelwald, within view of the Great Scheideck. A man played a little tune on an immense shepherd's horn. The travellers listened, and after a pause Echo gave back the air note for note with clear and sweet precision; and then from hill to hill her hermit sisters took up the music over and over again till the sounds became small and far, dying away in a fairy-like *diminuendo*. That is how memory recalls to me the beautiful Fairy of the Scheideck Pass. But our new-comer dwells somewhere near the end of a brick wall



partly covered with Ivy. She, too, is a fairy, but of coarser mould, and she can only repeat once. I was startled by the sudden mockery early one morning as I called my dog, and I can solemnly affirm that this Echo has only just arrived and settled in the wall, for close by it is an almost daily occurrence to turn and call the dog in before shutting the garden gate, and we have never before heard her voice. Echoes are rare here on the flat. We had one in a gable of the house, but she went away or was lost when the Vew hedges were planted. In some counties they say the bulls in the fields are made savage by hearing their own cries re-echoing from the woods and hills around.

We have had busy days of late trimming the creepers all round the house. Long prunings of Honeysuckles and Jasmine with leafy splendours of Magnolia, lay in lavish waste upon the gravel, and the air was full of the curious pungency of Ivy leaves. Pruning days are my delight, when the Laurel and Box are trimmed, and the aroma of them scents the whole place, and clipped sprigs fall and are spread about, strewing the ground as if for some garden triumph. Once last spring (it was on May 12) I thought to try a little pruning on my own account, and severed a long healthy branch of Vine which when in leaf would smother a young Pomegranate growing on the south wall. I shall never forget what followed the rash act. The Vine began to bleed; pure crystal sap welled up, and drop after drop fell fast; it flowed and flowed and poured from the wound, and never ceased till seven days and nights were past. In the first dismay at seeing this wine of life pour forth I tried to staunch it by binding a handkerchief tightly round. But that availed nothing; the cambric was drenched in a moment, while down the stem the stream ran on as the poor Vine wasted her blood upon the earth. I felt it was murder, and the Vine seemed to me like some hapless human creature bleeding to death! Through the day I returned again and again, and guiltily crept to the place at night, when the moon was shining—and still the wound bled, and the stem of the Vine grew black with moisture, and the wood Strawberry leaves underneath were full of big drops. At last, one happy morning the tree was dry. I believe it is only in spring that a Vine will behave like this—and no harm was done! But for me henceforth the Vine may go unpruned for evermore. The amateur knife does, however, still work usefully on young Limes and such-like, keeping their stems smooth and free from buddings out of leaves and twigs, and the gardener is lenient with my amusements in this line.

In the Wilderness (so we name a rather wild unkept grassy place outside the gates of old Italian ironwork that enclose a broad opening between Vew hedges) we have planted climbing Roses, and Clematis Jackmanni and montana at the foot of some useless Apple and Plum trees. Many old Roses are at their best only when thus grown wild, as it were, without the least restraint. Only in this way do they attain their fulness of grace and beauty. And by this kind of growth only can one imagine the sleeping Titania, quite over-canopied with Musk Roses. A white Noisette left to itself to grow up the stem of our Stone Pine has grown so immensely in the few years since it was planted as to take complete possession of the tree; climbing in the richest luxuriance up to the top, and thence hanging down in long rosy wreaths of exquisite lightness. Yet, although in its season of flowering none would deny this Rose's loveliness, we have hardened our hearts, and have been cutting away the half of it, so as to entirely free the foliage of the Pine. There is many a handsome tree we could easier spare from the garden than that old Stone Pine. The interests belonging to it are endless. There are the great green cones that reign secure in the widespread umbrella top, and the brown ones that come down with a thump on the grass when the wind blows a gale, and that are good to fill the empty grates in summer and to smell of Italy in winter; and the titmice and wrens and robins and all manner of small birds that lodge in its branches, whose ways are so pleasant and past finding out; and the curiosity that is never satisfied as to the enormous white fleshy grubs we sometimes see them dig out of holes and crannies in the bark, and carry off in their beaks. And the long double Pine needles which drop and lie flat all day where they fell, and bristle upright in the turf next morning after the worms have been pulling them under all night. All these and

countless small matters besides make up a little world of interest in our great Pine. The seeds are collected yearly, and they always grow when sown, and thrive up to a certain age; yet we have not been able to rear any young trees.

In the Bocage there are now two living proofs of the mild weather we have had. The unconscious obstinacy of one of them sometimes makes me smile: it is a Tritoma. December came too soon, and caught the central flower-stalk with its usual pyramid of buds still incomplete. The plant remained in the same position quite unconcerned, and has managed ever since to keep life in the buds, holding itself doggedly upright, and in perfect health, with a sheaf of fresh green leaves about it, and actually to surround itself with a family of shorter flower-stalks, and after sometimes looking pale in snow-time or frost, the whole group takes heart again vigorously. With a little sunshine we should see it in nearly as fine bloom as in September! Near the grass walk, glowing in bright pink against the grey of a shadowy Elm-tree background, there has been for three weeks or more a large round half-opened Rose: it blooms at the end of a long summer Rose-shoot. In the wintry winds it has swung to and fro undismayed. Once or twice I have seen it crested with frost. The white crystals fell away and left it bright as ever when warmer days brought to it a new warmth of colour. Now it begins to flag; the pink petals have gradually hardened, and some of the green leaves are withered; but yet the half-opened Rose endures bravely, and sometimes shines like a rosy star. The Violet leaves, in sheltered places under the walls, are just beginning to be strewn with amethysts; and the double lilac Marie Louise Violets, which we turned out in the borders, have borne flowers as large and fragrant as those in the frames all through the winter. I wonder where is the old dark purple double Violet of former days! If the old gardening books may be believed, it is quite easy to double the single purple wild Violet.



### PROTECTING THE BLOSSOMS OF FRUIT TREES ON WALLS.

THE season will soon be upon us when the wall trees will demand the anxious care of the gardener, who is often at his wits' end to save the delicate blossoms from the injurious effects of spring frosts. These are almost sure to come, but there is uncertainty as to the precise time they are coming. Last year, for instance, the weather was very favourable up to the time the Apricot blossoms were set, and the fruit had begun to swell. In some places after that time the crop was destroyed by the frost. All other kinds of blossoms open at that time were also killed, and Apple trees, that usually flower the latest, had their blossoms cut off in some localities. I was much interested in observing the value of a very slight shelter, as a screen from frosty winds in a well known garden. In one part were some tall old standard Apple trees open on all sides to the weather, in another part was a large quarter of bush trees, the direction from which the winds blew being east and north, and on both sides was a moderately tall Privet hedge; it did not seem to afford much protection, but it was evidently sufficient: there were some 150 or 200 trees well furnished with fruits, while on the tall trees there were scarcely any. In reference to the protection or no protection of wall trees there always has been much difference of opinion, but it has been practised in one form or another from antique times; and at the beginning of the present century, when glass-houses were confined to the gardens of the nobility, gardeners were much more interested in saving the blossoms of their fruit trees. The oldest method is to cover the trees before the blossoms open with fronds of Ferns, Spruce, or branches of some other evergreen trees. These are fixed amongst the branches, but it is a dangerous practice, unless securely fixed, as high winds blow them about and do much injury. In country places a system of using hay or straw bands has been adopted, and with considerable success. This method was recommended in the *Transactions of the Horticultural Society* more than half a century ago, and later the system was

recommended in the *Horticultural Register*. The writer says, "Only two seasons' trial of this simple protection has convinced me, together with some of my neighbours, that it is as effectual as the netting commonly used for the purpose. The system is this:—Before any of the blossoms open, poles are placed against the wall, about 2 feet from its base; the thick end of the pole is fixed in the ground, the small end being fixed under the coping at the top: the poles should be 5 or 6 feet apart. Well twisted hay or straw bands should be stretched across the poles from one end to the other. Some persons recommend nailing them on to the poles at 10 inches apart; others leave a space of 18 inches. The bands may be secured to the poles by nailing, or they may be fastened by taking a turn round each pole." I have never tried this system, but it is one that can be tried in any country place at no expense except the labour. The saving of even a few pounds for shading is of some importance to a great number of gardeners. The bands should be taken off about the second week in May. Every alternate band should be removed first; three days after the remainder may be removed; if they are stored away in a dry state they will last three seasons. Personally I have not been convinced that there is any better protecting material for wall trees than the old hexagon garden netting. It was expensive material, but lasted in good condition for many years with care. The meshes were small, but large enough to admit light and a circulation of air, at the same time. It is better not to have them down over the trees an hour longer than they are really required. They are fixed and used in the following manner:—On every well-constructed garden wall there ought to be a projecting stone coping; on the top of this should be fixed deal boards. A good arrangement is to have two 1½ inch deal boards fixed together with hinges. One board is fixed firmly to the coping, the loose one being made to project over the coping about 6 inches. They can be fixed in their places with buttons, either while they are in use, or folded back for the summer. Poles must be used as already described. The protecting material should be bound round with strong webbing, one side of it to be nailed to the tops of the poles under the coping, and half a yard of string fastened to each nail. The string is to tie the material when it is rolled up. When it is down for protection it has to be tightly strained, and nailed to each pole at the base. If this canvas screen or netting is used only when really needed it is an excellent protection from frost. I do not know of any better except glass. *J. Douglas.*

### FORESTS AND CLIMATE.

At a meeting of the Meteorological Society of Berlin, held on January 6, and reported in *Nature*, Professor Müttrich gave a short historical review of the arrangements in connection with forest meteorological stations in Prussia, seventeen of which were in operation. They were established on as uniform a system as possible over regions of very wide varieties of climate, on plains and at different levels above the sea, in districts having a more continental, and in districts having a more oceanic climate, and in leaf and Pine forests. In all these places, moreover, observations were made according to precisely the same regulations. Each station was twofold, having one equipment in the wood, another in the open field, both as a rule at the distance of 200 metres from the edge of the wood. The observations comprised the atmospheric pressure, the temperature of the air and of the ground, the wind, moisture, cloudiness, atmospheric precipitation, and the evaporation of an open mass of water. These observations were made twice a day—at 8 A.M. and 2 P.M. The observations thus obtained were collected at the station of Eberswalde, and published regularly in monthly and yearly reports.

As a result of his investigation, Professor Müttrich had arrived at certain definite conclusions respecting the influence of the forest on temperature, which may be stated as follows:—(1) The forest exercised a positive influence on the temperature of the air; (2) the daily variations of temperature were lessened by the forest, and in summer more than in winter; (3) the influence of the leafy forest was in summer greater than that of the Pine forest, while in winter the tempering influence of the Pine forest preponderated over that of the disfoliated forest. An attempt to determine the influence of the forest on the mean annual temperature led to no sure results.



### "LA PETITE CULTURE."

YOUR observant correspondent "A. D." has done well to draw attention to that portion of my remarks on this interesting topic, to use a politician's term "small holdings," or as "A. D." puts it "La petite culture." I am the more anxious not to be misunderstood at this particular time, owing to the fact that a great outcry has been raised by probably perfectly justifiable agitators, regarding the undue absorption of the land by a small number of landlords, and indeed, for the matter of that, of tenant holders. Though party politics have no place in a technical paper such as the *Gardeners' Chronicle*, nevertheless, in the face of the many superficial assertions advanced regarding this particular phase of the land question, it is time that the principles and real facts of the case were set forth and explained, on the basis of the realities of practice, rather than to let the heated theories of the public platform orators assume the form of truth.

I am pleased to see that I am not really at issue with your correspondent; on the contrary, when the apparent divergence is explained, it would appear that "A. D." has arrived at precisely the same opinion as myself. Herein lies the difference: "A. D." assumes "La petite culture" to mean hiring and working "six to ten acres" of land for market garden purposes; whilst I, on the contrary, assume "La petite culture" to be the possession of one, two, and it may be, three acres of land, and its application to precisely the same, or similar purposes. In the latter case I cannot perceive a germ of success, whether from the point of view of outlay on labour or in actual profit and benefit from a national point of view. Many may ask, "Why?" The answer is simple enough. The most economical labour is of paramount importance, both to the individual and to the nation. As is the saving of labour through the medium of machinery all-important in connection with dry goods manufacture, so also are all modern appliances indispensable in connection with the manufacture of vegetable crops; and beyond all it is necessary in connection with such implements, &c., that horse labour be employed.

Now my argument has all along been based on these simple facts, consequently I opine that my position is proved. As to the exact number of cultivated acres which will keep one horse and its driver in full work all the year round, that is difficult to estimate, so very much depending on the nearness or otherwise of a market for the produce the convenience of obtaining manure, &c.; for the farther removed any grower is from either by so much per cent. per mile is the grower handicapped. This is not devoid of compensation, however, as purer air, cheaper rent, and a decided reduction in the amount of taxes to be paid, fall on the profit side of the accounts. These latter do not, however, entirely compensate for the waste of power consequent on having to traverse many miles of road to secure a market.

To return to the important subject of spade v. plough labour. How can a grower using spade culture compete with the owner or tenant using horses, whose Potatoes sell at 50s. per ton, with the carting from 5 to 12 miles by road into market included, and less commission—with Spinach but a shilling a sieve (whilst it costs 3d. to gather) besides carting to market, wear of sieves, &c.? The same remarks apply to Broccoli, winter Greens, &c., to say nothing about the Pea and the Runner Bean crops, all of which are produced, as if by magic, by the 50 and 100 acres together, and the larger the field so much the greater the economy displayed—headlands, plough turnings, limited gatherings in kind, all being utilised so as to bring the proprietor quick returns on his outlay.

It may be said "Near a town a grower with 2 or 3 acres may cultivate things which pay better than those above named, such as Celery, Seakale, Asparagus, flowers, and the much-talked-of fruit crop. Certainly, but it would be extremely laborious even for an individual fitted out with all necessary knowledge. How about the results, then, with present rents, rates, and taxes? Whilst considering these matters it is desirable to remember that in any and every case where an individual hires land for this, or any purpose, he must possess capital: without it he cannot hope to succeed. There is always an outlay to be made, on going into possession, and an inevitable outlay to be continued constantly afterwards. The smaller the area the more limited the returns during the long winter months, and the more

must the holder draw on the money made in the summer.

I am constrained, therefore, to maintain the position I took up. Very small "holdings," such as I have described, will not benefit the country. Any man will be better in regular employment as the servant of another than in becoming tenant or proprietor of a too limited acreage, however industrious he may be. And the *petite* culturist of "A. D.'s" "4 to 10 acres" can only succeed by having such an account at his banker's as will meet adverse contingencies and constant outlay. But with this assured, and with energy and perseverance, he may succeed. *William Earley, Ilford.*

### DEFORMED FIR BRANCH.

IN a recent number of the *Bulletin* of the Botanical Society of France, M. Van Tieghem describes a malformation in the branches of *Pinus Pinaster* observed in the park at Segrez, the property of the late M. Lavallée. The young shoot

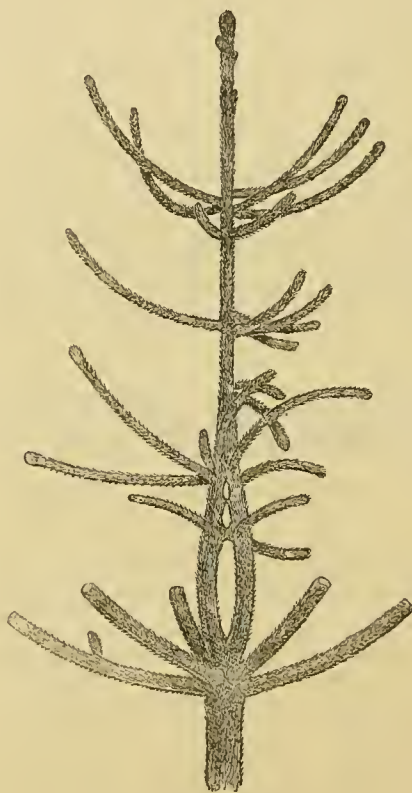


FIG. 52.—DEFORMED FIR BRANCH.

in spring divides in the middle by a longitudinal cleft which extends for a considerable distance and is closed at the top by the curving inwards and confluence of the two divisions of the shoot. The phenomenon occurs in various degrees: sometimes several such openings exist on one branch, but separated one from another by one or more years growth, or it may occur year after year, forming a series of links, like those of a chain. The two concave surfaces bounding the cleft are covered with resin. It is supposed that the original cause of the deformity is due to the puncture of some resin-eating insect. M. Van Tieghem gives some interesting details of the anatomical structure and of the way in which the wound is healed by the formation of new cells from the surface of all the tissues of the section, so that a rounded swelling is formed on each side of the cleft. This forms outside a layer of cork cells, while inside a generating layer is formed, which unites with its fellow of the opposite side, and so the aperture is eventually closed. M. Kny produced similar phenomena by dividing young shoots of various plants longitudinally by a thrust of the scalpel without injuring the bud at the end. The illustration we give (fig. 53, from a previous volume) shows a branch of Spruce Fir whose appearance, no doubt, is due to the same cause as that mentioned by M. Van Tieghem.

### KALAMAZOO CELERY.

MIDWAY between Detroit and Chicago lies the beautiful city of Kalamazoo, sometimes appropriately called Celeryville. Fifty tons of the esculent are "expressed" from Kalamazoo daily now during the height of the shipping season. Kalamazoo Celery is famed from ocean to ocean, and is the brand called for everywhere. Shipping begins about July, increasing till the holidays, then gradually decreasing until the crop is disposed of in the spring. More growers are annually holding their crop until the firmer markets of spring. Three thousand tons were shipped from this point alone during 1883, and the shipment for 1884 is estimated at 5000 tons. From 1500 to 2000 acres are devoted to the industry in this vicinity, and the production of a superior article has never exceeded the demand. Twenty thousand stalks are easily raised during the season on an acre, and the wholesale price ranges from 15 to 25 cents per dozen.

Marsh land has become the home of this luxury, and Hollanders are the main producers. Driving north from Kalamazoo through the country, one passes great 100-acre farms devoted to the sweet-scented Celery, reminding one of that Methodist hymn:—

"Sweet fields beyond . . .  
Stand dressed in living green,"

One would never forget a drive through the Celery gardens in any direction from Kalamazoo; the long rows keeping their bright green till November, as crop follows crop; and the fields being unmarred by fences or anything except the cozy cottages of the thrifty Hollanders. The irrepressible Yankee has, of course, bought large tracts and gone into its culture, but the mass of growers cultivate from 3 to 10 acres, raise the choicest article, and make the most money. Too much expensive hand-labour is required to justify going into the business on a large scale.

The Celery business is of more value to a town than can be shown by figures. The drainage necessary to Celery growing is worth everything to the health of towns. Celery can be raised on any marsh properly drained, and it is not necessary that the marsh lie along the mystic waters of the Kalamazoo. Yet it is a recognised fact that specialities hover together. Celery growers and shippers have here an association to protect their interests, and disseminate information useful to the industry.

Practical Celery growers can teach most men who write books on the subject their A B C's, and the jolly Dutchman could wake up in the night any time and laugh at some of the advice given.

Celery growing resembles farming wonderfully about one thing. The campaign opens about January 1, and, save an occasional holiday, it is "hurrah, boys," till about December 31.

Celery growers are beginning to raise their own seed, which heretofore has been a serious item of expense. There are about fifty principal varieties; most popular among them are the White Walnut and Crawford.

The objective points for perfect Celery are soundness, brittleness, and keeping qualities. The seed is sown in narrow rows in hotbeds, and this produces plants for the early crops. As soon as the weather will permit seed is sown outdoors in beds of about a square rod of plants for a square acre of land. Plants are set in May, or as soon as the size of the plants and the geniality of the climate will permit.

Some marshes may be ploughed with a team by using wooden shoes on the horses. These shoes are made of 2-inch Pine, cut round, and two curved pieces of iron, moving freely in the shoe and bolted together over the hoof. If this method is reckoned unsafe, a windlass may be placed on the upland across the centre of the marsh to be ploughed. A whiskey barrel makes a good windlass. A miniature marsh railroad is handy on land where horses cannot be safely driven, to carry manure, tools, plants, &c. It consists of a light car, and as much track as is required in sections of about one rod long each, and movable, so they can be laid to any part of the marsh.

Open ditches for draining are common, cutting the land into quarter acre sections; but if tile drain is used two rows of Celery can be raised in the space taken by the open ditch. The better marsh is drained the handsomer crops look in time of drouth, and the soil can be worked immediately after a rain.



Two and three crops are raised off this soil in one season. Table Onions are put in for the early market; early Celery is set in June and harvested the last of August; and winter Celery is set in September and secured in November. Each crop must be fertilised, as the soil is so porous the manurial properties wash down out of reach of plant roots. Celery is set 6 feet apart between the rows, and about a finger's length apart in the row. Table Onions, or some early crop, is raised between the rows, and harvested before the Celery is ready to hill. Hilling this Celery crop leaves a trench between the rows, along which manure is spread, and another row of Celery plants set, and by the time the first Celery crop is marketed the latter crop is grown, and needs the soil for hilling. If the season is favourable another row of plants is set in place of the first Celery crop harvested. Many growers have quite a trade in Celery plants, shipping the plants for setting far and wide.

The first and last crops are bleached with soil hilled closely to the leaves, but the intermediate crop is bleached with boards held closely to the roots by beat iron hooks. Boards bleach the Celery higher to the leaves and in quicker time.

Shippers have adopted a uniform box sawed into proper lengths for different orders, as twenty, fifty, or 100 dozens, the ends of the boxes being inch stuff, and the sides half-inch. Celery is trimmed, washed, and tied into bunches of a dozen stalks each. This work in summer is done in a shed built over a stream, in winter in Celery cellars.

These cellars are made by digging 2 feet below the surface, and boarding up 2 feet above; then, on a centre frame 6 feet high, 12 feet boards meet and slant to the ground with windows. The cellar is then banked and covered with manure. They are built 24 feet wide and 50, 100 or 200 feet long, according as they are required to hold 50,000, 100,000, or 200,000 dozen Celery. These are built on upland, as marsh is too damp and cold. When the Celery is first put into the cellar it is green, but bleaches in a few weeks. It is packed closely, standing boards every few feet to prevent heating. The object is to keep it growing. The roof-boards of these cellars are used in summer for bleaching the second crop.

Another method of storing and bleaching for winter is in trenches 2 feet deep and wide, packing as closely as the crop will stand.

A hilling plough has been invented, on which there is no patent. It resembles an ordinary shovel-plough, except that the sides of the steel plough are straighter, to which sides are attached steel wings hinged to the plough. On the top of each wing is fastened an iron rod meeting on the centre of the beam of the plough, by which the cut may be regulated to any desired width.

The first growers of Celery in this place never dreamed of using the meadow land, but sought for soft, warm, sandy loam. It was some eighteen years ago that a Hollander named Leendert de Brayn, a gardener, made the experiment. He owned a piece of hard land on South Burdeck Street, which ran down into the marsh. Owing to the drouth he could not successfully raise Celery, so he made the trial of the marsh land, draining it well to begin with. Success crowned his efforts, and a sure crop came with every season, no matter what the weather. So with Onions. Others watched him and followed his example. But beyond supplying the home demand there was no sale for the toothsome esculent.

In the early fall of 1878 Messrs. Buckhout Bros., grocers and shippers, were selling much of this plant at home, when one day one of the firm, in talking with an Omaha man, asked him if there would be a market for Celery. The reply was that small quantities were raised in Omaha, but it was high-priced and not very good. He estimated that Omaha would be a good market for Kalamazoo Celery, which was so superior, and gave the Buckhout Bros. the card of Payker & Co. Shipments were made in small quantities at first, and rapidly increased in size and frequency. Other points east and west were also supplied, and almost at once a trade grew up. John Seale, Ben Haften, Den Adel, Vandimeder, de Brayn, and others, furnished all that was called for. Express messengers on the various roads, seeing so much Celery going from this village, sharpened their trading proclivities, and sought markets where they could themselves make a commission, and thus the sale of the esculent was greatly spread. The Messrs.

Buckhout's success, which they took no pains to conceal, induced others here to take a hand, and Mr. J. W. Taylor, of the American Express Company, soon became a large shipper, and has ever since remained in the business.

So the business grew, each season doubling upon the sales of the former one, and ever as the demand increased the supply was equal to the call. Land which had hitherto been valued only for marsh hay or cow pastures, and a good deal not fit for that, was now eagerly sought for and brought undreamed of prices, till now there is not a piece of meadow land in the city or vicinity but has been drained and made into a garden spot, immensely enhanced in price.

The principal firms engaged in producing and shipping their own products here are Messrs. J. W. Wilson, Holtenhouse & Co., O. M. Allen & Son, Den Adel & Sons, Van Haffen & Sons, Loughborough & Allen, P. C. Davis, J. W. Taylor, and others.

The number of those now engaged in the Celery trade is estimated at 1500 to 2000, and is an immense bonanza to the express companies. On one train alone a carload is shipped daily, and sometimes two. The gathering of the Celery daily from the different shippers occupies much of the time of the express companies. A Correspondent, in the "Gardeners' Monthly and Horticulturist."

### CRYPTOSTYLIS LONGIFOLIA.

THIS most curious and pretty Australian terrestrial Orchid is admirably figured in Sir J. D. Hooker's



FIG. 53—CRYPTOSTYLIS LONGIFOLIA.

*Flora of Tasmania*, vol. ii., in which many fine things are so well depicted in colouring and every other detail. It is described as one of the three Australian Cryptostylis which appear to approach in their botanical characteristic near to the much larger Malayan and East Indian genus *Zosterostylis*, Bl. *C. longifolia* grows from 1 to 2 feet in height, the single lanceolate leaves on long stalks springing from the fleshy root-crown. Flowers, 3 to 8, rather distant, upwards of an inch broad. Sepals narrow, yellowish-green; petals shorter and the same colour as the sepals; lip pointing upwards, red, with reddish-brown markings. The most curious feature in the flower, and that which gained for the genus the name, is the manner in which the short column is hidden in the cucullate base of the lip. Our illustration (fig. 53) will serve to give a good idea of this interesting peculiarity. James O'Brien.

### A GARDEN VISIT.

A FEW weeks since, when visiting Clarendon Park Gardens, I found Mr. Chas. Warden, the gardener, busily engaged propagating stock for the current year. I there had a peep into a hothed in the frame ground, which contained seedlings of Tomatoes, Celery, &c., nearly ready for potting off and pricking out, as well as cuttings. Of the latter there was a good batch of perpetual flowering Carnations, which had been put in a few days prior to my visit in well-drained 6-inch pots, the latter having a 3-inch pot resting on the drainage in the centre of each, and the space between the two filled with suitable soil—three-parts of light loam and one of leaf-mould with

a surfacing of sand—in which one row of cuttings is inserted 1 inch apart all round, and the pots plunged to the rim, and covered with squares of glass supported by the labels attached to the individual varieties, so that the cuttings did not come in contact with it. The squares of glass thus placed, in addition to producing a more equable temperature about the cuttings, and preventing a too rapid evaporation taking place, preserves the cuttings from the condensed moisture dropping on them. The empty 3-inch pot in the centre of the 6-inch one results in the body of soil in the latter being kept warm, so that the cuttings strike quicker, and by taking out the 3-inch pot their rooting can easily be observed without disturbing either roots or soil, potting taking place as soon as they are well rooted, 3-inch pots being used for each plant. They are then put again into the frame, and watered through a rose to settle the soil about the roots, and afterwards shading from bright sunshine for a few days until the roots have taken to the soil, and the plants afforded more room at the roots as they require it.

The cutting-pots having been placed in proper position in the hothed, and the sashes drawn over them, I turned my eyes in another direction close by, and in reply to my query as to what the ridge contained, I was invited to come and see. The gardener proceeded to remove the long brown paper frame protectors, which protected the long and slightly fermenting stable litter, which to the depth of 9 or 12 inches covered the bed from rain. "See here!" said he, disclosing cluster after cluster of huge Mushrooms, 6 inches in diameter, and of first-rate quality. In addition to this excellent out-of-door Mushroom bed Mr. Warden is equally successful with flat beds, 12 to 15 inches deep, made on the flagged floor in a lean-to greenhouse, underneath a step-stage, completely hidden from view, being covered with hay and "brown paper shutters" to throw off the drip from the plants above, consisting of flowered Pelargoniums and perpetual flowering Carnations. Mr. Warden has read Wright's *Mushrooms for the Million* attentively, and, as results testify, profitably. Visitor.

### VEGETABLE CULTURE.

AT p. 115 Mr. Earley, in his article on Market Gardening, seems to overlook the fact that private gardeners and market gardeners respectively grow produce for quite a different purpose, and that the knowledge gained by experience in market gardens—at least, a considerable portion of it—would not be of much service to gardeners growing for private consumption. A continual daily supply of every kind of vegetable in season should be the aim of a private gardener. He does not require to grow large quantities of any one kind to come in all together; he has not to study the requirements of the market, but the wishes of his private employers, and of course he has to grow vegetables to suit their tastes, whether they are of a high commercial value or not, or whether the crop occupies the ground for a long or short period of time. Every gardener knows the difficulty which sometimes occurs in order to keep up a continual supply of some kinds of vegetables, and always endeavours to have his crops arriving at maturity in succession. The market gardener, on the other hand, requires his crops to turn in quickly, so that plenty of saleable produce is ready when the prices are most remunerative, and the quicker a given plot is cleared and replaced by a successional one the better. It is evident that the private grower cannot benefit much by following many of the market garden practices.

Part of Mr. Earley's article runs as follows:—"Far too general an old rule-of-thumb practice is adopted whereby certain limited quarters in private gardens are devoted year by year to their familiar thinly clad crops, consisting mainly of not more than two during the twelve months, much time being lost not only as regards space, but also in connection with a possible rapidity of succession." Well! these remarks in some instances apply to the letter, but this is not always through the inability of the gardener, who in private places has much to call for his attention besides vegetable growing. Often the ground has arrived at such a poor and hungry condition that it is unable to bring one crop to perfection, not to speak of two; or, perhaps, if the manure is at hand, other pressing work elsewhere in the garden prevents it being applied in time for the benefit of the following crop. The market gardener,



of course, has his drawbacks and many anxieties of which the private gardener knows but little; he has to consider what will most likely be in greatest demand, and meet with the readiest sale at a given time of year, and time his crops accordingly, the earliest and latest crops paying best.

Under the heading of "Plough and Spade," Mr. Earley writes:—"Why should the best vegetables result from plough culture?" The very best of land is generally selected for market gardening purposes, but this does not apply in many instances in private establishments, where the kitchen garden is often made in a certain position for convenience, and the natural fertility of the land is not always considered as it should be. Market garden land, although it has to support in many instances double the crops of land in private establishments, receives four times the manure, and of a composition worthy of the name, where many private gardens have had not much else besides rotten straw for years, quite devoid of the fertilising properties for promoting rank feeding crops. This extra application of manure to market garden plants makes up for the shallow plough cultivation, as the surface soil in a few years becomes very rich, and brings crops to maturity quickly. But I do not consider Carrots or Parsnips perfect such straight and clean roots on ploughed land as on trenched and well pulverised land, neither do Potatoes. I am not drawing any comparison between the weight of crops which could be grown under either culture. Many private gardens would produce but scanty crops indeed, if trenching in some form were not resorted to, as the want of good applications of genuine manure renders the surface soil poor, hence the necessity. As a rule, the stable manure is all that is allowed for the gardens: the best of this (the droppings) has to be extracted for Mushroom growing, making hotbeds, &c., and when it has served these purposes, as Mr. Earley truly remarks, its best fertilising properties have departed, and it is found wanting in nutriment to support the rapid and succulent growth of vegetables. Mr. Earley seems to have arrived at the conclusion that vegetables growing on well trenched land do not obtain a firm roothold, especially if the soil is broken up into small particles. I have not noted any practical results to support this theory, on the contrary, in soil thus prepared the roots penetrate very deep, and this surely means protection and strong support against wind-rocking. On land constantly under plough cultivation, especially on heavy soil, a pan soon forms immediately beneath the depth to which the plough penetrates, and the roots pass through it but little, and the plants are much more likely to be disturbed by high winds. Another advantage on ground not full of hard clods, is that rapid planting is facilitated with the dibber, and the soil more easily pressed into the holes made thereby, and the plants made secure. *S. W. R.*

## THE INFLUENCE OF DIRECT SUNLIGHT ON VEGETATION.

(Continued from p. 241.)

BUT, in the first place, the solar warmth of the after summer is necessary to ripen the fruits of the most important plants; for the Vine a September temperature of at least 59° is thought to be necessary (Grisebach, *Die Vegetation der Erde*, theil i., p. 126). Now, if we compare the means of this month of certain places in Southern England (Greenwich, 57°; Penzance, 57°; Chiswick, 57°; Isle of Wight, 58°) with others on the Continent (Liège, 61°; Mannheim, 62°), we see it is clear that the cloudy sky and rain, and not the mean temperature, are the causes of the Vine being cultivated without success in England.

The limit of corn cultivation ascends on the Continent generally farther to the north than on the shores—Fort Norman (N.W. Territories of Canada), 65°; Jakutsk, 62°.

The fact of its reaching 70° N. lat. in Norway (Alten), and the impossibility of agriculture in Greenland, even under 60°, and in Iceland (Reikiavik), notwithstanding the mean summer temperature of Alten and Reikiavik being about equal,\* can only be explained by the continual clear sky in summer at Alten, and by the powerful insolation here, which is not the case in Iceland. The continual wet climate and absence of sunlight make the grains rot on the stalks before they are ripe (Martins, *Essai sur la*

*Végétation de l'Archipel des Féroé*, pp. 388, 392). The period of vegetation at Alten is the same as that in Siberia (Jakutsk), though the mean summer temperature is 9° lower.

But a climate such as that of northern Norway, where the shores are free from ice even in mid-winter, caused by the north-east branch of the Gulf Stream, is nowhere to be found on the globe under such a high latitude. On the north-east shores of Asia corn cannot be cultivated even under 50° N. lat. The same latitude is its limit on the eastern shores of America; on the western it reaches about 57°. On the north-east shores of Asia the cause is the ice in the sea of Ochotsk, the wind in summer being mostly south-east or south,\* thus coming from the sea or along the shores, and causing much lower summer temperatures than in the interior,† and cloudy sky. On the north-east shores of North America the corn limit reaches 50° N. lat., the cause being here the ice in Hudson's Bay and along the shores of Labrador and Newfoundland.‡ But again, it is not alone the low mean temperature which causes the corn limit to descend so far southerly, but want of sunlight.§

In the vicinity of the arctic zone the influence of insolation is, in the first place, observed on the continent. At Turuchansk, lat. 65° 55', Gourds are cultivated, though of a small size (Middendorf, *Sibirische Reise*, band iv., theil i., p. 701). The mean temperature in 1881 was:—Of June, 48°; of July, 59°; and of August, 55°—the two last months being about equal in temperature to the means of Valentia in Ireland, lat. 51° 55' (July, 59°; August, 59°); but at Turuchansk there were, in June, seven days with the temperature, at 1 P.M., ranging between 68° and 73°; in July, fifteen days ranging between 68° and 82°; and in August, sixteen days ranging between 62° and 75°. Number of days completely clouded:—June, 6; July, 9; August 3. Snow did not occur till June 15, and was observed again on August 29 (*Annalen der Physikalischen Central Observatoriums*, St. Petersburg). In Norway the cultivation of Gourds (*Cucurbita Pepo*, L.) reaches 59° 55'.

In North America, at Cumberland House, lat. 53° 57', a sugar harvest is collected from *Negundo fraxinifolium*, Nutt. (*Acer Negundo*, L.), by means of cuttings in the trees, but the flow of the sap is greatly influenced by the action of the sun's rays, and is greatest after a smart night's frost (Richardson, *Search Expedition through Rupert's Land*, vol. ii., p. 236).

In summer the influence of the direct sunlight causes the tropical mid-day temperature so common in the interior of both continents in the temperate zone; but in America the days' differences are much greater than in Asia;|| even near the eastern shores (Montreal, Quebec, &c.) daily differences of 20° are of common occurrence in midsummer.

The Asiatic continent, reaching to the Arctic Sea, without interruption presents to the sun's rays a much greater surface than is the case with America, where the melting ice in Hudson's Bay and the Arctic archipelago consumes the greatest part of the solar warmth, being at the same time the cause of the sudden low temperatures occurring when the wind turns to the north or north-west.

Notwithstanding this, the European vegetables and corn are cultivated with success in the United States and the interior of Canada, but some of them cannot stand the sudden changes of temperature, as, for instance, the Vine, and also the Orange tree (*Citrus aurantium*, L., et var.); the general cultivation of the latter does not reach beyond 30° N. lat. (Florida).

(To be continued.)

\* On account of the barometric summer minimum over the Asiatic continent.

† Temperature of Ochotsk, lat. 59° 21':—June, 46°; July, 55°; August, 56°; September, 47°. Temperature of Nicolajefsk, lat. 53° 8':—June, 54°; July, 57°; August, 61°; September, 50°. See Schrenck, *Reise im Amur Lande*, bd. iv., p. 405.

‡ Mean temperature in 1876 at York factory, lat. 57°:—June, 49°; July, 57°; August, 55°. Mean temperature in 1880 at Moose Fort, Ontario, lat. 51° 16':—June, 55°; July, 59°; August, 55°; September, 52°. See Report of the Meteorological Service in Canada.

§ Percentage of sky clouded, Nikolajefsk on the Amur:—June, 58°; July, 59°; August, 63°. See Schrenck, *Reise im Amur Lande*, bd. iv., p. 476. Percentage of sky clouded in 1880 at Moose Fort:—June, 66°; July, 62°; August, 62°. Number of rainy days:—June, 15; July, 15; August, 20. See Report of the Meteorological Service in Canada.

|| Greatest difference at Winnipeg, lat. 49° 55', on July 2, 1881:—Maximum, 98°; minimum, 45°: difference 53°. At Poplar Heights, Manitoba, lat. 50° 5':—Maximum on May 20, 85°, minimum, 27°: difference, 58°. At Blagoweschtschensk, Siberia, lat. 50° 15', on May 25, 1881:—Maximum, 79°; minimum, 48°: difference, 31°. At Akmolinsk, lat. 52° 12', on May 25, maximum 68°; minimum, 50°: difference, 18°.

## THE DOUBLING OF SPANISH DAFFODILS.

IT is not generally known that these self-yellow or concolorous Daffodils can be doubled by cultivation in suitable soils, though this fact has for long been recognised by gardeners in the case of the common wild English Daffodil, or Lent Lily. Having lately obtained an introduction to a gentleman living in the North of Portugal, I asked him if he could obtain me some of the wild Daffodils of the country, and he replied that a small single Daffodil, which he took to be the common form of *N. Pseudo-Narcissus*, was common a few miles away. He added that a few years ago he dug up 200 or 300 to stock his garden, and that in two years all of them were producing large double flowers, except under a Palm tree, which had exhausted the soil with its roots. I then begged for flowers of both double and single forms, which were already out on February 10. Some arrived by post yesterday. The double flowers are hideous deformities, with green centres, and very double; the single certainly belong to one of the much-incised concolorous forms—I should say *N. minor* of the Daffodil Conference; but after their overland journey of 1500 miles they are not in first-rate condition, and I am not sure that they might not belong to the closely allied form cultivated by the name of *lobularis*; but, as I am promised bulbs of both single and double, I hope next year to study them at home, together with a great many others doubled by cultivation. *Wolley Dod, Edge Hall, Malpas, February 20.*

## SULPHIDE OF POTASSIUM AS A REMEDY FOR PLANT DISEASE.

VARIOUS applications of sulphur have been used from time immemorial for the destruction of mildew and red-spider, generally in the form of flowers of sulphur—an imperfect remedy, the application of which is both inconvenient and unsightly. Some old gardeners recommend quicklime and sulphur to be boiled together, in water; this makes a solution of bisulphide of calcium, which is probably a very efficient form of applying sulphur to plants, but as yet I have not tried it.

The mixture of sulphur and carbon, or bisulphide of carbon, is known to be the best remedy against Phylloxera, but unfortunately it is very sparingly soluble in water (some treatises on chemistry describe it as insoluble); moreover, its odour is most offensive. The odour of the compound of sulphur and potassium (bisulphide, or sulphuret of potassium, the "liver of sulphur" of the old books), which is here recommended, is not agreeable being that of Harrogate water, but it is sweet compared with the carbon compound; however, I gratefully tolerate the smell, in recognition of the multifarious cures it effects in man, beast, and plant. A strong solution (half an ounce to a pint of water) applied to the surface affected, by means of lint or rag wetted in it, is a perfect remedy for many kinds of poisoned wounds, skin diseases caused by vegetable and animal parasites, whitlows, and many forms of inflammation involving the formation of pus. I have had thirty years' experience of its valuable qualities in such cases, and I never found it do any mischief in the few where no benefit could be traced to its use. On two occasions gardeners in my employ came to me with poisoned wounds, each with his hand and fingers swollen, and both perfectly stiff, with a red line up the arm, showing extension of the inflammation to the axilla; in each case I applied to the hand a bandage wet with a strong solution, and in each case on the next day the inflammation had disappeared, and the hand and fingers could be moved freely. I make no excuse for referring to this medical phase of the subject, for independently of the liability of gardeners to the accident referred to, the action of the potassium compound of sulphur on animals is of the same character as its action on plants, and what is very important, to neither, even when no direct benefit can be traced to its application, it does any harm, even to the most delicate plant, when plunged overhead. Plunge soil and pot in a solution of a quarter of an ounce to the gallon (I have frequently used half an ounce to the gallon without mischief, but a quarter of an ounce is sufficient); I have saturated every Orchid, filling two houses, without a trace of injury to foliage, pseudobulb, or root; in fact, the growing points of the roots appear more active after the dose. As to the benefit to plants

\* Summer temperature at Alten, 53°; at Reikiavik, 54°. See Dove, *Temperaturtafeln*.



to be derived from its use, it arrests at once all forms of fungoid growth—even the hard fungus which grows on dead wood; it is a perfect remedy for mildew on Roses, &c. I have found it efficient against red-spider; it is probably equally so against microbes, various forms of which are doubtless as injurious to plants as other forms are supposed to be to animals. It will probably relieve us from those diseases which are so destructive to the bulbs of Lilies, Eucharis, &c. My limited experience has already proved that it has arrested disease in many varieties of plants. I was driven to the necessity of taking some active steps to counteract a form of disease, which had become endemic with me, the marked symptom of which is rotten roots. As this has increased so much of late, and had begun to attack every plant in my houses (a great variety), I began experimenting at the beginning of this winter very carefully with the sulphuret of potassium, and growing bolder as I traced no injury to its use, I ultimately applied it to nearly all my plants. I should have postponed writing until after an extended experience during the growing period of the year; but I thought that some benefit might arise from others joining in the experiment, even if they limited themselves to testing its effect upon that very troublesome disease, mildew on Roses, which so frequently puts in its appearance at this season of the year. The compound is cheap—I pay 8d. per pound for it; it is very soluble in water, and is easy of application. *Edmund Tonks, Knowle, Warwickshire.*

## THE CULTIVATION OF EARLY MELONS.

OUR modern improvements in the way of glass erections, combined with the perfect means we possess nowadays for heating them, has considerably diminished the labour, and made the cultivation of this kind of fruit much less difficult than it formerly was under the old system; but with these advantages care, with skill combined, is as essential as ever it was in order to produce a good crop of first-rate Melons early in the month of May. For this purpose different means are employed; some growers prefer cultivation in pots, whilst others resort to planting out in beds.

### POT CULTURE.

For very early work I am in favour of the former method, and still adhere to the practice of employing a fermenting bed in the house, not merely for the sake of the heat it affords to the roots, but likewise for the stimulating effects it produces on the plants. I arrange to have a well-heated and light pit in which there is room enough above the bottom-heat pipes to have a good fermenting bed composed of equal proportions of Beech leaves and stable manure, "which ought to be sweetened by fermentation before it is introduced;" this is made up to within 18 inches of the glass, thus it brings the plants within the range of every ray of light and sunshine—very indispensable elements for this work and especially so at this particular period of the year.

### POTTING AND TRAINING.

The pots are 12 or 14 inches in diameter, are plugged in the bed in a row 2 feet apart, then are filled with moderately rough calcareous loam, with about a sixth of sandy soil or road scrapings added. When the plants are ready and the soil has become warm put a single plant into each pot; plant it carefully, otherwise the roots, "which at this season are not over-numerous or strong," may be injured. Water the plants with tepid water, and tie them up carefully, to prevent any damage arising from the use of the syringe, which will be necessary at least twice every day. Let the terminal shoot run about 2 feet, when it should be pinched, and the side shoots from it should be stopped as early as possible at the first point above that where the Melon is to be set—a process which by no means should be neglected at the proper time, as the object in view is to have ripe Melons as soon as possible. Not more than two fruits on each plant should be left to finish off.

### GENERAL DIRECTIONS.

The chief points in the management consist in keeping the heat at the roots regular at about 80°. In the event of the heat arising from fermentation being inadequate, use the bottom-heat pipes at once to supplement it. Water very carefully at first and on-

wards until the plants have taken well hold of the soil, when they will need it abundantly and in an improved form by means of adding a little liquid manure or diluted guano-water. When the roots have permeated the surface-soil encourage them upwards by means of adding some moderate sized pieces of fresh loam and lumps of manure intermixed, which should be laid over the surface roughly, and, if expedient, a collar made of zinc is sometimes placed round the rim of the pot for such additions. During the early stage of growth the house should be kept rather close and the air moist, with a temperature of from 70° to 80° constantly, and from 80° to 90° by solar heat. Close the house early in the afternoon with plenty of sun-heat, and syringe the plants thoroughly at the same time. As the foliage becomes hardened give more air whenever favourable, but still maintain the heat as described.

### SOWINGS.

Under careful management, seeds which were sown about the middle of last January will now be fit for planting out. A supplementary sowing should be made now, when, if desirable, more varieties may be included of both green and scarlet-fleshed kinds.

### DISEASES.

The most troublesome disease to contend with in Melon culture is canker, which attacks the plants when in a bearing state, and oftentimes is most vexatious as well as disappointing; and although many remedies are propounded and applied to check the disease, yet none with which I am acquainted are altogether effectual. I am testing the effect of placing a funnel-shaped zinc collar round the neck of the plants; but at the present time my experience in the matter does not justify a recommendation of the method. I am, nevertheless, inclined to think it will have a beneficial effect. *G. T. Miles, Wycombe Abbey.*

## Orchid Notes and Cleanings.

### ORCHIDS AT MR. B. S. WILLIAMS'.

A VERY choice assortment of Orchids is in bloom at present at this nursery, many of them being fine types of their respective varieties. The lovely *Cœlogyne cristata* and *C. cristata Lemoniana* are well represented. *Dendrobium*, too, are in strong healthy bloom, amongst them being *D. Farmeri aureum*, *D. Ainsworthii*, *D. superbiens*, *D. luteolum*, *D. Boxalli*, *D. Wardianum*, *D. crassinode*, *D. nobile*, &c. The *Odontoglossums* are well represented, *O. odoratum striatum* quite filling the house with its delicious scent; *O. maculatum superbum*, *O. hystrix magnifica*, a decided advance on *O. hystrix*; *O. facetum*, *O. Horsmanni*, *O. nebulosum*, *O. Cervantesii*, were also in bloom, some of the spikes being large and fine. *Cattleya Trianae Williamsii*, *C. Trianae formosa*, and *Rodgersii*, *C. Percivalliana* and *C. Warszewiczii* delicate, were all in bloom, and the rest of the *Cattleyas* were in grand health, and showing fine strong "sheaths" in profusion. *Cypripediums* were well represented by *C. Harrisianum*, *C. villosum*, *C. Warnerii*, *C. Maulei*, *C. Haynaldianum*, *C. Dayanum*, *C. Ashburtoniae*. *Masdevallias*, too, looked very well, the beautifully scented *Dendrochilum glumaceum* and the less favoured variety, *D. uncatum*, had good spikes. *Vandas* were throwing up a grand lot of spikes. *Zygopetalum crinitum roseum* is a good Orchid in its class, and has a fine dwarf habit of flowering, so that the flowers have the advantage of being "set off" by the foliage. *Sophranites grandiflora* caught the eye with its brilliant coloured blooms. Amongst *Lælias* were *L. harpophylla* and *L. anceps grandiflora*. Three varieties of *Lycaste Skinnerii*, viz., *amabilis*, *picta*, and *purpurata*, were distinct. The brilliant *Ada aurantiaca* was in good form, and many others not mentioned form a fine display for the season of the year.

### FREAKS OF ORCHIDS.

Seeing that Major Lendy exhibited a plant of *Phalaenopsis Schilleriana* with adventitious buds before the Scientific Committee, possibly the following may be of interest:—On one of our plants of *Phalaenopsis Stuartiana* a piece of the root, about 2 inches long, by some means got detached from the plant, though still adhering to the Teak rod of the

basket, and strangely enough from the end of the root a small plant has formed. It has made a root from itself, and seems to have infused new vigour into the old piece of root, and at the present time the little plant is growing nicely. It would be interesting to know if any more of your correspondents have noticed any such freaks among their plants, or if any one has succeeded in propagating *Phalaenopsis* from the root. After seeing it seems possible that it might be done. *C. J. Salter, Selborne, Streatham.*

### ORCHIDS AT MESSRS. J. VEITCH & SONS, CHLSEA.

The fine large *Cattleya*-house is now wonderfully full of great healthy plants of *Cattleya Trianae*, there being fully 1000 handsome blooms now open, and with a promise of a long continuance of the blooming season, to be followed by that of *Cattleya Mossiae*, of which one side bench of this very long house mainly consists. The *C. Trianae* give a pretty wide range of difference in colour, from the palest flesh colour in sepals, petals, and labellum, to the deepest purplish-rose, and dark purple lip in others. The frillings of the lip and its amount of expansion are quite as varied as we found the colouring. The exhibition is quite remarkable, and would delight any one, either orchidist or not. A few fine plants of *Vanda suavis* placed at intervals, and just showing on some what the colours of their flower-buds were, breaks up the otherwise flat appearance of the mass of *Cattleyas* when out of bloom. A few of the richer coloured *C. Percivalliana* interrupted the show of rose and purple, and the eye rested thankfully on little masses of the pretty white *Cœlogyne*, the *Trentham* variety. Coming on among the *C. Trianae* were many specimens of *C. purpurata* and *C. Mendelii*. In a *Cypripedium*-house were a few plants of *C. Haynaldi*, *C. villosum*, *C. Sedeni*, and the fine old masses of the *Chatsworth* variety of *Cœlogyne*. Near by *Zygopetalum maxillaria* was found covered with its richly tinted blooms, the colours of which are so well set off by the fine blue labellum. This is probably the biggest specimen extant, as it certainly is one of the finest bloomed. The yet more scarce *Dendrobium crassinode alba* had thrown up a fairly strong spike, as had likewise the novel *Aerides Lawrencei*, which has only bloomed in two previous years. The loosely arranged panicle resembles *A. odorata*, but has a faint green tinge, that is deepest at the bottom of the tube. Many plants of *Angraecum sesquipedale* were abundantly covered with flowers, and *Vanda cœrulescens* was pushing many spikes, that must be considered strong for this variety. *Dendrobium speciosum*, about which so much has been written as to its treatment both now and formerly, was doing well here, one plant of no great size carrying three good spikes of bloom.

Of *Odontoglossums*, which never seem to be quite out of bloom, there were many of *O. Rossi*, and a beautiful form, richly coloured beyond precedent, of *O. triumphans*, the petals being remarkable for thickness. Of *O. Pescatorei*, *O. Wilckeanum*, and *O. crispum* were numerous specimens of great beauty, although several stood out as being much better than others. A little bit of the golden *O. concolor* contributed a welcome morsel of colour to the house, and the *O. uguiculatum* was noticeable by its green lip.

The new hybrid *Lælia bella*, described in the pages of the *Gardeners' Chronicle*, February 9, 1884, p. 175, was carrying two large blooms. This is the second year of its flowering. The character of *Lælia purpurata*—the seed-bearing parent of this hybrid—is more evident in the colour, while *Cattleya labiata* gives the form and size.

A pretty hybrid *Dendrobium* named *splendidissimum* came under notice, which had particularly pleasing tints and form, the parents being *D. nobile* and *D. heterocarpum*, the flower possessing the delicious perfume of the latter species. A few other new *Dendrobiums* were seen in *D. micans*, a hybrid between *Low's* variety of *D. Wardianum* and *D. lithuanicum*, with a deep purple blotch in the throat, and rosy petals and sepals.

Of *Cypripediums* there were amongst the newest *C. tessellatum porphyreum*, *C. Sedeni candidissimum*, a beautiful improvement on *C. Sedeni*, the light tints being purer, and the rosy ones fainter; *C. calurum*, *C. cananthum superbum*, the varnished look of the whole bloom, together with the dark-spotted, white-margined dorsal petal, and rich port-wine-coloured sac, making this a very fine noticeable variety.

The fine *C. Leeannum superbum* was also flowering on several specimens, not two of which were exactly alike.



## APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	Mar. 3	Sale of Freehold Nurseries and other Properties, <i>re</i> James Wheeler, at Warminster, by Protheroe & Morris.
		Sale of Established Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY,	Mar. 4	Sale of Camellias, Azaleas, Roses, &c., City Auction Rooms, by Protheroe & Morris.
		Sale of Greenhouse and Hardy Plants and Bulls, at Stevens' Rooms.
THURSDAY,	Mar. 5	Great Clearance Sale of 4 acres of Nursery Stock, at the Warminster Nurseries, by Protheroe & Morris (five days).
		Sale of Liliun auratum, Plants, &c., at Protheroe & Morris' Rooms.
FRIDAY,	Mar. 6	Meeting of the Linnean Society.
		Sale of Established and Imported Orchids, at Stevens' Rooms.
SATURDAY,	Mar. 7	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
		Sale of Roses, Fruit Trees, and Border Plants, at Stevens' Rooms.

THOSE who have travelled much in England and seen the fruit trees and Apple orchards of its cottages and homesteads, need not be told that APPLES are grown in this country in all kinds of soils, and even in districts as inclement as the extremes of North Britain. If cultivated Apples are not indigenous in the high latitudes of the United Kingdom, they must have been of very ancient introduction, for the Romans found them producing acid fruit, with a tough green skin, as far north as Ultima Thule, the most distant of the Shetland Isles; and there we have seen them green and tough as ever. Apples will grow anywhere within our confines, and, with due allowance for exceptions and extremes, their quality will depend generally on varieties and cultivation rather than locality.

Great Apple trees, with tall and spreading heads, bearing scores of bushels of fruit, can hardly be expected except on the most congenial soils; and as the development of the roots bears close relation to the height of the tree and the extent of its branches, the subsoil beneath these great orchard trees must necessarily be congenial. In different parts of the country we find trees varying in size according to the soil, trees of the largest size affecting deep soils with favourable subsoils. Mr. T. B. WOODWARD, who opened the discussion on "Fruit Farming" last year at the London Farmers' Club, and whose father planted orchards largely between Tewkesbury and the Avon, expressed his belief that large parts of the Midland and East Midland Counties were adapted to successful Apple growing. This means that the soil of these districts is capable of bearing Apples naturally and without a large expenditure in manuring the trees, and defending their roots from an uncongenial subsoil. The best sorts of Apples can hardly be produced either in uncongenial climates or on indifferent soils, though there may be few soils that refuse to bear this accommodating fruit when they are properly cultivated and enriched. You may, in fact, grow your own Apples for your own use almost anywhere, but in some situations you would grow them for market under great disadvantages.

A typical soil for Apples is one that is sound and dry, deep and friable, and an Apple crop can be produced on such land in favourable seasons with the same economy that Maize or Wheat can be produced on the unexhausted soil of the Western States. The earliest planters of our Apple orchards for saleable fruit, or for cider, wisely selected for their operations the wholesome loams of Worcestershire and Herefordshire, chiefly on the Old Red Sandstone, or the deep and well drained land of Devonshire and Somersetshire, with the Ragstone loams of the Medway valley. In these districts the largest orchard trees have long been grown with the biggest crops of Apples. Still the growth of Apple orchards has not been confined to the typical soils, and although this kind of husbandry has fallen into neglect, the remnants of old orchards, cankered and moss-grown, are quite a feature of the rural landscape both on the light soils of Surrey and on the stiff loams and clays of the weald of Sussex. A large

farmer of heavy land, near Horsham, informs us that in 1870, before the rain-floods of more recent years, his Apple orchards yielded 1000 gallons of cider. The trees, he states, were planted at a period when farm servants were boarded in their employers' houses, and when cider was largely consumed in hay-time and harvest; but habits have altered, and beer is now regarded as a better beverage than cider, and it is easily obtained. Hence the decay of the farmhouse orchards.

A vast amount of useful information on our subject is contained in the report on *British Apples* by the committee of the National Apple Congress, compiled by Mr. A. F. BARRON, and published by MACMILLAN & CO., to which we have frequently referred. The number of different names applied by the exhibitors to the Apples shown at the Congress was 2020, but many of these were synonymous, and the number of distinct varieties probably did not exceed 1544—a sufficiently large list for any Apple grower to select from! The forms filled up by the exhibitors supplied the compiler and, through him, the reader of his admirable report, with unbiassed and exhaustive information on the situations where the trees were grown, whether they were sheltered, or otherwise, the character of the soil and subsoil, the stocks on which the trees were grafted, their form, whether standards or bushes, and the best sorts. Mr. BARRON, it will be remembered, has grouped the selections of sorts geographically, so that the different districts and the sorts suitable for them may be examined separately. Examining the returns from the Garden of England, we find, as might be expected, that the Apple is grown on standards grafted on the Crab, the tree being often fifty or sixty years old, as for example at Mereworth, Maidstone, in the orchard of Mr. G. BEATON, who exhibited eighty sorts, naming and describing the favourites of his district, such as Cox's Orange Pippin, Margil, Cornish Gilliflower, Dumelow's Seedling, Winter Non-such, and other sorts recommended for market use. Mr. L. A. KILLICK of Langley, Maidstone, exhibited 126 sorts, and his concise remarks convey his opinion on the respective economy of growing Apples for market on large or small trees. Most of his trees are standards grafted on the Apple stock. "The Paradise stock," he says, "does not produce a tree large enough for market purposes." Large trees are usually grown on turf, and are then manured, year by year, by means of cattle or sheep fed on the grass with oilcake, the best orchards being thus produced on deep loam resting on Kentish Rag or gravel. On the other hand exhibitors from the chalk districts of Kent invariably describe their Apples as growing on bushes, pyramids, and cordons, so that the roots may be kept under control. Mr. CHARLES LANGLEY, of Dover, who sent a fine lot of fruit, including thirty-six sorts, grows pyramids on the chalk artificially. Finding that his Apple trees used to suffer in hot summers, producing only small fruit, he dug large holes down to the chalk and replanted the trees in good turfy loam, in which they grow well and ripen their wood. "The great secret is," he remarks, "to mulch well with good manure; the better manure I use the better the fruit." In dry weather he waters the trees.

With the aid of a little reading between the lines Mr. BARRON's report, statistical as it needs must be, forms a very valuable essay on Apple growing both for sale and for home use. We hope to recur to this subject on a future occasion.

—WOODWARDIA RADICANS.—We are accustomed to see this bold looking Fern in cool ferneries and conservatories, where its sturdy habit and elegantly arching fronds produce an excellent effect

both of lightness and strength. Occasionally, too we have met with it nestling in some sheltered nook out-of-doors, but never in such beauty as is shown in the accompanying engraving (fig. 54), taken from a photograph kindly placed at our disposal, and representing a plant growing in the open air in the garden of T. S. BOLITHO, Esq., Trengwainton, Pembroze. The plant measures 18 feet by 13 feet, the average length of the fronds being 5 feet 6 inches. Woodwardia radicans has, like many Ferns, a very wide range of distribution, in this case in temperate and subtropical regions, as southern Europe, Madeira, the Himalayas, California, &c. A marked peculiarity of the species resides in the production of adventitious buds on the axis or rachis of the frond, by means of which the plant can be propagated. Crested varieties are also in cultivation.

—BOTANIC GARDEN, KLAUSENBERG.—We have received a copy of the seed catalogue of the botanic garden of this Hungarian University, which labours under a plethora of synonyms, being known as Claudiopolis officially, and vernacularly as Kolozsvár and Klausenberg.

—FINGER AND TOE.—An amusing illustration of the perplexity occasioned by vernacular names is before us. A German gentleman in Russia found in an English book on plant life the expression "finger and toe" as applied to roots. Perplexed to know what this might mean he applied to the University librarian, a man of erudition. He looked on it as the title of a book, although no such book was in the library. An anatomist naturally thought it had reference to some surgical deformity. One botanist rightly divined its meaning, while another thought all the suggested explanations very unsatisfactory.

—BAMBOO.—Mr. THISELTON DYER, at the last meeting of the Linnean Society (February 19) exhibited and made remarks on specimens of the peculiar "Square Bamboo" (*Bambusa quadrangularis*, FENZL)—see *Gardeners' Chronicle*, January 29, 1876, p. 147, fig., and on articles (screens, &c.) made from the so-called "Hairy Bamboo" (probably *Dendrocalamus latifolius*, MUNRO), sent from Wenchow to the Kew Museum by Dr. MACGOWAN.

—LINNEAN SOCIETY.—At the next meeting of this Society, which will be held on March 5, at 8 P.M., papers will be read on:—1. "New Genera and Species of Hydroids from H. GATTY's collection," by Professor ALLMAN. 2. "Recently Discovered Flowering Plants from the Interior of New Zealand," by Rev. W. COLENSO. 3. "Rearing, Growth, and Breeding of Salmon in Fresh-water in Great Britain," by Dr. F. DAY.

—VRIESEA WARMINGII.—A handsome Bromeliad, 3–5 feet, with tufted leaves, dilated at the base, and extending with long linear oblong acuminate leaves, each nearly a yard long. The flower-spike is about 5 feet in height, rising above the tuft of leaves, and bearing above a close two-ranked spike of flowers of a yellow colour, scarcely exceeding the boat-shaped bracts, which are yellow, with green tips. The plant is a native of Brazil, where it was discovered by M. WARMING. It is figured in tab. 11 of the *Belgique Horticole* for September, 1884.

—PITCHER OF DISCHIDIA.—According to TREUB, who has studied the living plant in the garden of Buitenzorg, the pitcher in this plant is a modification of the blade of the leaf, its inner surface corresponding to the lower surface of the leaf and *vice versa*. The pitcher-like form is due to an increased relative growth in the central portion of the leaf. When the pitcher is complete, adventitious roots are produced from the petiole, some of which enter the pitcher. It does not appear that the pitchers of this climbing Asclepiad have any digestive properties. Insects enter them, but there is no provision for retaining or dissolving them, and the roots in the pitcher afford an easy means of escape. The real object seems to be the supply of water to the plant, which forms its own water-pot.

—PARIS INTERNATIONAL HORTICULTURAL EXHIBITION.—This Exhibition will be held in Paris, in the Champs Elysées, from May 20 to May 31. Exhibitors of all nations are invited to send their productions for competition for medals and other awards. Notice of intention to exhibit should be given to the President, 84, Rue de Grenelle, Paris, before April 25 next. British exhibitors should apply for schedules



to M. ERNEST BERGMANN at the above address. There are eleven classes for new plants in each of the following groups—stove, greenhouse, or hardy. Six classes on the same conditions for plants of fine cultivation, and three for market plants. For stove and greenhouse plants of various characters there are 109 classes; for hardy plants, Roses, Clematises, &c., 109 classes; for cut flowers six classes, besides various other classes.

— FILL-DITCH MONTH.—February has in the South justified its old reputation of the fill-ditch month, and has done so in a manner that is satisfying the most ardent demands for more rain. A heavy and continuous rainfall at this season of the year brings its inconveniences and hindrances, but if followed by a dry March

as much rain as may, because of the lack of moisture during the past year. Fruit growers who see their trees full of promise for the season are heartily rejoicing that the rain is reaching their roots and affording them that sustenance without which the greatest promise might have been unfulfilled. Those over-anxious to sow and plant may perhaps wish they had not been quite so hasty, or may now be deterred from such acts until the season has become both more advanced and more favourable. There can be little doubt but that next summer we shall have ample reason to be thankful to February for its contribution of rain.

— MR. JAMES THOMSON, who has acted as manager of the house plant department in Messrs. DICKSONS & Co.'s nurseries, Edinburgh, for the last

after flowering. It 1833, after introducing a swarm of Ligurian bees from England, a cross-fertilisation was effected. The Hybrid *Echium* possesses the leaves of the giant plant, and the stem merely branches sparingly. The flowers are tinged light blue, and the perennial habit of *E. fastuosum* is expressed by the continual growth of the flower racemes, which, after flowering for two years, measure 26 inches, and are still unfolding. The seeds of this hybrid have not germinated. Why these magnificent plants are not more frequently seen in our gardens is a puzzle.

— SCHOOL OF FORESTRY, EDINBURGH.—At a meeting of the Edinburgh Town Council, held on the 24th inst., it was unanimously agreed, on the recom-



FIG. 54.—WOODWARDIA RADICANS. (SEE P. 278.)

no harm will be done; but, on the other hand, the satisfying of the thirsty soil will be productive of much good. We have found the soil universally working so well, and so tempting for sowing and planting, that it seems a pity such good tilth should be damaged. This pleasant condition of the soil arose from the exceeding dryness of the subsoil and the facility with which the surface moisture percolated through. Now that this lower stratum of the soil, with its constant drain from roots of trees and shrubs is being satisfied, the earth will presently assume a pasty form unless we get considerable relaxing of the rainfall, so as to enable the surface moisture to get well away. As long as there is free percolation from the surface the soil suffers little, but when it is flooded day after day, and finally the water lies for a time on or in the soil, very bad results follow. All this it is to be hoped may be avoided this season at least, come

eleven years, has been appointed Head Gardener to JAMES HOPE, Esq., of Belmont, Mid-Lothian. Mr. THOMSON was recently presented with a handsome album, along with a purse of sovereigns, by a number of his friends, which included all the leading nursery and seed firms in the city and their managers, as well as most of the head gardeners in the district.

— HYBRID ECHIUM.—Dr. GRABHAM, of Madeira, describes in *Nature* a hybrid between *E. fastuosum* and *E. simplex*. The former is a perennial shrub, 3 to 4 feet high, with hairy light green leaves, and branching stems, crowded with scorpioid racemes of light blue flowers with white stamens. The latter has large, smooth, silvery leaves, and terminates its growth in one unbranched stem, densely packed with folded flower-stalks bearing pure white blossoms, and forming a pyramid sometimes 14 feet high; it dies

after flowering. It 1833, after introducing a swarm of Ligurian bees from England, a cross-fertilisation was effected. The Hybrid *Echium* possesses the leaves of the giant plant, and the stem merely branches sparingly. The flowers are tinged light blue, and the perennial habit of *E. fastuosum* is expressed by the continual growth of the flower racemes, which, after flowering for two years, measure 26 inches, and are still unfolding. The seeds of this hybrid have not germinated. Why these magnificent plants are not more frequently seen in our gardens is a puzzle.

— RARE ORCHIDS.—At Messrs. PROTHEROE & MORRIS' Sale Rooms, Cheapside, on Tuesday, a plant of *Celogyne crista alba* was, after a keen competition, knocked down to Mr. WILLIAM BULL, of Chelsea, for £131. The plant had seven flower-spikes, the blooms being snowy-white without the least shade or tint. Several other high prices were also obtained.

— VRIESEA RETROFLEXA ×.—This is a hybrid out of *V. scalaris* by *V. psittacina* var. *Morreniana*, raised by Professor MORREN, at Liège, and combining the characteristics of both parents. The leaves are



like those of the seed parent, the flower-spike at first curves downwards, as in the seed parent, but subsequently becomes erect, like that of the pollen parent. The bracts are scarlet, the flowers loosely arranged in two rows, and yellow in colour. Professor MORREN hung up some of the plants in an inverted position when the flower-spike was appearing in order to see what effect would be produced. Under these circumstances the spike remained straight. Replacing the plants in their normal position the spikes were, of course, erect, but after some days they became bent downwards, the tips showing a tendency to curve upwards. The plant, moreover, has a tendency to produce flowers at a very early period from the suckers. The flowers remain in beauty for a long period, and the plant is very suitable for cultivation in a basket suspended from the roof. *Belgique Horticole*, 1884, t. 10.

— THE PRICE OF WHEAT.—According to the useful tabular summary published by Mr. ALLNUTT, the fluctuation in the weekly average price of Wheat has been greater during the past year (1884) than in 1883, but not so much as in 1882. The price in 1882 was 12s. 1d.; in 1883, 4s. 10d.; and in 1884, 8s. 7d. per quarter. The annual average price of 1884 was considerably lower than that of 1883, being 5s. 11d. per quarter less; and taking the two years 1883 and 1884 the average price has fallen 9s. 5d. under 1882. The annual average price of corn per bushel was—Wheat, 4s. 5½d.; Barley, 3s. 10d.; Oats, 2s. 6½d. The average price of Barley from November 15 to December 13 exceeded that of Wheat, Barley is generally about 12s. per quarter below Wheat, and for the last twenty-five years Barley has averaged 13s. 6d. per quarter below Wheat. On January 3 the price of Wheat was 31s. 11d., and on January 10 32s. 7d.; this is a rise of 2s. 2d. a quarter over November 29 last. As Wheat generally rises and falls every four years, this may be the commencement of an upward movement. On looking over the price of Wheat from 1641 we see Wheat has not been so low for a century. In 1780 the annual average was the same as 1884, viz., 35s. 8d. Previous to 1780 Wheat was fifty-two years under this average, and eighty-seven years above it.

— COWAN'S PATENT ORCHID POTTERY.—A new description of receptacle in which cultivators may grow Orchids is being put on the market by Mr. JOHN COWAN, of the Vineyard Nurseries, Garston, which admirably fulfils the requirements of this class of plants. The pots and pans have longitudinal slits, are of great variety in size, simple in form, and are made in three different qualities, viz., of the same material as ordinary flower-pots, also with finer material and finish, and lastly, as partly glazed ware. The pans, &c., fulfil all the conditions of Orchid growth, not confining the roots in any degree, allowing them freedom to run about outside, and affording the perfect drainage that the epiphytial species require. They must be made cheap, so that growers would not hesitate to smash them up for the purpose of releasing the roots that will cling to them, whenever repotting is done.

— CHINESE CONIFERS.—In M. FRANCHET'S account of the plants collected in various parts of the Chinese empire, several new Conifers are described, which may here be mentioned as probably some of them would prove hardy in this country. *Pinus Armandi* is one of the *Cembra* group with cones like those of *P. Koraiensis*, but not reflexed at the tips of the scales. It is described as a beautiful Pine with smooth green bark. *Abies Davidiana* is said to combine the characteristics of the *Piceas* (Spruces) and the *Tsugas* (Hemlock Firs), in both of which the cone-scales are persistent. The tree is lofty, with both foliage and the erect cone much larger than in most *Tsugas*, the cone, according to the figure, measuring nearly 6 inches in length by 2 in breadth. *Abies sacra* is considered to be very like *A. Davidiana*, and perhaps merely a variety of it with smaller leaves and cones, and with glabrous not hairy shoots. This tree is planted around the temples: hence the name given to it. These species were collected in the province of Chem-si, on the slopes of the Tsen-ling Mountains. Several other species are mentioned, of some, however, the specimens are too imperfect to admit of satisfactory determination. Those named are *Pinus Thunbergii*, *Larix Kämpferi*, *L. sibirica*, *Abies Tsuga*, *Cunninghamia sinensis*, *Cryptomeria*

*japonica*, *Juniperus chinensis*, *J. rigida*, *J. recurva*, *Cephalotaxus Fortunei*, *C. pedunculata*, *Torreya grandis*, *Taxus baccata*.

— NARCISSUS COMMITTEE.—Dr. LOWE, of Woodcote, Inner Park Road, Wimbledon, has issued the following circular:—

"A sub-committee, which for brevity we will call the 'Narcissus Committee,' has been formed under the auspices of the Scientific Committee of the Royal Horticultural Society, having for its object to ascertain the conditions under which the single flowers become double, or, if it be the case, the reverse, viz., how double flowers of the Narcissus tribe become single. As Honorary Secretary of the said committee, I am desired to express a hope that you will become a member.

"I may mention that the committee is a large one, comprising most of the lovers of the Daffodil, in order to secure a wide field of observation; but that while any member will be cordially welcome at its meetings, it is not expected that those living at a distance, or otherwise engaged, should attend, provided we may secure their intelligent and accurate memoranda on the subject.

"From the nature of the inquiry the same committee will probably exist for several successive years, as it must be obvious no reliable information could be obtained in one or two seasons. The nature of the soil, whether light or friable, or stiff and heavy, the aspect to which the plant under observation has been exposed, elevation of the land, &c., whether the phenomenon of changing from single to double, or the reverse, has taken place in its native or natural condition, or under artificial treatment, and if so, what? These, and every circumstance noted by the observer, it will be the business of the committee, in the first instance, to collect, and then to sift, in order to ascertain if possible the conditions under which these changes take place; in other words, the cause of single plants becoming double.

"In order not to prolong this introductory letter, I beg to subjoin certain suggestions which have been made for the guidance of the committee, and which will probably be adopted at the next meeting with such modifications or additions as those present may determine.

"1. Collect and sift the evidence offered by various observers as to the 'doubling' or 'going single' in their gardens.

"2. If any cases seem to afford *prima facie* evidence of 'doubling' or 'singling' in this or that garden, take these as 'experimental stations.'

"3. Draw up a list of regulations for carrying out an experiment, such as—(a) Bulbs in flower this spring to be marked for experiment this summer as single, double, &c.; (b) the ground experimented on must be assured to be free from Daffodil bulbs; (c) precautions for securing that the labels do not get separate from bulbs, &c.

"4. It will be as well that the character of the bulbs experimented on, and the result should be attested by more than one member of committee. Possibly it will be desirable that some of the committee should go down and plant the bulbs in the experimental stations.

"5. Besides the operations carried on at experimental stations in localities said to have the power of doubling, &c., some sets of marked bulbs should be planted at Chiswick, under experimental conditions, and possibly in other places, where they can be watched by the committee.

"With regard to the proposed meeting, I beg to state that it will take place in the LINDLEY Library, Royal Horticultural Society, South Kensington, on March 10 next, at eleven o'clock."

— SALE OF THE LATE I. ANDERSON-HENRY'S BOTANICAL LIBRARY.—The sale of this valuable collection of botanical and other works on natural history took place at Messrs. CHAPMAN & SON'S Great Sale Rooms, Hanover Street, Edinburgh, on the 10th inst., and the two following days. The celebrity of the late Mr. ANDERSON-HENRY as a naturalist, and especially as a hybridiser of plants, attracted considerable attention to the sale, as the books were known to have been selected with great skill and taste during a long lifetime, and included most of the best works on botany and natural science which have appeared during the present century, as well as a choice selection of the works of an earlier period. The competition for some of the rarest and best works was at times very keen, and the sale, under the skilful management of Messrs. CHAPMAN, realised a handsome sum, many of the books being secured at high prices, for public institutions, and by Mr. HENRY'S numerous friends as a *souvenir* of a genial acquaintance and an eminent man of his day. The following are the prices realised for a few of the botanical books:—Sowerby's English Botany, 11 vols., 1877, £14 5s.; Hooker's Botany of the Antarctic Voyage of the *Erebus* and *Terror*, 4 vols., 1847–60, £15 4s. 6d.; The Botanical Register,

33 vols., 1815–47, £13 13s.; Hooker's Journal of Botany, &c., 1834–57, £5 5s.; Hooker's Icones Plantarum, 6 vols., 1837–81, £3 12s. 6d.; Paxton's Magazine of Botany, 16 vols., 1834–49, £4 10s.; Curtis' Botanical Magazine, complete from 1793 to 1883, £52; Elwes' Monograph of Lilies, 7 parts, 1880, £5 5s.; De Candolle's Prodrromus Regni Vegetabilis, 19 vols., 1824–69, £5 5s.; Royle's Botany of the Himalayan Mountains, £2 14s.; Loddiges' Botanical Cabinet, 12 vols., 1817–25, £5 4s.; Hooker's Exotic Flora, 3 vols., 1823, £2 14s.; Sweet's British Flower Garden, £2 4s.; Seboth's Alpine Plants, 4 vols., £2 6s.; Lowe's British and Exotic Ferns, 8 vols., 1867, £3 17s.; Bentham and Mueller's Flora Australiensis, 7 vols., 1863–68, £4; Lindley's Pomologia Britannica, 3 vols., 1841, £2 11s.; Gerard's Herball, 1663, £2 10s.; Parkinson's Theatrum Botanicum, 1640, £2 2s.; Flore des Serres, 6 vols., 1865–82, £3 12s. 6d.; Journal of the Royal Geographical Society, 40 vols., 1830–70, £6; Transactions of the Edinburgh Botanical Society, 8 vols., £2 9s.; Hooker's Flora of British India, 3 vols., 1875–79, £2 2s.; Wight's Indian Botany, 1840, £1 18s.; Sowerby and Johnson's British Wild Flowers, 1863, £1 15s.; Harvey's Flora Capensis, 3 vols., 1859–65, £1 9s.; Bentham's Handbook of British Flora, £1 15s.; Loudon's Arboretum Britannicum, 8 vols., 1838, £2 5s.; Hooker's New Zealand Flora, 1867, £1 4s.; Torrey and Gray's Flora of North America, 2 vols., 1834–42, £1 12s.; Griffith's Plants of India, 3 vols., 1847, £1 3s.; Wooster's Alpine Plants, 2 vols., 1872, £1 2s.; Atlas der Alpenflora, 3 vols., 1881–84, £1 12s.; The Floral Cabinet, 3 vols., 1838–40, £2 6s.; Transactions of the Horticultural Society, 10 vols., 1820–48, £3 6s.

— MUSCARI BOTRYOIDES, OR GRATE HYACINTH.—How strange it is that this beautiful little flower is not more largely grown for button-hole bouquets, &c., as it is one of the prettiest things imaginable for such work, and especially as it comes in at this season of the year, when it is nearly the only small flower of a delicate blue; it is not expensive, as the bulbs are only 1s. per dozen, and are easily grown.

— THE OXFORD UNION CARNATION AND PICOTEE SOCIETY.—Mr. DODWELL proposes to establish an annual meeting of the cultivators of the Carnation and Picotee, and an exhibition of the products of their skill in the city of Oxford. To prevent any misunderstanding, it is proposed to give to this meeting a distinctive appellation—"The Oxford Union Carnation and Picotee Society;" and to state that, resting wholly on popular support, its affairs will be subject to popular government. Every subscriber will be entitled to a voice in its management. To provide for needful preliminary expenses, and a nucleus for the prize fund, Mr. DODWELL proposes to place certain surplus growth of his stock now on hand at the disposal of the management, and to forward to all subscribers full value for their subscriptions.

— TREVESIA SUNDACA.—None of the eight or nine species known to science are recorded in gardening books as having been introduced to this country. The subject of this note is not only conspicuous for its large ornamental leaves, but their curious construction as well. These are divided into seven or nine large finger-like segments that are more or less contracted and narrowed towards their base, and seated on the dilated, truncate base of the blade, that more or less resembles the foot of a web-footed bird. The inflorescence consists of horizontal or pendulous panicle umbels of flowers, with fleshy creamy-white petals, and a yellow disc. They smell rather disagreeably when fully expanded, but are extremely interesting, and followed by globular berries about the size of Peas, and reminding one very much of Ivy-berries. The plant is figured in REGER'S *Gartenflora*, 1864, t. 438, and a plant in the Palm-house at Kew flowers annually about this time.

— GARDENING APPOINTMENTS.—Mr. W. FLOOD has been engaged as Head Gardener to Colonel T. J. LEVET, M.P., Wychnor Hall, Lichfield.—Mr. ALFRED GRANT has been appointed Head Gardener to J. HARRIS SANDERS, Esq., Porter's Park.



## The Flower Garden.

### SPRING GARDEN.

THE mildness of the weather has already given the spring garden a promise of very early effect, many plants and bulbs being now in bloom, and all we want is a continuance of fine sunny weather, and this is hardly to be looked for at present. When the soil has got dry enough it will be advisable to loosen the surface of the flower-beds with digging forks, but in doing so be very careful. All dead leaves and rubbish should be removed, great attention should be given to examine all plants, and make firm all those that are loosened by frost, for this purpose using the hand only. The gravel walks should now be turned, and, if requiring it, surfaced with fine gravel, and well rolled down while wet, so as to make the gravel bind well together. If the walks between the beds are grass, it should be swept and well rolled, and the edges sheared so as to produce a neat appearance. Every attention should be given to tying up the bloom stalks, and protecting the bulbs from frost and bad weather generally.

### ROSES.

All climbers should have every attention, and the tender ones should be protected. Such as Clematis and early Roses should be pruned at once, as they are unusually forward this year. Many have made shoots 2 or 3 inches long and much young foliage, great care therefore should be taken in pruning the Tea and Noisettes not to cut back too hard in case severe frosts should set in and destroy them. These tender Roses must be planted only in warm and sheltered situations, so that they are protected from the north-east winds, which so frequently occur in the spring months. The sooner all Roses are planted the better, so that the roots may take hold of the soil as soon as growth commences; they will then withstand the trying weather of March and April.

### CHRYSANTHEMUMS

may be planted in a well prepared border or in beds, using always plenty of manure, and thoroughly trenching the beds. I always plant my old plants out; I find they are much stronger and flower earlier, and have finer blooms than young ones. After I have planted them I put a little leaf-mould round each, to protect it from the effects of frost and winds.

### CARNATIONS AND PICOTEEES

can now be planted out in well prepared borders or beds. After the bed is planted out it should have a mulch of leaf-mould. *W. Smythe, Basing Park Gardens, Alton.*

## Plants and their Culture.

### STOVES AND INTERMEDIATE HOUSES: CLEANSING OPERATIONS.

WHILE these houses are being overhauled for potting operations it is necessary that each should be well cleansed, as this work can be easier performed now than if left till the plants are in growth, and it may then have to be deferred to a still later period. Let the glass be carefully cleaned, and any loose inside putty made good; the woodwork should be washed with a weak mixture of soft-soap and soda, and the walls scrubbed down hard with the same where it is not convenient or possible to cover them with Feros and other suitable subjects. If crickets or cockroaches abound attack them in their haunts with boiling water or some kind of poison; then, should a few escape, it will be possible to destroy them by laying beetle-halls or vermin-paste in the places where they are most to be found at night-time. The plants themselves, too, will need close scrutiny for insects, using means as previously advised for their destruction. If allowed to escape notice at this season they will soon prove very troublesome when the temperature is increased, and give endless annoyance where cleanliness and good culture are aimed at.

### WATERING.

This is a most important item in plant culture, and one in which errors are most frequently made. Great injury is frequently caused to those plants that are the most susceptible to an excess of water at the roots. One good watering to settle the new soil around the roots is always advisable, and after that the water-pot must be used with due discrimination as to the needs of each plant for some weeks to come. In the case of large plants, to avoid washing up the soil, lay a piece of slate on the surface. The use of the syringe will aid in a great measure to keep the plants moist at the root, and allowance should be made for this when watering.

### PLUNGING MATERIAL.

I have not advocated this means of accelerating the growth of stove plants in general, neither do I see any reason for its use in a general way, as the plants under these conditions do not prove so productive of bloom in the case of flowering varieties, nor is it so favourable to lasting qualities in foliar growth in the case of ornamental-leaved plants, compared with that of plants grown without bottom-heat. We have, however, seen its application put to a most successful test by Mr. Roberts, of Gunnersbury Park, with his collection of *Ixoras*, than which nothing in their way could possibly be finer. These plants are evidently quite at home under his treatment, flowering profusely; *Ixora coccinea* being especially fine. I have, therefore, adopted the same means with mine, and hope soon to have the satisfaction of seeing a free growth and a good return in flower trusses. I am partial to their splendid heads of bloom for floral decorations, to which they impart a rich effect when used with judgment. Kept free from mealy-bug there is no finer stove plant of its colour in cultivation than *Ixora coccinea*. This genus is worth growing well, although of late we have not given them that attention which they deserve. A bed of manure and leaves has been made up, and the same covered with cocoa-fibre for plunging in and for appearance sake. With only a thin layer there is not much likelihood of its becoming charged with water to the injury of the plants, as the material beneath is absorbent, and also by reason of the bottom-heat pipes. *J. Hudson, Gunnersbury House, Acton.*



## The Hardy Fruit Garden.

### PEARS.

THESE, when planted in good rich soil, often grow too vigorous for a few years, so that fruit is rarely formed. Where such is the case it is a good plan to prune the roots as well as the branches. The condition of the roots is of more importance than that of the branches, for if the former are in an unhealthy state no attention bestowed on the trees will be of any use. It is not wood that is our object in growing fruit trees, at the same time I consider it a bad plan to starve trees into bearing; but get strong healthy trees, then prune them into a bearing state. This is that which I would inculcate, that young trees which have been planted five or six years, and are growing too strong, should now be root pruned as follows. This year I am taking the south side half of every tree, and digging down 18 inches from the centre of the trees right under each tree, and making sure that there are no roots left striking downward, pruning all the roots carefully, and then replacing the part of the soil again which is of good quality. Next year the north side half of each tree will be served in the same manner. Where the trees are large we begin, say, 3 feet all round. Where the soil is of a poor texture I should recommend turfy loam being placed round the roots, not chopped up, but packed firmly round the roots. I think it would be a great boon for fruit growers if we could only get a Pear Congress, the same as the Apple Congress of last year. There must be a great many varieties of Pears grown which one never hears of, for in looking over an old Pear list grown in a private garden I see the list extended to 130 varieties of Pears and 110 of Apples.

Gooseberries should be planted on north and east walls for a late crop; they may also be planted on

borders where Morello Cherries are on the walls, so that they may both be protected at the same time. The two best varieties I know for this purpose are Warrington and Ilenson's Prolific. *J. Smith, Montmore, Bucks.*

## The Kitchen Garden.

### FORCING DEPARTMENT: CUCUMBERS.

WITH lengthening days and increasing solar heat, these should now be making good progress. Allow young plants to run up the trellis a good distance before stopping the leader. Keep some suitable soil in a warm place, for the purpose of adding a little to the hillocks occasionally. It is not necessary to add much at a time until the plants commence bearing, when a greater bulk of soil will be an advantage. A little shading may be required until the plants get well established, at which time it is advisable to discontinue it. I know good Cucumbers are grown under the shading system, at the same time keeping an extra high temperature, but by drawing a comparison of the longevity of plants grown under both conditions, viz., shaded and full exposure to sun, the balance is in favour of the latter. On bright sunny days a little air must be given for a few hours during the morning (and cautiously when cold winds prevail) when the thermometer reaches 75° or 78°, and close intine to run up with sun-heat to 85° or 90° with plenty of atmospheric moisture. Spray the plants well with the syringe twice daily, taking care to thoroughly wet the foliage on both sides. This should be done early in the morning and again at closing time with lukewarm water. Maintain a night temperature of 68° to 70°. They will succeed with a lower one, but not so satisfactorily. If a second house is to be planted, some more seed should now be sown.

### PREPARATION OF GROUND AND SEED SOWING.

The time for many important operations in this department is now close upon us, and the undertaking of them will entirely depend upon the weather and the nature of the soil with which we have to deal; but no opportunity should be neglected to proceed when the soil is found to be in a desirable condition and can be reduced on the surface to a fine tilth for the reception of seeds; but do not be in any particular hurry if the soil is found to be in a wet adhesive state, rather defer the sowing of Parsnips, Onions, and Carrots (the latter two being very important crops in large establishments) until the soil can be caught in a good workable condition even until the latter part of the month.

### PARSNIPS.

Deeply cultivated ground is necessary for the production of fine straight roots. If a special piece of ground has not been prepared for them last year's Celery piece will answer well.

### ONIONS.

To obtain a fine heavy crop the ground should have been well prepared and enriched in autumn. Before drawing the drills, which should be about 1 inch deep and 1 foot apart, make the ground thoroughly firm, and well tread or roll the drills after sowing. Or the bed system will produce equally as fine bulbs; in this case the seed can be sown broadcast, and the beds hand-weeded throughout the season.

### CARROTS.

Three outdoor sowings of these are advisable as follows:—First, beginning of March (a Short Horn variety); second, and main crop (Intermediate and a long variety), about the first week in April; lastly, another sowing of Short Horn, beginning of August. Short Horn varieties are always desirable in the kitchen. Select light soil if possible for these crops.

### CELERY.

Make a sowing soon, to supply the earliest blanched heads for salad.

### ANNUAL HERBS,

such as Basil, Borage, Sweet Marjoram, and Summer Savory, should soon be sown in boxes in a gentle heat. These would be ready for planting out into summer beds about the end of May. Any perennial



herb beds getting exhausted may be renewed in a similar way with seedlings.

#### SEED BEDS.

Commence levelling down part of the ground which has been set aside and prepared for seed-beds, and strike out alleys to allow of conveniently moving between them, and between this and the latter part of the month the following should be sown, which in many gardens will be the first sowing of the year:—Brussels Sprouts, Cabbage, Cauliflower, Leek, and Lettuce. By giving every attention to the seed-beds, and raising sturdy young plants, we lay the foundation for good crops. We always prepare a large heap of light soil long before it is required, for the purpose of covering the beds after the seeds are sown, and do not take soil from the alleys, and the operation is completed quite as quickly. This should always be done on heavy soil.

#### EARLY POTATOS.

Some good varieties should now be planted out in the open borders, or the tubers (if not much sprouted) may be placed in boxes and covered with light soil, and allowed to remain in a cool house or frame until grown out a couple of inches, and planted out at a later date. The advantages of the latter mode is that at planting time the crown eyes can be easily seen and the weaker ones removed; less haulm will be made throughout the growing season, and a much finer sample of tubers obtained, and for garden culture this is well worth consideration. *G. H. Richards, Somerley Gardens, Ringwood, Hants.*

## Florists' Flowers.

#### GREENHOUSE FLORISTS' FLOWERS: THE AMARYLLIS.

REFERRING to p. 22, "Instructions as to Potting," &c., were given, and also for starting them into growth. Since that time they have made much progress, and some of the earliest varieties are just opening their flowers. Some varieties have a tendency to flower late, and grow away much more slowly than others from the first. This must be taken into account in respect of the time they are expected to flower. From the time that the flower-spike is seen until the flowers open a period of from six to eight weeks elapses; that is, if the spikes show about the first or second week in February. If they show a month later than this, the flowers will open sooner. All through the period of flowering the plants require careful attention as to watering; they do not require it oftener than once a week, and some varieties will take much more water than others: in this respect the grower of the plants must use his own discretion as to the treatment each individual bulb requires. The offsets in small and large 60's will form leaves more rapidly than the flowering specimens, and require rather more water at the roots. An over-moist atmosphere does not agree with them, as it causes some of the bulbs to decay. The temperature of the house ought to be about 55° at night, with a rise by day of from 5° to 10°. A few hours sunshine is very welcome, and if it raises the temperature to 70° all the better. Seedlings ought to be grown on well, as the whole of them ought to flower the third season. If they do not get good culture they may require a year longer, which, of course, adds to the expense of proving them.

#### THE CHRYSANTHEMUM.

If all the cuttings have not yet been put in no time should be lost in doing so. Put each cutting in the centre of a thumb-pot or small 60, using fine sandy soil; by doing this they do not receive any serious check, as they are sure to do if several cuttings are put in one pot, so that it is necessary to shake them out after they are rooted. I put as many cuttings as we found ready singly into small pots in December, these have been in a cold frame since that time, most of them have formed roots, and a few have failed to do so; these have been taken from amongst the others and placed in a hotbed, where they will soon root. Any of them that are well rooted should be shifted into pots a size larger. The Chrysanthemum does not suffer so much from bad man-

agement as some other classes of plants, but in order to do them well they must not be checked in the early stages of their growth either from being allowed to become pot-bound or by being exposed to cold east winds at this early season. We grow them in frames, in order that the lights may be removed entirely when the weather is fine, or to benefit from gentle rain in mild weather. The potting soil was mixed up at least six weeks ago, and it is always convenient to have it ready for use as often as the plants require repotting. They like a generous diet from the first.

#### THE CINERARIA.

The flowers are opening very nicely now, and it is very interesting to see the seedling flowers open for the first time when you are sure the strain is a good one. On the other hand, it is very disappointing to

#### LATE CHRYSANTHEMUMS.

Among unlooked for flowers, though by no means unwelcome at this late date (February 16) is a comparatively good flower of Chrysanthemum, Mrs. Mahood, a variety figuring among the new Japanese kinds of 1884, and which also received a First-class Certificate. The colour is creamy-white, changing to pure white, florets long and thread-like, in all a flower of great promise; and seeing that it is capable of perfecting its blossoms at this season, it is only natural to assume that by special culture it will take a leading place among late whites in the future. A fading flower of Mrs. Charles Carey, an indispensable late white, was also cut to-day with the first-named from a shoot made in early autumn. A good flower has been produced on a plant of Roseum superbum, which lacked, however, some of its original colour; and last on the list is Duchess of Connaught, which, according to its progress of late, will not expaod for some weeks to come. Not only are they slow in expanding their blossoms at this season, but their longevity after development is important and interesting also. *E. Jenkins, Floral Nurseries, Maidenhead.*

#### VENETIAN SASHES FOR GLASS-HOUSES.

THE idea of admitting the greatest possible amount of air, tantamount, indeed, to taking off the roof, has

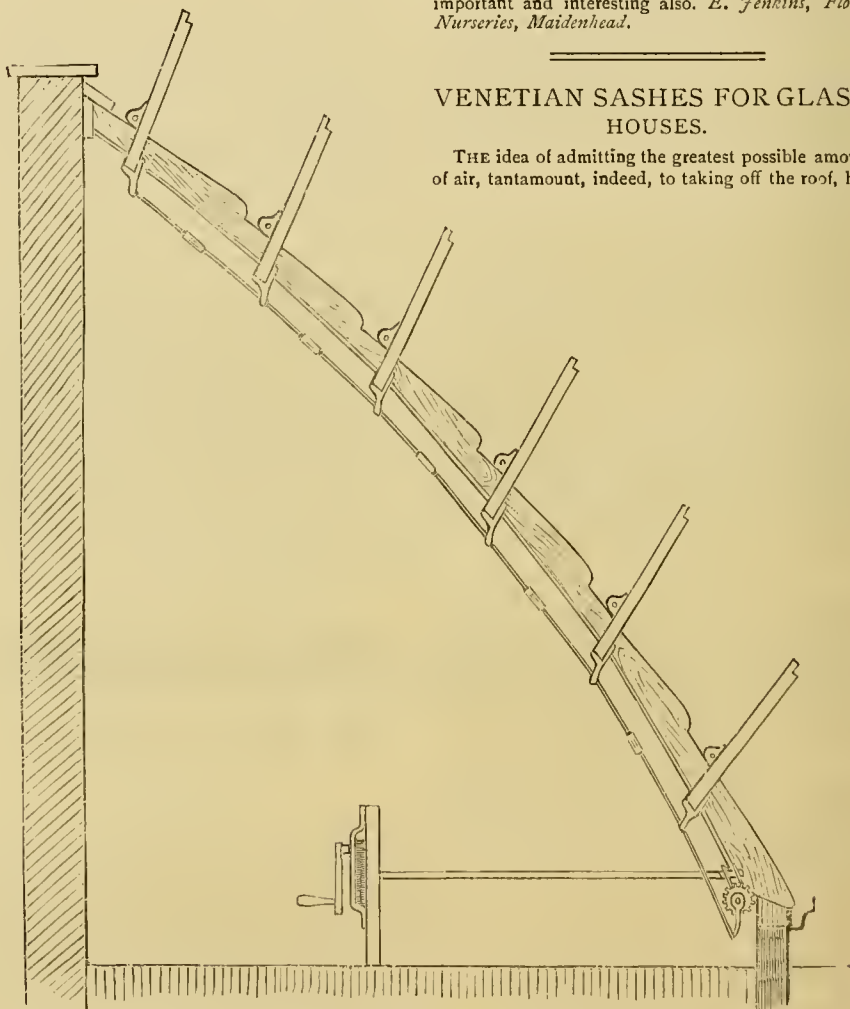


FIG. 55.—VENETIAN HOUSE: OPEN.

take the greatest pains to grow the plants well and then find it is only a common strain after all. How important it is that the very best seeds should be obtained when the difference in price between the good and bad article may be only a shilling, while the expense of growing the plants may be reckoned at a very large sum indeed. Even the latest-flowering plants should be in their flowering pots before this time; indeed I never have any to pot after the new year comes in. The plants are very impatient of want of attention to the watering of them; many of the pots become quite full of active roots, and in that state they require considerable supplies. As the sun becomes powerful the plants must be looked over daily. Weak liquid-manure water applied twice a week adds a darker tint to the leaves and more brilliant colour to the flowers. If the plants are well fumigated with tobacco-smoke up to the time the first flowers open the plants will be free from insect pests. *J. Douglas.*

been carried into practice by Messrs. Skinner & Board, horticultural builders, of Bristol. Such houses are, perhaps, best adapted for Peach-houses, for Strawberries, and Melons, Tomatos, Capsicums, Cape Gooseberries, and for hardy fruit cultivation in bad climates. The amount of opening can be regulated by a simple endless screw and hinged arms fixed on a movable iron rod. Such a house would also be well adapted for hardy and half-hardy Ferns, and the Himalayan varieties of Rhododendrons and Camellias; but Grapes grown with such ventilation would be most likely to suffer from rust and mildew, although the construction is well suited to give the Vines the fullest exposure during their period of rest. For Vineries during the growing period of the Vines the four lights in the middle of the roof should be made to disconnect, so that ventilation could be given only at the top and bottom of the house. Like all the labour-saving methods of ventilating, there remains the disadvantage of being obliged to give air to all



parts of a house at the same time—a most undesirable thing, especially for amateurs, and those who are constrained to carry on plant growing, raising plants from seeds, repotting, and pricking off young stock in one or two houses.

## SPIRÆA MEDIA

Var. ROTUNDIFOLIA (*S. rotundifolia alba*, Hort.)\*

THE accompanying illustration (fig. 56) represents a well-marked and very desirable form of the variable and widely distributed *Spiræa media*, a species which appears to occur from Austria and Southern Russia to Amurland and Japan. Both botanically and horticulturally *S. media* comes very near *S. chamædrifolia*, with which it is very frequently confused. The distinguishing characters relied on by Regel are the

Gumbleton, who obtained his plant from Lemoine, of Nancy, who bought his stock at the Leyden nursery above referred to. In any case the plant is a very welcome addition to British shrubberies, it is a dwarf compact grower, produces an abundance of its corymbs of pure white scented flowers, and would probably force well. *S. oblongifolia* is a taller growing form, with ovate acute leaves, entire or toothed only near the apex. *George Nicholson, Royal Gardens, Kew.*

## THE PROPAGATOR.

### THE PROPAGATION AND CULTURE OF MARANTAS.

THE Marantas form a group of highly ornamental plants; their prettily coloured and variegated foliage

the surface, putting them a quarter of an inch apart, and then covering them with a quarter of an inch layer of soil, which should be lightly pressed down, and its surface levelled. After having been watered the pans should be plunged in cocoa-nut fibre or other material in a cutting case over a brisk bottom-heat. Here they should not be allowed to become dry, and they must be shaded from all sun as well as being ventilated for one hour at night and in the morning. When the seedlings have grown 1 inch in height they should be taken out of the case and placed upon the open bottom-heat for a few days to harden them a little, and so fit them for potting.

### POTTING THE PLANTS.

Each of the seedlings should be potted into a small thumb-pot, and when they have been watered they should again be placed in the cutting-case, plunging them in the cocoa-nut fibre as before. They should be as near the light as possible, and for ventilation the light of the frame should be raised 1 inch both day and night; in the morning and at evening they should be watered with a fine rose pot, and should always be shaded from the sun. The plants should be treated in this way until they are strong enough for, and require repotting, and then they can be taken from the frame to the open bottom-heat for a few days. At the end of that time they can be potted into small 60's, and after having been watered they should be plunged into a bed in a good growing house, and as near the glass as possible. They should be kept well syringed and shaded from the sun, and on every mild day a little ventilation should be given. The Maranta grows best in a warm moist atmosphere, but they cannot stand much sun; they should, therefore, be placed at the north side of the house, if possible. When the plants have become strong enough to be shifted, the stronger ones should be potted into large 48's, and the remainder into small 48's. Well water them and replace upon the open bottom-heat, but it is not necessary to plunge them in the bed. When they have rooted through the soil and become well established plants they can either be potted on or removed to any other warm house where they may be required. In potting plants into 60 and larger-sized pots, soil composed as follows should be used:—half good turfy loam, quarter peat, and quarter river-sand, to which should be added a small quantity of charcoal.

### 2. FROM CUTTINGS.

Some varieties, such as *M. Lietzei*, *M. Warscewiczii*, *M. bicolor*, and *M. sanguinea*, form young plants upon the tops of the old flower-shoots, and these when taken off as cuttings soon develop into nice plants. The young plant or growth should not be taken off the old flower-spike until it has put forth three or four leaves, and in making the cuttings about an inch of the old flower-stem should be left to each cutting.

### POTTING THE CUTTINGS.

In potting them small thumb-pots should be used, and each cutting should be firmly pressed into the soil, which should be similar to that used for the seeds. After watering them they should be placed in a cutting-case over a gentle bottom-heat. The case should be shaded during sunshine and ventilated for half an hour at night and in the morning, while the plants should never be allowed to become dry. When the cuttings have well rooted the light of the case should be raised an inch and kept so day and night for a few days, but at the end of that time they should be turned out upon the open bottom-heat. They will soon have gained enough strength to necessitate potting into large 60's. The plants must now be plunged in the bed of a good growing house, and over a brisk bottom-heat. Here they must be kept well watered and syringed twice a day, lightly shading them from the sun, and ventilating them a little upon every mild day. When they require repotting they should be shifted into large 48's. After this has been done they should be watered and placed upon the bottom-heat, there to remain until they have well rooted through the soil, and become well-established plants. They can again be potted if necessary, or removed to any other warm house.

### 3. BY DIVISION.

Having knocked the plant out of the pot, and shaken the soil from the roots, the first thing to be done is with a sharp knife to divide the plants into as many pieces as plants required; although



FIG. 56.—SPIRÆA ROTUNDIFOLIA ALBA.

angled branches and erect styles of *S. chamædrifolia*, and the cylindric branches and curved or horizontally-spreading styles of *S. media*. After examining a series of specimens of both species the last-named seems to me to have habitually stamens with shorter filaments than those of *S. chamædrifolia*.

*S. media* var. *rotundifolia* was introduced from Japan some years ago by Von Siebold, of Leyden, and the first mention of it appears in the *List of Novelties for 1882*, published by the establishment in question; I am unable to state whether it was discovered in a wild state, or is only one of the numerous plants cultivated in Japanese gardens. The specimen herewith figured was sent by Mr. W. E.

and compact habit are shown to good effect when tastefully arranged with Ferns or mosses, and some of the varieties are admirably suited for the front rows in decoration. With regard to their multiplication there are three ways by which these plants may be increased, viz.:—1, from seed; 2, from cuttings; and, 3, by division.

### 1. FROM SEED.

Purchased seed should not be relied upon, but the gardener should save his own seed. Marantas will come true from seed, but to obtain the latter it will be necessary to fertilise the flowers as soon as they open day by day, because the flower soon fades. Directly the seed is ripe it should be gathered and sown. Well-drained 48-sized pans should be filled with soil composed of equal quantities of peat, leaf-mould, loam, and sand, after it has been well mixed together and sifted through a ¼-inch sieve. The pans should be filled within a quarter of an inch of the rim, and the soil should be firmly pressed in with the bottom of another pot. The seeds can then be sown upon

\* *SPIRÆA MEDIA*, Schmidt, (Estr. Baumz., i., 53, t. 54; Körnicke, in *Gartenflora*, 1863; Maximowicz, adnot. de *Spiræaceis*, p. 187 (1870).  
*S. chamædrifolia*, Camb. Mon. Spir. in *Ann. Sc. Nat.*, i., 362; non L. nec Led. Fl. Ross., ii., 14.  
*S. oblongifolia*, W. and K. Pl. rar. Hung., iii., 234, p. 261; Led. Fl. Ross., ii., 13.  
*S. confusa*, Regel and Körnicke, Ind. Sem. Hort. Petrop. 1859, 58; *Gartenflora*, 1858, 48.



each piece should not have less than two leaves upon it. In potting a little sand should be placed at the base of each piece, and small or large 60-pots should be used according to the size of the piece, and in every case the soil should be firmly pressed into the pots. After they have been watered they should be placed in a close house upon open bottom-heat, and plunged in the bed. To shade them a few newspapers can be laid over them during sunshine. It will also be necessary to sprinkle them with a fine-rose pot five or six times a day until they have well rooted, and then it can be withheld. The pieces that have rooted can be potted into large 48's, and after watering them replaced upon the gentle bottom-heat in a good growing place on the north side of the house. Upon every fine day the house should be ventilated a little, and during sunshine should be shaded. The plants must be kept well watered at the roots, and thoroughly syringed twice a day. They should be treated in this way until they have well rooted through the soil, and become strong plants. If large plants are required they must be again potted; but if not, they can be removed from the bottom-heat, and placed in any warm house.

The above methods of propagation are applicable to all varieties of the Maranta.

In conclusion we should point out that, as some of the strong-growing kinds, such as *M. Veitchii*, do not produce young plants freely from the base of the plant, it is a good plan in such cases to pull out the centre leaf growth, and continue to do so until the plant is so reduced that it will send up suckers more freely from the base. *T. O.*

## HOME CORRESPONDENCE.

**Gardeners at the Present Time.**—The competition amongst nurserymen anxious to supply "noblemea and gentlemen" with that respectable commodity called gardeners is evidently getting very keen, but how far this anxiety to do business may be of advantage to the fraternity those of us who are in it are able to see by a reference to your advertising columns. "Scotch gardeners" in wholesale quantities, "trustworthy and competent," to be had "at £50 to £100 a year," and this in the year of our Lord 1885. I fancy some of my old "chums," Scotch friends, must feel highly flattered by this announcement. After spending from eight to fifteen years in acquiring a knowledge of the art—sufficient to enable one to conduct the affairs of a small or a large garden successfully and economically—it is somewhat discouraging to see "gardeners," "competent and trustworthy," put up Dutch auction fashion at £50 per annum. If I might be allowed to make a suggestion to such gentlemen, who display so much kindly interest in gardeners, it would be that they should offer at rates per hour instead of per annum, and they would then wake up to a knowledge of how "competency" and "trustworthiness" were being rewarded. "Save me from my friends" is an old proverb, never more true than when applied by gardeners to those gentlemen in the trade who compete with each other in keeping down a just remuneration to qualified gardeners. *Z. Stevens, Trentham.*

**Lælia anceps.**—Mr. Douglas recommends immediate potting for newly imported plants of this popular Lælia, but without disparaging his advice it might be said that there are good reasons for the adoption of block or raft treatment for these plants for at least the first year. As Mr. Douglas suggests, there is danger in surrounding the living roots of this Lælia with compost, and the love of snails for the young roots is a second source of danger. It is still a disputed question whether newly imported epiphytal Orchids should in any case be potted as soon as received—many eminent growers prefer to block them for a time. Of course, where blocks are used, atmospheric moisture is of greater importance to the plants than when their roots are in contact with compost or shaded by the pots. Blocked plants are generally hung near the glass, so that the plants' roots are exposed to light and air on every side. As an instance of what this Lælia when grown upon a trellis or block will do, the superb specimen of *L. anceps* Illini shown by Sir Trevor Lawrence at the last meeting of the Royal Horticultural Society may be pointed to. This plant bore two dozen flower-

scapes, and was much admired. An excellent substitute for the flat piece of board or portion of tree trunk sometimes used for block-loving Orchids is the teak raft, which is formed by narrow strips of wood fastened to transverse pieces so as to leave a little space between each strip. These rafts are largely employed both by nurserymen and amateurs. Instead of suspending the rafts so as to hang perpendicularly, they should be hung obliquely, so that the top or growing ends of the plants may point in a slightly upward direction. The advantage of this plan is seen in the plant being turned wholly to the light, and the bottom of the raft, instead of hanging so that it often gets the full force of the sun upon it, is turned towards the ground. Other advantages, which this method possesses over that of hanging the plants upright will readily suggest themselves. We must remember that although the epiphytal Orchids grow against the upright trunks of trees, light reaches them, not from behind nor from exactly overhead, but in front of them. Orchids which grow on the tops of trees or shrubs always turn their full face to the sun, or at least in an upward direction. *W.*

**Dendrobium speciosum.**—I see in the *Gardeners' Chronicle* of February 7 a few lines describing *Dendrobium speciosum* as a shy blooming species. My experience points to the contrary; it blooms with me yearly, once excepted, and that was on account of excessive moisture which caused decay. A plant now in my charge carries eight racemes, each one bearing forty-five to fifty-five blooms each. *William Batchelor, Gardener to Alex. Drueg, Esq., Dulwich Common, S.E.*

**Violets Swanley White and New York.**—I can fully endorse all that your correspondent, Mr. Rust, says in favour of the above (p. 249). They are, I fully believe, a pretty acquisition to this lovely tribe, in particular as being autumn and winter-flowering varieties. I have grown both kinds in pots this season, much to the satisfaction of all who have seen them. Quantities of good bloom have been, and are now being, regularly gathered. I advocate the planting of young stuff every season, and the present month is a good one for the purpose. Insert them into light compost a few inches apart, and when fairly established plant into cold pits near the light, finally planting them out on a shady border at 1 foot each way. Remove runners occasionally, and give plenty of rain-water in dry weather. *Thos. Garnett, Cavendish Gardens, S.W.*

**Camellias.**—A few days ago I saw a houseful of what had been a short time since a very nice healthy collection of Camellias, but at the time of my late visit they were in a yellow sickly condition, chiefly without flower-buds, and the worst of them almost without foliage. They were occupying a house facing west, and as well as I could judge there was nothing either in the position or construction of the house detrimental to the plants. The only probable cause of their present condition is that two years ago they were potted into a compost consisting of loam two parts, peat one part, leaf-mould one part, with a slight addition of sharp sand; and to the introduction of the leaf-mould was attributed their present state. Supposing the leaf-mould to have been well decayed and perfectly free from fungus, is it probable that it could have been the cause of the mischief? I make this inquiry because a few years ago a very similar case came under my observation, but on this occasion the misfortune was at first attributed to the use of water containing a good deal of lime. Soft water was then used, but with little or no improvement; the soil was then shook from their roots, and they were again potted into a compost in which the leaf-mould was omitted, when they soon began to improve and regain their former healthy condition. Camellias succeed well in good sandy peat, and so they will in light turfy sandy loam, but when leaf-mould is introduced they do sometimes fail, but not always. Why is this? *T. S. C.* [On the Continent leaf-mould that has laid long in the forest is used for Camellias without any admixture. Leaf-mould varies much according to the trees from which it is collected and the length of time it has lain. *Ed.*]

**Imantophyllum miniatum.**—I can recommend this plant to those who, having but a limited amount of glass, are expected to grow an unlimited amount of flowers; extravagance in these is now, indeed, the

order of the day, and gardeners with limited means must use their skill to keep up the supply. The above is of easy cultivation, and by having a dozen or two, and bringing a few at a time into heat, blooms may be had all the year round. I am also confident that the same plants have bloomed twice at least with me in one year. They may be easily multiplied by dividing, and should be repotted every second year, in a similar compost to what is used for *Eucharis*. Their blooms also contrast well with the blooms of the *Eucharis*, in fact I find both invaluable for winter decoration. I have had some with scapes bearing eighteen of their bright vermilion flowers. *A. MacDonald, Cheadle, Manchester.*

**The Ullucus** (see *Gardeners Chronicle*, p. 216, Feb. 14).—As far as I recollect, the Ulluco was imported and tried at Chiswick in Lindley's time, and with the same negative results. We are apt to forget the vast amount of good work done by the Society; work that has been going on like a quiet stream from the beginning, and aye is flowing still. I cannot concede that our Society was ever despised; certainly not by respectable people. Perhaps it was by the noble army of defaulters who took their tickets, enjoyed their privileges, and bolted without paying. Or was it confined to the little man who desired to look down with contempt upon us, but was obliged to get up in a chair to do it? The real friends of our dear old Society may rest assured, that after having taught horticulture in its highest sense to the whole civilised world, it can afford to be despised by those whose contempt is a compliment. *R. Trevor Clarke, Welton Place.* [The feeling was confined to certain bondholders, who had no sympathy except for their ducats, and which the Society financially ruined itself to provide without help from those who had the chief and permanent advantage of the afore-said ducats. *Ed.*]

**Brussels Sprouts: May's Northaw Prize.**—The above-named variety I consider to be the best I have ever grown, having stems 3 feet long entirely covered from top to bottom with medium-sized, firm, solid green sprouts. When cooked they are of excellent quality. For exhibition purposes it has no equal, this variety having taken 1st prize at South Kensington and Westminster Aquarium shows last autumn. *J. Edmonds.*

**Narcissus monophyllus** (Clusii and albus).—These beautiful snow-white flowers have been blooming with us from the middle of January, and will continue so for some weeks, under one of Boulton & Paul's frames. Early in autumn we planted the bulbs in a mixture of sand and loam, the bed raised a few inches above the general level, and covered with the frame, the lights raised sufficiently to admit air but to protect from the cold autumn rains. When the leaves had advanced an inch or two the sides of the frame were alternately raised, thus fully exposing the plants, except when there was a severe frost or heavy rains, then air only was admitted, and this will be followed till the weather becomes dry and warm, when the glass will be kept constantly down, only admitting air. *P. Barr.*

**The Earliest Narcissus.**—*Narcissus pallidus præcox* is now expanding its beautiful sulphur-coloured blossoms in the open, and will, as happened last year, be nearly a fortnight in advance of all others. In our bulb grounds, Tooting, the first flower opened about the 15th inst. *Barr & Son, Feb. 24.* [The flowers sent to us by Mr. Barr were well developed and perfect examples of these harbingers of spring. The pretty Hoop Petticoat is worth all the trouble of growing it as Mr. Barr does—in a frame. *Ed.*]

**Wall-fruit Tree Protection.**—Your correspondent, "A. L. 11." (p. 251) has done well in drawing attention to the question, as to whether glass copings for walls, as a means for protection against spring frosts, are really as useful and beneficial as some would have us imagine; and a discussion, giving us the opinion of practical men upon this important matter cannot fail to be both useful and interesting to your readers, more especially at this season of the year when the protection of fruit trees against frosts and cold winds is uppermost in our minds. My own experience—more especially considered from an economical point of view—is decidedly against the practice. In the first place, to cover a wall with glass coping 3 feet wide is rather



an expensive matter; and again, the subsequent cost of labour necessarily entailed through adopting this system would be considerable. Glass copings are permanent on the walls, and would obstruct the rains and dews throughout the year, thereby requiring a great amount of extra labour in order to keep the trees clear of the dirt and insects which would accumulate in such sheltered positions. The question of cost may not always be considered when good results are obtainable, but is it so in this instance? It is at least questionable. To my mind there are other methods of protection more simple, more economical, and more easily obtained, and I point to one in particular, which is also recommended by your correspondent "M. W.," p. 153, namely, that of tying Spruce Fir branches over the trees, which I have also adopted with excellent results. These or something similar can easily be obtained in most places, and it has this one great advantage over other methods, that as the season advances and the frosts and winds become less and less severe, the Fir branches become more and more destitute of foliage from constant dropping, so the trees become gradually hardened off, and when all danger of frosts is over the naked Fir branches can be taken off without injury to the trees. There are also several other simple methods, but to my mind none so good as this; and if we consider the difference of the cost of labour between Fir branches and glass copings the verdict must be given in favour of the former, and I do not hesitate to say, that trees protected by Fir branches in spring will produce at least quite as good, if not better, crops than those protected by glass coping. *Alfred Gant, The Gardens, Porter's Park.*

**Carter's Ashtop Fluke Potato.**—I missed noticing before Mr. Divers' allusion to this Potato (p. 90), in which he takes exception to my reference to it in a previous issue of the *Gardeners' Chronicle*. At that time I quoted a nobleman's head gardener as saying he was using it for frame culture, to succeed Myatt's Ashleaf, and that I had myself found it one of the earliest on a south border. That is quite accurate. Mr. Divers may at the same time have found it "a second early," by comparison, but he is mistaken in saying "it has always been classed as such in the catalogues." If he will turn to p. 31 of Carter's *Vade Mecum*, where it is fully referred to, he will see there is not a word as to its being a second early; on the contrary, that firm describes it as "the most perfect type of an early kidney," and I had mine from them direct. I understand there are several spurious sorts sold for this. *W. J. Murphy, Clonmel.*

**Some Permanent Beds for the Flower Garden: Bedding Out.**—How to diminish the quantity of bedding plants required to embellish the flower garden and pleasure ground during the summer season, that require the protection of glass during seven months of the year, is a problem that most gardeners would like to have solved in a satisfactory manner, for most are agreed that the room taken up and the time employed in attending to the ordinary class of bedding plants could oftentimes be used, when employers desire it, in a way that would give more varied and consequently pleasing results. My object is to show how some combinations can be produced with plants that are perfectly hardy, and at the same time be of no more trouble to the gardener than the usual bedding plants in summer and much less in winter. The Clematis stands foremost in the list of hardy bedding plants, for what can surpass a bed of Jackmanii edged with *Lonicera aurea reticulata*? I find one of the best-ways to manage the above is to plant the Clematis about a yard apart each way, and in two seasons they will have filled the bed. Then if it is desired some of the plants can be transplanted to form other beds. In after years I find the best way to manage them is soon after the foliage is dead to cut three-fourths of each plant down to the ground, the remaining portion can be layered by simply burying the shoots, leaving some of the eyes out of the ground, which method of treating them will soon fill the bed with a mass of roots, and plants can be procured in quantity for planting elsewhere; at the same time fork in plenty of good rotten manure. The *Lonicera* is best left all the winter; it forms a cheerful edging during the dull winter months, but about the end of March cut it down quite close to the ground; it will soon break strong, making a thick edging of golden foliage, and it is much better kept in order by this

treatment. Another good combination is a large circle, say 15 feet in diameter, centre planted with *Rudbeckia Neumannii*, a plant that requires transplanting every two years to make strong growth; next to that *Clematis Jackmannii*, edged with *Santolina iacana* or *Dactylis elegantissima*. Many effective beds can be formed of varieties of Clematis, but there is none to beat those of the Jackmannii type for the purpose, as they are strong growers, with great floriferousness. A large circle planted with Pampas-grass, edged with *Tritoma uvaria glaucescens*, forms a noble and attractive bed. During the past season a bed here was quite gay up to Christmas. *Tritomas* can be easily increased by cutting them up or by seed: some I sowed last January, and a few seedlings bloomed in autumn. Blue Delphiniums, mixed with dwarf plants of *Acer Negundo variegata*, the *Acer* being well cut back every year; dig in plenty of rotten manure in winter, which will cause the *Acer* and Delphinium to make strong growth, and a charming bed will result during summer. Yellow Spanish Broom, mixed with the copper-leaved Filbert, forms a very gay bed until the Filbert loses its leaves. *N.*

**Artificial Manure for Bulbs: Caution.**—Observing last year some remarkably fine Daffodils in flower in pots, I asked the secret of growing them, and received the following directions for a manure:—Superphosphate of lime, 34; nitrate of potash, 16; sulphate of lime, 25; nitrate of soda, 25—total, 100; quantity for a 32-sized pot, as much as would lie on a shilling. In autumn I began to experiment with it, and for a patch of Daffodils or Anemones in the open ground I mixed well with the soil above, below, and round the bulbs, at most a table-spoonful. This quantity was about equally spread in a cubic foot of soil. The bulbs so treated were carefully labelled. On going round and comparing them with those which had no manure, I find that the result of the chemicals has been deplorable. Some of the Daffodils have rotted in the ground without attempting to grow, while others are growing weakly. But the difference between manure and no manure is still more conspicuous in the Anemones. Those which were planted in the dressed soil are putting up a few threadlike stalks, and on examination many of the tubers seem dead, whilst those by their side in plain soil are healthy and vigorous and in forward bud. This experiment has been a warning to me not to play with artificial manures in gardening. *C. Wolley Dod, Edge Hall, Malpas.*

**The Mooncock Island.**—Has any one heard of the Cranberry (*Vaccinium oxycoccus*) being known by the name of Mooncock? In Anagarriff Lake, situated about 3 miles from Lough Neagh, in the North of Ireland, there are several small islands, one of which, from being almost covered with the Cranberry, is known by the above name. A pleasure party used annually, for a number of years, to visit the island in summer to indulge in the delicious cooling berries, which were extremely large and palatable. Jam was also made of the fruit, which was considered a great delicacy by the gentry in the district. Adjoining this, was another island, which for many years floated about from one end of the lake to the other. It was well clothed with small trees and Heath (the latter indigenous). I can well remember how on one occasion, during a series of storms, it moved almost the full length of the lake (about 1 mile) in less than a week, the movement being regulated by the prevailing wind at the particular time. Unfortunately, some years ago, this island got into shallow water, and has ever since remained permanent, the roots of the trees being now perhaps the most powerful agents in putting a stop to its wandering career. The advisability of again detaching it was seriously considered, but afterwards wisely abandoned. *A. D. Webster.*

**Mandevilla suaveolens.**—Old favourites disappear to make way for new, and this seems to have been the case with *Mandevilla suaveolens*, a plant that is now rarely seen, but which is one of the finest things in existence, as it has lovely pure white, sweet-scented, trumpet-shaped blossoms, as large as those of some of the *Dipladenias*, with which, in a cut state, those of the *Mandevilla* dress and associate well, forming a most pleasing contrast in their two distinct colours. Where plants appear at their best is when they are growing almost naturally, or with-

out much restraint, in the roof of a lofty conservatory, under which conditions I had the pleasure of seeing one last autumn at Hazelwood, near Watford, under the able management of Mr. Stannard, which had innumerable racemes of flowers that quite scented the house. So full and free of growth is this *Mandevilla* that it covers an immense space, and I remember meeting with one many years ago, in a span-roofed structure, that had found its way out through the openings where the lights were down, the long shoots of which plant were lying on the glass and blooming in the greatest profusion. The secret of success with it seems to be to keep it cool during the summer, and if possible, or convenient, syringed with plenty of clear water, as otherwise the leaves are sure to become infested with red-spider, for which reason we had to abandon its culture in our iron-roofed conservatory, where we could not keep it clear from that troublesome parasite; as the temperature in the summer runs very high, and the leaves always become very brown and shabby long before the summer was over. As the *Mandevilla suaveolens* flowers on the young growths, which run out yards in length, the way to treat it is to train the main shoots under the girders or rafters, and every year when spring comes round shorten the others back, soon after which all the back buds will break and reclothe the house. The most suitable soil to grow the plants in is a mixture of equal parts peat and loam, which should be used in a rough state on plenty of drainage, that the water, of which *Mandevilla suaveolens*, when growing and blooming, cannot well have too much, may pass away without souring the border and making it close. *J. Sheppard.*

**Pruning Dendrobiums.**—The tumbling acrobats who frequent country fairs are ever attempting to do things different to the rest of mankind. Were it not for this they would pass through the world unnoticed; they walk on their hands instead of their heels, yet the method of locomotion is so manifestly wrong that they get few imitators. Of a like character is the mischievous practice of cutting away the fresh living bulbs of Orchids. There is probably not an experienced Orchid grower in the country who has not tried it, and proved the mutilation to be as far wrong as it is opposed to common sense. The matter has been discussed and threshed out in a way to satisfy reasonable people, yet the upholders of the barbarous practice appear determined, directly or indirectly, to proclaim that it is right. The subject would not deserve notice were it not that when such teaching gains currency there are always some incautious enough to adopt it, in the way that there was when the practice was first mooted, the result of which was that the plants so treated, from being in a healthy thriving state, were so injured that they never recovered. *T. B.*

## The Herbaceous Border.

### EXCELLENT HARDY BORDER PLANTS.

**LYCHNIS VESPERTINA FL.-PL.**—A plant not half as much known as it should be, so showy and useful is it during the late summer months; planted in good soil it branches most copiously, forming a good mass of white flowers not unlike those of large double Chinese Primroses, and almost as useful in a cut state as these. The difficulty with which it is propagated has perhaps a great deal to do with its comparative scarcity in our gardens. Dividing is out of the question, and no seed is produced, while the striking of cuttings is a tedious and often perplexing business, unless one particular method is adopted, when with patience a stock may be had. The best way to manage this is to place a stock plant in gentle warmth at once, so as to excite growth; allow the young shoots to become drawn and get soft at the base; select the smallest of these, taking them off with a heel, insert in sand, stand in the same house, keep moist and covered with a bell-glass, when in due time, 90 per cent. will root; some, however, may be six months. I have known them to be longer than this, but although a trying business the game is well worth the powder, as the plant is such a good one.

### DORONICUM PLANTAGINEUM EXCELSUM

is of quite a different character, but equally desirable. In my opinion no herbaceous border



should be short of good masses of this, and these can soon be had in rich soil, for it grows most luxuriantly, especially if it is frequently split up, indeed if allowed to stand long in one position it deteriorates, the best plan is to divide it freely, selecting the strongest crowns each time. It flowers from early spring until cut down by frost. If thus handled, and if plants are lifted, potted, and placed in a cool greenhouse, its charming large yellow capitula may be enjoyed all through the winter. The Rev. Wolley Dod flowers it this way, and when well known it should be a conspicuous feature in such houses during the dull winter season. I recently saw a clump which was lifted at the end of December and placed in a very cool house, and it is now pushing up its flower-heads (January 27). I noticed in a contemporary lately Mr. Wolley Dod proposed the name of Harpur Crewe for this plant, which is, I think, a pity, for writing from memory I am under the impression the same gentleman named it *excelsum*, while it emanates from another source under the name of *Draytoniensis*; hence this beautiful plant, so far, has been christened not less than three times. I think the one here adopted, first registered in the *Gardeners' Chronicle*, should be considered first and best, however much one may desire to perpetuate the name of the enthusiast in whose garden it originated.

#### CHRYSANthemum atratum,

a name I cannot say is to be generally accepted. The first plants I ever saw of it were received from Mr. J. Whittaker, of Morley, who informed me he obtained it from the Liverpool Botanic Gardens. It is distinct from any of the other kinds I know, being much dwarfer than *Leucanthemum*, and one known as *maximum*; the leaves are also different, and the flower-heads are much larger, the ray-florets not so thickly set, but longer and narrower in proportion to their length, and certainly purer white. It is selected as the best by the merest tyro, and is likely to become a popular plant. It increases pretty freely by division, which, as far as I know, is the only way to augment the stock, as so far I have not seen seed produced.

#### GERANIUM ARMENIUM.

To get this beautiful Crane's Bill in the best condition it should be planted in a deep rich tilth, and then be allowed to remain for some years, the only attention needful afterwards being an annual top-dressing of manure; it will produce large branching heads 3 feet across, crowded with the large purplish-crimson flowers; and sometimes it seeds freely, by which means it may be readily increased, sowing the seed in pots in spring, and placing them in a cool-house or cold frame. By taking pieces of the root it may also be increased.

#### ACHILLEA PTARMICA FL.-PL.

An old and well known plant, nevertheless one of the best; no border should be without it, but plenty of room must be assigned, as it grows very freely, spreading beneath the surface at a great rate, quickly forming dense masses which, when crowded in the summer months with the white flower-heads, can scarcely be surpassed in effect, while it proves most valuable to cut flowers from. Wherever there is a large demand for cut flowers this should be freely planted, and when once a stock is secured there will be no difficulty to keep it, as it can be so freely divided.

#### SPIRÆA VENUSTA.

Some are inclined to throw cold water upon this plant, the reason I fail to discern, as it is certainly very beautiful when in flower. It grows from 3 to 4 feet high when happy, producing large cymes of deepish rose-coloured flowers, quite unlike any of the other "Meadow Sweets," and it grows very freely if planted in the right position. Herein lies the cause of much dissatisfaction I imagine; as it revels in a damp situation, partially shaded and well manured: thus treated it blossoms and increases freely, and the roots may be divided *ad lib.* after flowering, or as soon as the leaves show signs of decay.

#### ANTHERICUM LILIASTRUM, OR ST. BRUNO'S LILY

as it is popularly known, is also a very handsome and chaste plant when in flower, producing its tufts of grass-like foliage, and spikes of pure white flowers, with a sweet fragrance, supposed to be known by everybody ere this, but not represented in one-half of the principal gardens in the kingdom, as it should be. As it is such a sweet plant, large tufts of it should

adorn all borders; it thrives best in a rich holding soil, and the more it is divided, say yearly, the finer crowns are produced, and the larger and more floriferous will be the flower-spikes. Mr. Wood, of Kirkstall, recommends that it should be grown similarly to Lily of the Valley crowns, and when sufficient strength is secured pot them in the autumn, and when semi-established they may be gently forced and used for the conservatory or the individual flowers for cutting, &c.

## Reports of Societies.

### EDINBURGH BOTANICAL.

THE BUDS OF *PINUS SILVESTRIS*.—A paper on this subject was read by Professor Alexander Dickson at a recent meeting of the Edinburgh Botanical Society. He said:—

Many Coniferæ exhibit remarkable specialisation as regards branch development. In some, as in *Larix* and *Cedrus*, there is a marked tendency to a contracted development, or shortening of many of the shoots which appear as "spurs," with numerous leaves crowded together to form a fascicle. Here it is only certain of the shoots which are developed in this way, and of these it may happen that a spur of one season may next season become produced at its extremity in the ordinary elongated form with scattered foliage leaves. A further step in specialisation occurs in *Pinus*, where, in the adult condition, the leaves on the elongated shoots are reduced to chaffy scales, from whose axils buds are produced, which, after developing from 2–5 foliage-leaves, abort at the growing point. In this genus we had then the remarkable condition of the foliage leaves in the adult plant being developed exclusively in 2–5-membered fascicles on shortened and abortive branches, and as these are perfectly comparable to the spurs in the *Larch* and *Cedar*, they may likewise be described as spurs developing 2–5-membered leaf-fascicles. In *Pinus sylvestris*, and a number of other species, there are only two foliage-leaves in the fascicle, and hence it seems convenient to designate such spurs as bifoliar. These "spurs" in *Pinus* fall off bodily after a certain period—from two to five years according to the species—and, in this, as pointed out by Dr. James Stark\*, we have an approximation to this condition in many *Cupressineæ*, where the individual leaves are not shed, but where there is from year to year a shedding of leafy twigs, a phenomenon to which the term *cladotaxis* has been applied. The highest specialisation in branch-development occurring in the order is to be noted in the genera *Sciadopitys* and *Phyllocladus*, where in the adult state there are no foliage-leaves at all, the leaves being all reduced to the form of scales, and where the "leaf-function" is performed by green cladodes which are slender and needle-like in *Sciadopitys* and in the form of flat expansions in *Phyllocladus*. It is to be noted that in *Pinus*, with development of foliage-leaves exclusively on abortive spurs in the adult condition, the ordinary or unspecialised condition is exhibited in the seedling plant, where we have a development of foliage-leaves scattered on an elongated shoot—a condition which persists throughout life in such genera as *Abies* and *Picea*; and, similarly, we have in the seedling *Sciadopitys* a few genuine foliage-leaves immediately succeeding the cotyledons, although in later life we have the very highly specialised condition above described, where the foliage-leaves entirely disappear.

The specimen I now exhibit is one which I found in the neighbourhood of Biggar this winter. It is a small branch of *Pinus sylvestris*, the extremity of which has been destroyed—probably broken off. In consequence of this accident a large number of the "bifoliar spurs"—about twenty within a space of 3 inches below the injury—have been stimulated to further development, resulting in the production of a well-marked scaly bud placed between the basis of the two foliage-leaves of the original fascicle. It is further to be noted that the development of these buds is stronger the nearer their position to the seat of injury. In the more feebly stimulated spurs of this kind there is simply a closed scaly bud springing from between the bases of the two leaves of the fascicle; but in the stronger ones, near the seat of injury, the condition is somewhat different. In these the extremity of the spur produced beyond the bases of the two leaves of the fascicle does not immediately produce a closed bud, but before doing so develops a variable number of short but well marked foliage-leaves, and, in the very strongest ones, these foliage-leaves have secondary bifoliar spurs developed in their axils.

Such a specimen is interesting in two ways:—1st, as a well marked case of the development, in consequence of the removal of the extremity of the branch, of lateral buds, which would otherwise have remained more or less dormant—a phenomenon sufficiently familiar to the cultivator in his operations of pruning or "cutting back," 2d, as exhibiting, in the stronger buds above-mentioned, a reversion to the early or unspecialised condition in the development of foliage-leaves on the prolonged axis of the stimulated spur.

Abnormal development of this kind in *Pinus* is probably not very uncommon. Many years ago I observed very much the same condition in a branch of Scotch

\* On the Shedding of Branches and Leaves in Coniferæ. By Dr. James Stark (with notes by Professor Alex. Dickson). *Transact. Roy. Soc. Edin.*, vol. xxvii., pp. 651–9, plate xlv.

Fir, where the end of the shoot had been destroyed; and Dr. Masters, in his *Vegetable Teratology*, gives a figure where he represents the "ordinary arrangement of the leaves in fascicles of three" in *Pinus Pinea*, as contrasted with an "unusual arrangement of leaves of the same plant in spires."\* From his figure I should imagine that the abnormality represented was a spur stimulated to further growth, as in my specimen, from which the leaves of the original fascicle had fallen off; and it is further to be noted that the spirally-arranged foliage-leaves are of the same character—comparatively short—as in my case.

### ROYAL MICROSCOPICAL.

At a recent meeting of this Society Mr. A. D. Michael read a paper on the life-histories of some of the little known Tyroglyphidæ. In 1873 Riley published a report on the ravages of the Apple bark louse (*Aspidiotus conchiformis*), and described an *Acarus* which was supposed to destroy that pest, and which he thought might be the *Acarus malus* of Shimer. Riley only describes the female. Mr. Michael has found the *Acarus* in England under the bark of Reeds, destroying the Reeds, not feeding on any insect, and concludes that it is probably a feeder on various kinds of bark, not on animal life; he has traced the whole life-history. The male (previously unknown) presents the exceptional features possessed by Tyroglyphus carpi, discovered by Kramer in 1881, and the hypopial nymph has been figured by Canestrini and Fanzago in 1877, under the name of "parasite of an Oribata," but without explanation. Mr. Michael finds in the life-history of this *Hypopus* a confirmation of his views that the hypopial stage is not caused by exceptional adverse circumstances, as M'ginn supposes, but is an ordinary provision of Nature to insure the distribution of the species, which it is intended to call *T. corticalis*. Mr. Michael also called attention to the prevalence of *Rhizoglyphus Robini* on Dutch bulbs imported into England in 1884, and to the destructive nature of that species and the damages it did to Hyacinth, Dahlia, and *Eucharis* bulbs, &c., and recommended that imported bulbs should be carefully examined.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, FEBRUARY 25, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRICAL DEDUCTIONS from Glaisher's Tables 6th Edition.		WIND.	RAINFALL.
	Mean Reading at 9 A.M. to 3 P.M.	Departure from Average of 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 18 years.	Dew Point.	Degree of Humidity. Sat. = 100.		
Feb. 19	29.62	–0.20	42.0	29.0	13.0	35.1	–3.7	31.5	85	S.S.W. N.W. N.E. E.N.E.	0.00
20	29.35	–0.27	39.5	31.0	8.5	35.2	–2.7	31.1	84	E.	0.00
21	30.00	+0.19	41.0	26.0	15.0	33.1	–5.9	27.2	78	W.S.W.	0.00
22	29.65	–0.17	45.2	30.0	15.2	38.4	–0.7	37.3	96	W.S.W.	0.07
23	29.82	+0.01	51.3	35.0	16.3	43.9	+4.7	40.4	90	W.S.W.	0.01
24	29.59	–0.22	57.5	41.0	16.5	49.6	+10.3	40.7	72	S.S.E. S.S.W. S.E.	0.00
25	29.80	–0.01	53.0	44.0	9.0	46.8	+7.3	44.3	91	S.S.W.	0.23
Mean	29.72	–0.10	47.1	33.7	13.4	40.3	+1.3	36.1	84	S.S.W.	0.31

Feb. 19.—Dense fog from 11 A.M. to noon; very fine day and night.

- 20.—Dull throughout.
- 21.—Very fine, bright day and night.
- 22.—Dull day; drizzling rain all afternoon. Fine clear night; lunar halo.
- 23.—Very fine day and night; lunar halo.
- 24.—Very fine day and night.
- 25.—Rain falling all morning; fine afternoon, no rain from 2.30 P.M., very fine clear night.

LONDON: Atmospheric Pressure.—During the week ending February 21, the reading of the barometer at the level of the sea decreased from 29.72 inches at the beginning of the week to 29.20 inches by 5 P.M. on the 16th, increased to 29.83 inches by 9 A.M., decreased to 29.78 inches by 1 P.M., increased to 29.79 inches by 5 P.M. on the 19th, decreased to 29.67 inches by 9 A.M. on the 20th, increased to 30.21 inches by 9 A.M. on the 21st, and was 30.17 inches by the end of the week.

The mean reading of the barometer for the week was 29.64 inches, being 0.26 inch lower than last week, and 0.35 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 56°, on the 16th; the highest on the 20th was 39°.5. The mean of the seven high day temperatures was 46°.1.

\* *Vegetable Teratology*, p. 89, fig. 41.



The lowest temperature was 26°, on the 21st; on the 16th the lowest temperature was 46°.5. The mean of the seven low night temperatures was 35°.4.

The greatest range of temperature in one day was 15°, on the 21st; the smallest was 5°, on the 15th. The mean of the seven daily ranges was 10°.7.

The mean temperatures were—on the 15th, 47°.7; on the 16th, 49°.8; on the 17th, 41°.3; on the 18th, 38°.1; on the 19th, 35°.1; on the 20th, 35°.2; on the 21st, 33°.1; of these the first three were above their averages by 9°, 11°.1, and 2°.6, the rest were 0°.7, 3°.7, 2°.7, and 5°.9 respectively below their average.

The mean temperature of the week was 40°, being 5°.8 lower than last week, and 1°.4 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 102°, on the 21st. The mean of the seven readings was 67°.6.

The lowest reading of a minimum thermometer with its bulb placed on grass was 19°, on the 21st. The mean of the seven readings was 27°.8.

**Rain.**—Rain fell on three days to the amount of 0.94 inch, of which 0.61 inch fell on the 16th.

**ENGLAND: Temperature.**—During the week ending February 21, the highest temperatures were 56°, at Blackheath, 55° at Truro, 53°.2 at Cambridge; the highest at Sunderland was 41°, at Sheffield and Hull 43°. The general mean was 48°.

The lowest temperatures were 20°, at Cambridge, 21°.8 at Wolverhampton, 22° at Sheffield; the lowest at Plymouth, Brighton, and Sunderland, 29°. The general mean was 24°.9.

The greatest ranges were 33°.2 at Cambridge, 30°.1 at Bristol, 30° at Truro and Blackheath; the smallest ranges were 12° at Sunderland, 16°.2 at Liverpool, 17°.5 at Preston. The general mean was 23°.1.

The mean of the seven high day temperatures was highest at Truro, 49°.3, at Plymouth 48°.5, at Blackheath 46°.1; and was lowest at Bolton, 37°.4, at Sunderland 39°.7, at Liverpool and Bradford 40°.3. The general mean was 42°.9.

The mean of the seven low night temperatures was highest at Plymouth, 38°, at Truro and Brighton 37°; and was lowest at Hull, 28°.3, at Bolton 28°.8, at Wolverhampton 29°.1. The general mean was 32°.4.

The mean daily range was greatest at Leeds, 14°, at Hull 12°.4, at Truro and Wolverhampton 12°.3; and was least at Brighton, 7°.2, at Liverpool 8°.3, at Bolton 8°.6. The general mean was 10°.5.

The mean temperature was highest at Plymouth, 42°.8, at Truro 42°.7, at Brighton 40°.2; and was lowest at Bolton, 32°.8, at Hull 34°.1, at Bradford 34°.6. The general mean was 37°.2.

**Rain.**—The largest falls were 1.24 inch at Brighton, 1.21 inch at Sheffield, 1.16 inch at Bristol; the smallest fall was 0.19 inch at Sunderland, 0.59 inch at Cambridge, 0.70 inch at Liverpool. The general mean fall was 0.88 inch.

**SCOTLAND: Temperature.**—During the week ending February 21, the highest temperature was 47°.2, at Edinburgh; at Leith the highest was 40°. The general mean was 44°.

The lowest temperature in the week was 20°.3, at Aberdeen; at Paisley the lowest temperature was 27°. The general mean was 24°.2.

The mean temperature was highest at Paisley, 35°.1; and was lowest at Dundee, 32°.5. The general mean was 33°.7.

**Rain.**—The largest fall was 0.76 inch, at Greenock; the smallest fall was 0.02 inch, at Edinburgh. The general mean fall was 0.21 inch. No rain fell at Aberdeen.

JAMES GLAISHER, F.R.S.

**SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, February 23, 1885; issued by the Meteorological Office, 116, Victoria Street, London, S.W.:**—*Weather* was cold and generally fair during the greater part of this period, but towards its close it became milder and rough, with rain in the S. and S.W. and much snow, sleet, or rain in the N. and N.W. A thunderstorm was experienced in the S.W. of Ireland on the 21st and another in the Hebrides on the 22d.

*Temperature* has been below the mean in all districts, the deficit ranging from 1° in the "Channel Islands" to between 3° and 5° in most other districts and 6° in "Scotland, N." The highest of the maxima were registered on the 22d or 23d, and varied from 49° in "Scotland, N." to 55° in "England, S.W." and "Ireland, S." The minima, which were recorded either on the 20th or 21st, were lower than for many weeks past; in "Scotland, N." the thermometer fell to 9° and in "Scotland, E." to 15°, while in nearly all other districts it sank to between 18° and 23°. In the "Channel Islands," however, the lowest reading was 35°.

*Rainfall* has been rather more than the mean in "Scotland, N.," "England, N.W.," over Ireland, and in the "Channel Islands," but a little less elsewhere.

*Bright sunshine* shows a decided increase, the percentages of the possible duration varying from 17 in "England, N.E.," to 38 over Ireland and to 46 in "Scotland, E."

*Depressions observed.*—The distribution of pressure has been subject to considerable changes. At the commencement of the week the barometer was highest over the south of France, while shallow depressions were shown over Denmark and off the west of Norway, and other small shallow disturbances over southern England. On the 19th and 20th pressure was comparatively high in all the more northern parts of our area, while a depression moved eastward over the Bay of Biscay and France. By the 21st a large anticyclone had been formed over England, the North Sea, and the north of France, while a large and deep depression, whose centre subsequently travelled north-eastwards outside our western and north-western coasts, was approaching our western stations. During the first two days of the period the wind was generally moderate, between west and north-west, and on the 19th and 20th moderate to fresh from the eastward, but on the appearance of the depression in the west it shifted to the south-eastward and southward, and increased to a gale on all our coasts. In Scotland and the north-west of Ireland the gale was of unusual violence, and was accompanied by heavy snow, sleet, or rain.

## Obituary.

WE greatly regret to hear of the sudden death from heart disease of Mr. WILSON, who for the last twenty-nine years had been gardener to the Duke of Norfolk at Arundel Castle. Mr. Wilson was in the sixty-fifth year of his age, and up to the time of his death was engaged in carrying out the extensive improvements in the Castle gardens, which we noted only a few months since. Mr. Wilson was an excellent example of the good old school of "all round" gardeners, who aimed at general excellence in all departments committed to his charge. The demands upon his talents and ability were exceptional in some particulars, but were fulfilled in the most satisfactory manner.

## Enquiries.

"He that questioneth much shall learn much."—BACON.

**DAUBENTONIAS.**—Can any reader tell me how to grow and flower the different species of this genus? *Foreign Subscriber.*

**THUIA GIGANTEA (LOBBI).**—At Wiston Park, Sussex, is a tree of this species, planted in 1856, the girth of the stem at 3 feet from the ground being 5 feet 2½ inches. Is there any larger than this in the country? B.

## Answers to Correspondents.

**CAMELLIA: B.** The plant was named by Linnæus in honour of Father Camelli, and hence should be spelt *Camellia*. Camelli was a Jesuit missionary, who made large botanical collections in the Philippine Islands.

**COLOURED PLATE OF HOLLYHOCK: F. Dawber.** No; there has been no such plate issued by us.

**CORRIGENDA.**—In our report of "Membrand," p. 238, line 20, read *spur* for *span*, and p. 239, line 18, read Hathaway's Excelsior and Stamfordford, instead of Hathaway's Stamfordford Excelsior.

**DEFORMED SEQUOIA: F. W.** Yes; but inadvertently omitted in our Communications Received.

**EXUDATION ON CAMELLIA LEAVES: Amateur.** As there are no creepers that would account for the appearance on the leaves, we are constrained to believe it to be an exudation from the leaves themselves; and

that such does occur there is no doubt, although in other cases the effects witnessed are due to aphides. The subject is still an obscure one, and no satisfactory explanations have been given for these states of the foliage of Camellias and other plants under glass and outside. The change to black may be occasioned by smut, dust, and exposure to the air.

**GRANT ALLEN'S COLOURS OF FLOWERS: P.** Except on the topsy-turvy principle, we cannot see how the theory can be true. Asa Gray, moreover, points out that it is not the stamens that are yellow, but the pollen.

**HYACINTH BELLS: P. H.** We cannot undertake to name flowers from such scraps.

**KEW: Pilgrim and Others.** The matter is under consideration. We strongly sympathise. The difficulty would lie in the carrying out your proposals, which in themselves are excellent.

**NAMES OF FRUITS: Brown & Tweedie. Apple:** Blenheim Orange, a small example.

**NAMES OF PLANTS: Thomas Hughes.** Lagerstroemia indica; of course, introduced into Buenos Ayres.—*A. E. Smith.* *Cologyne breviscapa*, probably; but please send particulars as to the form of the bulbs, foliage, &c.—*H. M. H.* A form of *Lælia anceps*; *Dendrobium heterocarpum*.—*R. A.* 1, *Maxillaria punctata*; 2, *Maddevalia polysticta*; 3, *Odontoglossum odoratum*; 4, *Eletia hyacinthina*, as far as we can tell from withered scraps.

**SEEDLING ORCHID: C.** The first notice we have of raising Orchids from seed dates from 1832, when the seeds of *Prescottia plantaginea* were raised in the garden of the Horticultural Society at Chiswick.

**TWO-WHEELED CART FOR SHIFTING LARGE PLANTS: W. Catterwell.** The address of the maker at Hackney is not known to us.

**WIRED GARDEN WALLS: E. Warner.** There is no harm in wiring garden walls provided the wire be of a fine description, and the trees are fastened to it with care. The worst wire is the thick galvanised fencing wire, and it is worst in its effects when it is at such a distance away from the wall, that there is a space of several inches between the two. When a tree lies close to the wall—as it would if the wire stud-holes were flush with the wall—there would be no motion whatever from wind, and consequently no friction to cause canker and gumming. The wire should be placed vertically, and fastened at top and bottom; this gives great rigidity, and, being close to the wall, shoots cannot get behind it.

## CATALOGUES RECEIVED.

VICCARS COLLYER & Co., Leicester—List of Floral Gems.

P. J. KANE, Kells, Co. Meath—Vegetable and Flower Seeds, Bulbs, &c.

THOS. KENNEDY & Co., Dumfries—Agricultural Seeds. WESTACOTT & Co., Hayward's Heath—Wire Work for Gardens.

CARTER & Co., 237 and 238, High Holborn, London—Farmer's Handbook. H. ELLIOTT, Springfield Nursery, St. Helier's, Jersey—Chrysanthemums.

FRATELLI ROVELLI, Pallanza, Lake Maggiore, Italy—Plants, Greenhouse, Hothouse, and Camellias.

W. STACEY, Great Dunmow, Essex—New Verbenas.

J. FORBES, Hawick, N.B.—Florists' Flowers.

EO. GILLETS, Southwick, Mass., U.S.A.—Perennials, Orchids, Alpines, Aquatics, Climbers, Bog Plants, and Rare Ferns.

Messrs. WEBB & SONS, Wordsley, Stourbridge—Farm Seeds.

W. PAUL & SON, Crossflat Nursery, Paisley—Show and Fancy Pansies, Pinks, and Florists' Flowers.

V. H. HALLOCH, SON & THORPE, Queen's, N.Y.—General Catalogue, with Cultural Remarks.

**COMMUNICATIONS RECEIVED.**—C. Koopman. A. T.—C. B. P.—J. R.—M. D.—Z.—G. K. L.—R. S.—H. V.—W. B.—E. S. D.—C. B.—G. N. (with thanks).—W. J. H.—F. J. W.—W. M.—C. F. Young.—Dring & Son.—J. Hammond.—R. Smith.—H. W.—J. F.—W. B.—H. E.—W. J. M.

## Markets.

COVENT GARDEN, February 26.

No alteration. Business stagnant. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6	0-24	Ficus elastica, each	1	6-7
Arbor-vitæ (golden),			Foliage Plants, vari-		
per dozen	6	0-18	ous, each	2	0-10
— (commoo), dozen	6	0-12	Geostia, 12 pots	2	0-18
Arum Lilies, dozen	9	0-15	Heaths, in variety,		
Azaleas, per dozen	18	0-42	12 pots	9	0-18
Begonias, per doz.	6	0-12	Hyacinths, per doz.	6	0-9
Bouvardia, dozen	9	0-18	Lily-of-the-Valley, 12		
Cinerarias, per doz.	9	0-12	pots	15	0-24
Cyclamens, per doz.	9	0-24	Marguerite Daisy,		
Cyperus, per dozen	4	0-12	per dozen	8	0-15
Dracæna terminalis,			Myrtles, per doz.	6	0-12
per dozen	30	0-60	Narcissus, 12 pots	12	0-18
— viridis, per doz.	12	0-24	Palms, in variety,		
Epiphyllum, doz.	18	0-24	each	2	6-21
Erica, various, doz.	9	0-18	Pelargoniums, scar-		
Euonymus, various,			let, per dozen	4	0-6
per dozen	6	0-18	Primula sinensis, per		
Evergreens, in var.,			dozen	4	0-6
per dozen	6	0-24	Solanums, dozen	9	0-12
Ferns, in variety, per			Spiræa, per dozen	12	0-18
dozen	4	0-18	Tulips, dozen pots	8	0-0



## CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilon, 12 bunches	2 0-4 0
Arum Lilies, 12 blms.	3 0-6 0
Azalea, 12 sprays	0 9-1 0
Bouvardias, per buo.	1 0-1 6
Camellias, per doz.	1 0-4 0
Caranths, 12 blms.	1 0-3 0
Cinerarias, per bun.	0 9-1 0
Cyclamen, 12 blooms	0 3-0 3
Epiphyllum, 12 blms.	0 4-0 6
Eucharis, per doz.	4 0-6 0
Euphorbia jacquini- flora, 12 sprays	3 0-6 0
Gardenias, 12 blms.	6 0-12 0
Heliotropes, 12 sp.	0 6-1 0
Hyacinths, Roman, 12 sprays	1 0-1 6
Lapageria, white, 12 blooms	2 0-3 0
red, 12 blooms	1 0-2 0
Lily-of-Val., 12 sprays	1 0-2 0

## FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 1/2-sieve	1 6-4 0
— Nova Scotia and Canadian, barrel	12 0-21 0
Cobs, per 100 lb.	50 0-55 0
Grapes, per lb.	3 0-6 0
Lemons, per case	12 0-18 0
Pine-apples, Eng. lb.	1 0-2 0
— St. Michael, each	2 6-8 0
Pears, French, doz.	3 0-9 0

## VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz.	4 0-6 0
Asparagus, English, per bundle	3 6-10 0
— French, bundle	15 0-20 0
Beans, Eng., per 100	3 0-4 0
Beet, per doz.	1 0-1 0
Cabbages, per doz.	1 6-2 0
Carrots, per bun.	0 6-1 0
Cauliflowers, Eng- lish, dozen	2 0-4 0
Celeriac, per root	0 4-0 4
Celery, per bundle	1 6-2 0
Cucumbers, each	1 0-2 0
Endive, per dozen	2 0-2 6
Garlic, per lb.	0 6-0 6
Herbs, per bunch	0 2-0 4
Horse Radish, bun.	3 0-4 0
Lettuces, Cab., doz.	1 6-1 6
Mint, green, bunch.	1 6-1 6
Mushrooms, p. basket	1 0-1 6
Onions, per bushel	4 0-6 0
— Spring, per bun.	0 6-1 0
Parsley, per bunch	0 4-0 4
Peas, per lb.	1 0-1 0
Potatoes, new, per lb.	0 9-1 0
Radishes, per doz.	1 0-1 0
Rhubarb, bundle	0 6-0 6
Salsify, per bund.	1 0-1 0
Seakale, per punnet	2 0-2 6
Small salad, per punnet	0 4-0 4
Spinach, per bushel	0 4-0 4
Tomatoes, per lb.	2 0-2 6
Turnips, bun.	0 5-0 5

POTATOES.—Magnum Bonums, 40s. to 70s.; Regents, 70s. to 90s.; Champions, 45s. to 60s. per 100. Markets have a downward tendency.

## SEEDS.

LONDON: Feb. 25.—There was very little business done on the seed market to-day, the attendance being small. Buyers generally seem this season determined to defer their operations until the latest moment. Red Clover seed can now be bought at rather less money, the tendency of values being adverse to holders. Imported Italian Rye-grass remains firm. Winter Vetches are scarce. Spring Tares sell at last week's rates. Feeding Linseed keeps steady. Canary, Hemp seed, and Millet are without quotable variation. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

## CORN.

At Mark Lane on Monday English white Wheats were quoted 6d. under the value on that day week. No change was quoted in red. Foreign Wheat met only a retail inquiry, and to effect sales in quantity lower rates must have been taken. Flour was a very slack sale, with prices in buyers' favour. Barley met a very dull sale; grinding qualities were 3d. to 6d., and malting are 3d. to 6d. lower. Beans and Peas were quiet and unchanged. Maize was in steady demand, and rather firmer. Oats were 3d. to 6d. higher on the week, and in steady demand.—On Wednesday both Wheat and flour were dull of sale, and quotations nominally unchanged. Barley, Beans, and Peas met only a limited inquiry. Maize was firm, and Oats, with small importations, were the turn dealer.—Average prices of corn for the week ending February 21:—Wheat, 32s. 4d.; Barley, 31s. 10d.; Oats, 20s. 8d. For the corresponding period last year:—Wheat, 36s. 11d.; Barley, 31s. 10d.; Oats, 19s. 5d.

## HAY.

Tuesday's Whitechapel Market report states that there was a good inquiry, with a brisk trade. Quotations:—Clover, prime, 85s. to 102s. 6d.; prime second cut, 85s. to 102s. 6d.; inferior, 46s. to 73s.; hay, prime, 76s. to 90s.; inferior, 30s. to 65s.; and straw, 22s. to 34s. per load.—On Thursday there was a fair supply, and trade moderately active.—Cumberland Market quotations:—Clover, best, 90s. to 105s.; inferior, 60s. to 84s.; meadow hay, best, 80s. to 88s.; inferior, 60s. to 75s.; and straw, 29s. to 34s. per load.

## POTATOS.

The Borough Market report states that there were fair supplies, and trade steady at the following quotations:—Scotch Regents, 90s. to 100s.; Kent ditto, 70s. to 85s.; Champions, 50s. to 60s.; Magnum Bonums, 60s. to 80s.; and Victorias, 70s. to 90s. per ton.—The imports into London last week consisted of 48 bags from Hamburg, 1 Rotterdam, 2221 Harlingen, 178 Boulogne, and 112 bags 63 cases from Malta.

## COALS.

The prices current at market during the week were as follows:—Betside West Hartley, 14s. 9d.; Ravensworth West Hartley, 14s. 9d.; Walls End—Tyne (unscreened), 11s. 3d.; Hetton, 16s.; Hetton Lyons, 14s.; Lambton, 15s. 6d.; Wear, 14s.; East Hartlepool, 15s. 3d.; South Hartlepool, 14s. 3d.; Tees, 16s. 6d. and 16s.

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We have just received a fine importation of **EAST INDIAN ORCHIDS**, in fine condition, consisting principally of splendid masses of *Dendrobium Dalhousianum*, *suavissimum*, *Parishii*, *albo sanguineum*; and *Saccolabium giganteum*, *Aërides rosea*, *crassifolia*, &c. List with prices and full particulars on application to

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See that all *Bags* and *Tins* bear our Registered Trade Mark.

Bags containing:—				Tins containing:—	
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TO BE HAD FROM ALL IRONMONGERS & NURSEYMEN.

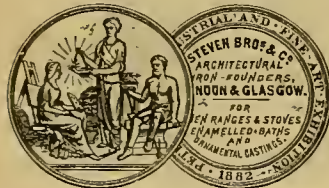
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SINGLE CYLINDER ROLLERS, 16x16, 20x20 AND 24x24 DOUBLE D<sup>o</sup> SAME SIZES.

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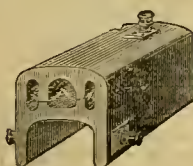
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**HOT-WATER APPARATUS**



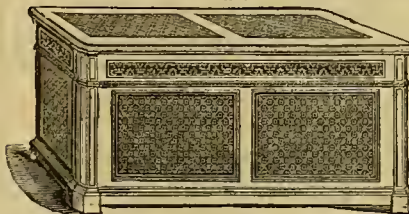
No. 43.—Dome-top Boiler.



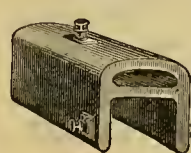
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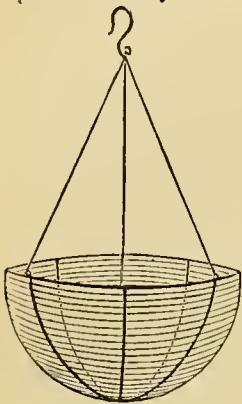
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Special Quotation for Quantities.



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Conservatory and Garden Wirework.



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WIRE TRELLIS,  
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PEACH TRELLIS,  
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GARDEN REQUISITES.—Sticks, Labels,  
Virgin Cork, Raffia, Mats, Bamboo Canes, Rustic  
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**THOMAS GREEN & SON**  
(LIMITED),

Smithfield Ironworks, Leeds,  
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Horticultural Engineers to Her Majesty the Queen,  
CALL SPECIAL ATTENTION TO THEIR

**PATENT  
WROUGHT-IRON TUBULAR  
HOT-WATER BOILERS,**

And others with SHELVES, and Hollow or Ordinary Cast-iron  
GRATE BARS;

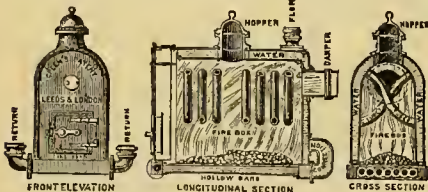
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With WATERWAY BACKS, and WELDED BOILERS,  
which are Specially adapted for Heating Greenhouses, Conserva-  
tories, Churches, Chapels, Schools, Public Buildings, Entrance  
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They are the neatest, cheapest, most effective, and durable  
of any extant.

The Tubular ones are remarkable for their great heating  
power, slow combustion, and the length of time the fire will  
burn without requiring attention. This pattern

Had the First and Highest Prize, a Silver Medal,  
Awarded to it at the Royal Horticultural Society's Exhibition,  
South Kensington, London, on June 3, 1884.



The Journal of Horticulture of June 9 says:—

"HEATING APPARATUS.—A great number of boilers, valves,  
&c., were exhibited by eight competitors, and considerable  
interest was manifested in the verdict of the judges, and much  
discussion was brought to bear on the merits and shortcomings  
of the different boilers. The apparatus for which the Silver  
Medal was awarded was a wrought-iron saddle boiler, with a  
series of intersecting tubes, somewhat in the form of a letter X,  
but the tubes in ogee form, in the crown of the boiler. Most  
gardeners who examined the boiler expressed a favourable  
opinion of it. It is no doubt a quick and powerful boiler with-  
out being complex, the latter condition having, no doubt, had  
weight with the judges."

The Garden of June 11 says:—

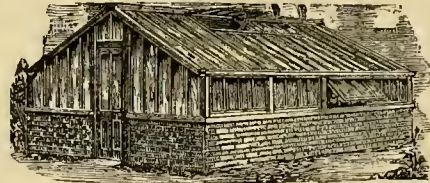
"The premier prize, a Silver Medal, was taken by Messrs.  
Green & Son for their new patent tubular saddle boiler. It is a  
modification of their original patent, the boiler being longer and  
not so high. It is found to be a powerful and efficient boiler, and  
heats a large quantity of water quickly with a small consumption  
of fuel."

Descriptive Illustrated Price List may be had free on application.  
Estimates given for all kinds of Heating Apparatus, and Hot-  
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Vine Rods are now attached to the wire, or lowered to be  
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CONSERVATORIES & GREENHOUSES.**

The prices given include ERECTING COMPLETE, with  
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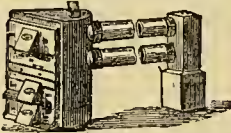
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Size, 15 ft. by 9 ft. .. 20 ft. by 12 ft. .. 25 ft. by 15 ft.  
Price .. £30. .. £42 10s. .. £58.

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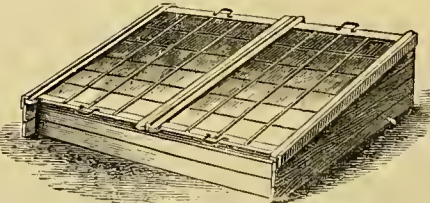
Size, 10 ft. by 6 ft., 12 ft. by 8 ft., 15 ft. by 10 ft., 20 ft. by 12 ft.  
Price, £19 10s. £23 10s. £29 10s. £40.

Proportionate prices for other sizes and at any distance.  
Drawings and Estimates for Conservatories free.



THE  
LOUGHBOROUGH  
HOT-WATER APPARA-  
TUS, complete as shown,  
with 12 ft. of 4-in. Hot-water  
Pipe, £4 4s.

The Simplest, Cheapest,  
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no brick setting, no stovehole, and no hot-water fitter for fixing,  
and burns more than twelve hours without attention.  
Price of Apparatus for houses of any size on application.  
CATALOGUE WITH PARTICULARS FREE.

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R. HALLIDAY AND CO. desire to  
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of which they always have a large stock, ready glazed and  
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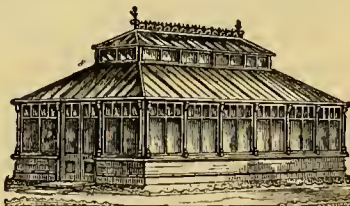
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The glass is nailed and putted in. Lights and framing for  
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Royal Horticultural Works, Middleton, Manchester.

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Conservatories, Orchard Houses, &amp;c.

Designed in appropriate style to suit any posi-  
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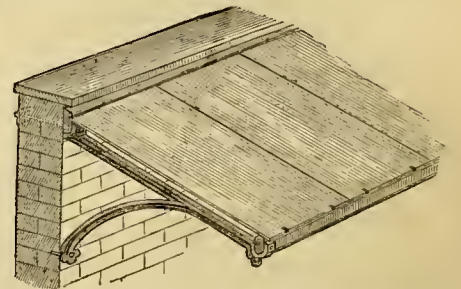
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With all the latest improvements, best materials,  
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BY USING****RICHARDSON'S****WALL-TREE PROTECTOR,**

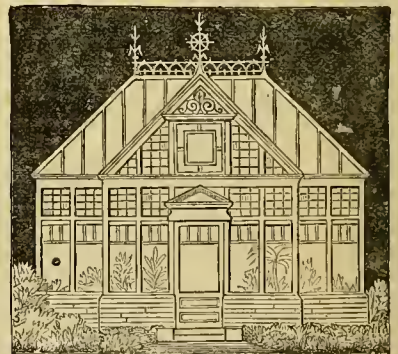
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Conservatory and Hothouse Builders in  
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CATALOGUES, Revised Priced LISTS, DESIGNS, and  
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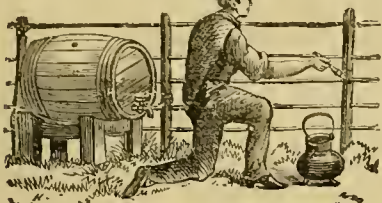
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WESTON-SUPER-MARE, Manufacturer of TERRA-  
COTTA VASES, FOUNTAINS, ITALIAN BASKETS,  
BORDER TILES, GARDEN POTS of superior quality,  
from 1 to 30 inches diameter, stand the frosts, and seldom turn  
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RHUBARB and SEAKALE POTS, &c.  
Price LIST post-free. Book of Designs, 1s. 6d.



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ROSES, FLOWER BEDS, POTTING PURPOSES,  
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HIRST, BROOKE, AND HIRST, Manufacturers, Leeds,  
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Oil Paint no Longer Necessary.  
**HILL AND SMITH'S BLACK VARNISH,**  
for Preserving Ironwork, Wood, or Stone.  
(Registered Trade Mark.)



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the Advertiser, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

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Also Registered Cut Flower and Parcel Post Boxes.

For Sizes and Price apply to the Sole Manufacturers—  
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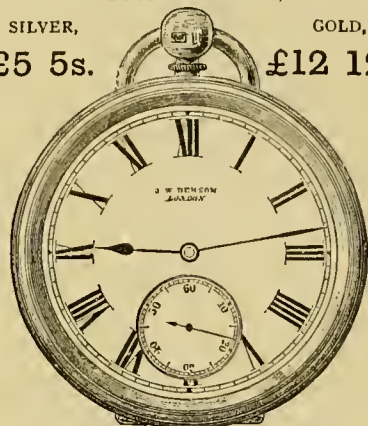
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"LUDGATE" WATCH,**

SILVER,

£5 5s.

GOLD,

£12 12s.



Is a "Special Strength" Silver English Lever, my best London make, with Three-quarter Plate Movement.

Jewelled throughout.

Chronometer balance, with damp and dust proof Patent ring band, and extended barrel, in Massive sterling silver dome cases.

With crystal glass front.

Winds, set hands and opens at back.

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To any Watch at the price yet made, and

Will be sent free and safe at our risk

To all parts of the world for £5 ss.

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EYES, 7d. per doz. HOLDFASTS, with  
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CATALOGUE free. Please name this paper.

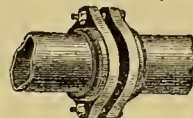
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"Expansion  
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Made.

4-in. Expansion Joint Hot-water Pipes, 9 feet long, 4s. 3d. each;  
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EASY TERMS OF PURCHASE.

List containing Prices of Parts, 6d.

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Special Designs in Garden Tables.

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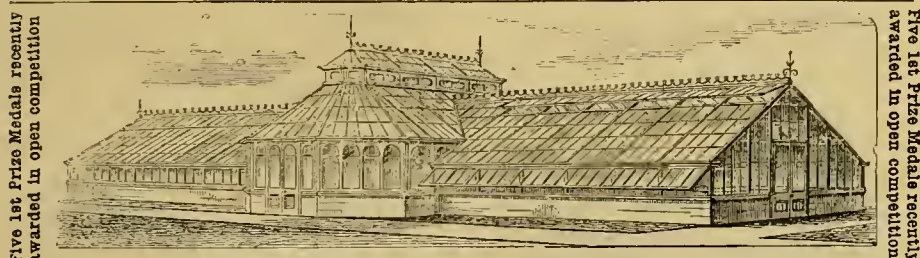
(Late of the THAMES BANK IRON COMPANY),

No. 4x, UPPER THAMES STREET, LONDON, E.C.

	2-inch.	3-inch.	4-inch.	
HOT-WATER PIPES ...	1s. 0d.	1s. 4d.	1s. 9d.	per yard.
" " ELBOWS ...	1s. 2d.	1s. 9d.	2s. 3d.	each.
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Boilers in great variety in stock.

A Discount for Cash to the Trade.



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awarded in open competition

Five 1st Prize Medals recently  
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**GARDENER (HEAD WORKING); age 39,** married.—W. Hvoz, Esq., the Tower House, Mablethorpe, Alford, Lincolnshire, can confidently recommend the above to any Lady or Gentleman requiring a thoroughly practical, trustworthy man. Leaving through establishment being broken up.

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**GARDENER (HEAD), or GARDENER and** BAILIFF (WORKING).—Age 44, married; thoroughly practical in all branches, the Forcing of all kinds of Fruits, Flowers, and Vegetables, also good Flower and Kitchen Gardener, good Manager of Land and Stock, Erecting New Buildings, energetic and trustworthy. Six and a half years' good character last place, highest testimonials previous.—F. A. HICKS, 8, Gladstone Road, Maidstone, Kent.

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**GARDENER.—Single;** thoroughly understands Glasshouse Work, Vines, Cucumbers, and Tomatos. Three years in last place.—L. C. B., 81, Montague Street, Worthing, Sussex.

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**GARDENER.—Age 24, single;** thoroughly experienced in the Cultivation of Stove and Greenhouse Plants, Ferns, and all Indoor Fruits. Highly recommended.—A. S., 55, Templey Road, Balham, S.W.

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**GARDENER (good SINGLE-HANDED, or where help is given).**—Age 26, married when suited; ten years' experience in every branch of Gardening. Highly recommended.—A. JONES, 29, Poplar Walk Road, Herne Hill, S.E.

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**GARDENER, or good SECOND.**—Age 23, married; has had experience in the Early and Late Forcing of Pines, Grapes, Peaches, Melons, &c., as well as Stove and Greenhouse Plants, Flower and Kitchen Gardening. Two years' good character.—J. HEPBURN, Wentworth Gardens, near Ascot, Berks.

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**GARDENER (UNDER), partly under Glass preferred.**—Age 19; five years' good character.—E. POTTER, The Gardens, Priory House, New Southgate, N.

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**GARDENER (UNDER).**—Age 21; understands both Flower and Kitchen Garden, with a knowledge of the Houses.—J. H. COLEMAN, Poulton Priory, Fairford, Gloucestershire.

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**FOREMAN, in the Houses.**—Age 25; three years' good character from present place. Ten years' experience.—W. POTTLE, The Gardens, Maor House, Alton, Hants.

**FOREMAN, in a Nobleman's or Gentleman's establishment.**—Age 26; eleven years' practical experience. Excellent character from last situation.—J. H., 4, Latimer Road, Godalming, Surrey.

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**FOREMAN, in a good establishment.**—Has had long experience in first-class establishments; understands Early and Late Forcing, and General Routine of a Large Garden. Highly recommended from present and previous places.—J. TOV, Enville, near Stourbridge, Staffordshire.

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**FOREMAN, in the Houses.**—Age 26; eleven years' experience in all branches of the profession, two years in present situation. Well recommended from present and previous employers.—M. FIELD, Albury Park Gardens, Guildford, Surrey.

**FOREMAN; age 26.**—Mr. FRANCIS, Gardener to R. G. Allan, Esq., Rosemont, Aighurth, near Liverpool, can highly recommend W. Davis as a thoroughly trustworthy and energetic man as above. Eleven years' experience in good establishments.

**FOREMAN, or good SINGLE-HANDED.**—Age 24, single; two years in last place. Good character.—A. W., 11, Bell Street, Henley-on-Thames.

**FOREMAN, or good SINGLE-HANDED.**—Age 24, single; two years in last place. Charge of Glass. Good character from last and previous employers.—11, Bell Street, Henley-on-Thames.

**FOREMAN, or to MANAGE a Branch Establishment, or as PROPAGATOR and GROWER of Soft-wooded Plants, Ferns, &c., also Forcing of Flowers, Fruits, &c., for Market.** Twenty years' experience.—H. PESTRIDGE, 4, Redmore Road, Hammersmith, W.

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**FOREMAN, or FIRST JOURNEYMAN, in a good establishment.**—Age 25; eight years' good character. Six years in two large establishments near London. Thoroughly recommended. Northern counties preferred.—P. L., Houghton House, High Road, Tottenham, Middlesex.

**FOREMAN PROPAGATOR and GROWER.**—Sixteen years' practical experience in the Nursery and Florist Trade, Propagating and Growing of Hard and Soft-wooded Plants, making Wreaths, Crosses, Bouquets, &c. Good references.—H. J., 4, Armoury Terrace, Shrewsbury.

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**To Nurserymen.**  
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**JOURNEYMAN (FIRST), or PLANT FOREMAN, in a good establishment.**—Age 24; seven years' practice in large places, and seven years' good character; three years' excellent character from present place.—G. BLOOMFIELD, Pendley Gardens, Tring, Herts.

**JOURNEYMAN (FIRST), in Houses.**—Age 19; good character.—Apply, stating full particulars, to H. HENDERSON, Durham Down Nurseries, Clifton, Bristol.

**JOURNEYMAN, in the Houses.**—Age 23; two years' character from last situation.—C. M., 28, Malpas Road, Wandsworth Common, S.W.

**JOURNEYMAN (INSIDE and OUT).**—Age 19; six years' experience. Nineteen months' character.—E. DOWSON, The Gardens, Wood End, Chichester, Sussex.

**JOURNEYMAN, in a Gentleman's establishment.**—Age 22; nine years' experience. Good character. Please state wages, &c.—JOSEPH HORNER, Harnby, near Bedale, Yorks.

**JOURNEYMAN, in the Houses, in a good establishment.**—Age 22; four years' good character. Bothy preferred.—W. BAKER, 11, Elm Crescent, Kingston-on-Thames.

**JOURNEYMAN, in the Houses, in a Gentleman's establishment.**—Age 22; four years' first-class testimonials.—H. E. STEDMAN, Gwynfyd Park, Three Cocks, Breconshire, R.S.O.

**JOURNEYMAN, in the Houses, in a good establishment.**—Age 22; seven years' experience in Stove and Greenhouse Plants, Vines, &c. Highly recommended.—J. H., The Gardens, Wood Green Park, Cheshunt, Herts.

**JOURNEYMAN, under a Foreman.**—Age 21; four years' good character from present situation. Bothy preferred.—F. SHARP, The Gardens, East Sheen Lodge, East Sheen, S.W.

**JOURNEYMAN.**—Age 19; five and a half years' experience—Indoors and Out. Two and a half years' good character from present, and three from previous situation. Total abstainer.—W. SILLS, The Gardens, Shoreham Place, Sevenoaks, Kent.

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**IMPROVER, in a Gentleman's garden.**—Age 19; four years' experience Indoors and Out. No objection to give a Premium if required. Good character. Bothy preferred.—F. BURTON, Cliff Lodge, Leyburn, Bedale.

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Royal Horticultural Society's Show, South Kensington, London, June 3 to 7, 1881. The "Journal of Horticulture," of June 9, says:—"MOWING MACHINES.—After a critical examination the Silver Medal was granted to the old firm of world-wide fame, Messrs. T. Green & Son, of Leeds and London. As the Machines are known in all lands where good lawns are cherished, it is quite unnecessary to give any description of them."

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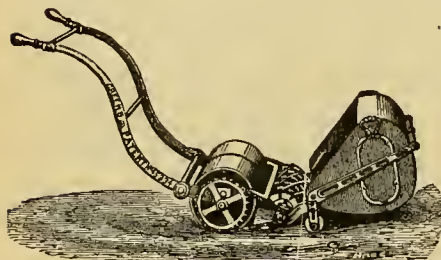
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To cut 6 inches, can be worked by a Lady	Price £1 15 0
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To cut 10 inches, do. by a strong youth	3 10 0
To cut 12 inches, do. by a man	4 10 0
To cut 14 inches, do. do.	5 10 0

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To cut 16 inches, do. one man on even lawn	£6 10 0
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To cut 20 inches, do. do.	8 0 0
To cut 22 inches, do. two men	8 10 0
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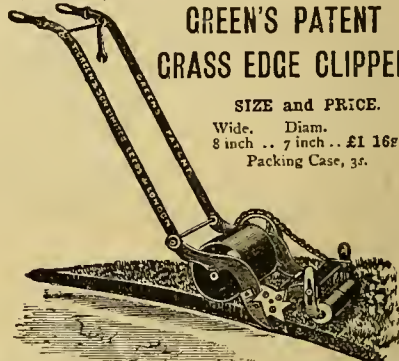
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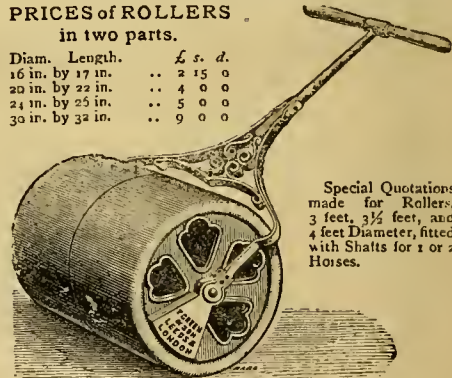
Specially designed to meet a want that has long been felt in cutting the overhanging grass on the edges of walks, borders, flower-beds, &c., and do away with the tedious operation of cutting with shears.

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SUITABLE FOR HAND OR HORSE POWER.

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16 in. by 17 in.	..	2	15	0
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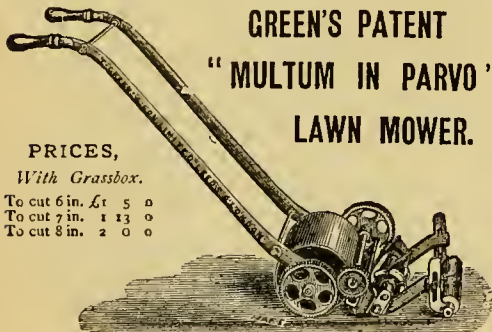
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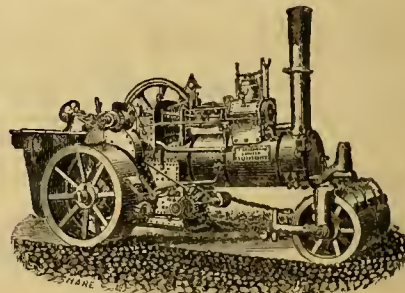
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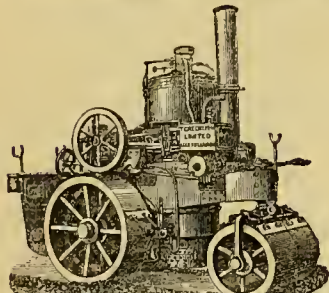
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Agent for Manchester—JOHN HAYWOOD. Agents for Scotland—Messrs. J. MENZIES & CO., Edinburgh and Glasgow.



# THE GARDENERS' CHRONICLE.

Established 1841.

No. 584.—VOL. XXIII. { NEW SERIES. }

SATURDAY, MARCH 7, 1885.

{ Registered at the General } Price 5d.  
Post-office as a Newspaper. } POST-FREE, 5½d.

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**ROYAL HORTICULTURAL SOCIETY,**  
South Kensington, S.W.  
**NOTICE 1.—COMMITTEE MEETINGS,** Fruit and Floral, at 11 A.M., in the Conservatory; Scientific at 1 P.M., in the Library.  
**GENERAL MEETING for the Election of Fellows, &c.,** at 3 P.M., on TUESDAY NEXT, March 10.  
Promenade and Band of the Royal Horse Guards from half-past 3 P.M. Admission 2s. 6d.  
N.B.—Entrances, N.E. Orchard House, Exhibition Road; and Exhibitors' Entrance west side of Royal Albert Hall.

**ROYAL HORTICULTURAL SOCIETY,**  
South Kensington, S.W.  
The **SCHEDULE OF PRIZES AND ARRANGEMENTS** for the **SHOWS and MEETINGS** to be held in the Conservatory at South Kensington during the current year is now ready, and can be had on application to the **SECRETARY,** Royal Horticultural Society, South Kensington, S.W.; or Mr. **BARRON,** Royal Horticultural Gardens, Turnham Green.

**CRYSTAL PALACE.**  
**SPRING FLOWER SHOW, MARCH 27 and 28.**  
Schedules on application to Mr. W. G. HEAD, Garden Superintendent, Crystal Palace, S.E.

**ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.**  
**SPRING FLOWER SHOW,** in the Town Hall, Manchester, on TUESDAY and WEDNESDAY, March 17 and 18. Schedules for the National Horticultural Exhibition of 1885 can be had from the undersigned.  
Royal Botanic Gardens, Manchester. **BRUCE FINDLAY.**

**BRISTOL CHRYSANTHEMUM and SPRING SHOW SOCIETY.**  
The **FIFTEENTH ANNUAL EXHIBITION of SPRING FLOWERS** will be held on MARCH 18 and 19, at the Victoria Rooms Clifton. Schedules and all information may be obtained of  
**A. POLKINHORN, Secretary,** Bishopston, Bristol.

**LIVERPOOL HORTICULTURAL ASSOCIATION.**  
**POSTPONEMENT of SPRING FLOWER SHOW.**  
The **THIRD ANNUAL EXHIBITION of HYACINTHS, TULIPS, MISCELLANEOUS and HARDY HERBACEOUS PLANTS, &c.,** will be held in St. George's Hall, on TUESDAY and WEDNESDAY, March 24 and 25. Entries close March 17. Schedules of Prizes and further information may be had from  
**EDWARD BRIDGE, Secretary,**  
White Brook Cottage, Dinah's Lane, Huyton.

**GLASGOW and WEST of SCOTLAND HORTICULTURAL SOCIETY.**  
The **SPRING FLOWER SHOW** will be held within the St. Andrews Hall, Granville Street, Glasgow, on WEDNESDAY, March 26. Prize Schedules and Tickets of Admission to be had from the Treasurer, Mr. CHAS. MACDONALD WILLIAMSON, 104, West George Street, any of the Directors, or at any Office here. Members ticket, 2s. 6d. each.  
**FRANC. GIBB DOUGALL, Secretary,**  
167, Canong Street, Glasgow.

**ESSEX AGRICULTURAL SOCIETY'S MEETING,** at Waltham Abbey, JUNE 4 and 5.  
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**HUBERT GOUGH, Waltham Abbey, or**  
**GEORGE PAUL, Cheshunt.** Hon. Secs.

**THE GRAND INTERNATIONAL POTATO EXHIBITION** will be held at the Crystal Palace, Sydenham, S.E., on OCTOBER 7, 8 and 9. For Schedules apply to  
**P. Mc KINLAY,**  
Hedley Lodge, Croydon Road, Annerley S.F.

**NATIONAL CHRYSANTHEMUM SOCIETY.**  
**ROYAL AQUARIUM, WESTMINSTER.** Schedule of Prizes for 1885 has been posted to all Members of the Society, and may be had (free) on application to the Honorary Secretary, Mr. **WILLIAM HOLMES,** Frampton Park Nursery, Hackney, E.

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Wednesday Next.—(Sale No. 6867.)

IMPORTED AND ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 11, at half-past 12 o'clock precisely, by order of Messrs. Shuttleworth, Carter & Co., a variety of IMPORTED and ESTABLISHED ORCHIDS, comprising *Odontoglossum crispum* (Alexandra) of the best type, *O. Oerstedii majus*, *O. pulchellum*, *Oncidium Kramerianum*, *Cattleya Trianae*, *C. citrina*, *Trichopilia suavis*, *T. coccinea*, *Paphiopsis cristata*, *P. rugosa*, &c. On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6867.)

ESTABLISHED ORCHIDS, mostly in flower, including an extraordinary type of *ODONTOGLOSSUM ALEXANDRÆ*.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 11, a quantity of good ESTABLISHED ORCHIDS, comprising *Cymbidium Lowii*, with thirty-six flowers; *Mastodia Backhouseana*, with thirty leaves; grand plant of *Odontoglossum polyanthum*, two fine specimens of *Cattleya Trianae*, one with seven leads in flower, &c. Also several fine plants of *Odontoglossum Alexandræ*, in flower, including one of the most extraordinary varieties ever offered, the sepals being nearly covered with large blotches of a rich colour; also several other fine specimens and varieties.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6866.)

ROSES, FRUIT TREES, BORDER PLANTS, &amp;c.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 11, at half-past 12 o'clock precisely, 1500 first-class Standard and Dwarf ROSES, including all the leading varieties, FRUIT TREES, ORNAMENTAL CONIFERS, GOOSEBERRIES, CURRANTS, and RASPBERRY CANES, CARNATIONS, FICOTIES, VINKS, and other BORDER PLANTS, LILIUUM, GLADIOLI, &c. On view morning of Sale, and Catalogues had.

Wednesday and Thursday Next.

10,000 LILIUUM AURATUM.

MR. J. C. STEVENS will include in his SALES by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY NEXT, March 11 and 12, 10,000 splendid bulbs of LILIUUM AURATUM, just received from Japan in the finest possible condition.

On view mornings of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6868.)

VANDA SANDERIANA, PHALÆNOPSIS species, CATTLEYA MOSSIE, AERIDES LAWRENCEI, A. LEBANA, A. THIBAUIANA, DENDROBIUM PROFUSUM, AERIDES ROEBELNI.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on THURSDAY NEXT, March 12, at half-past 12 o'clock precisely, splendid importations of the above and other valuable ORCHIDS.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6868.)

DISA GRANDIFLORA.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 12, about twenty lots of DISA GRANDIFLORA, in fine condition.

On view morning of Sale, and Catalogues had.

Stoke Park, Slough.

STOVE and GREENHOUSE PLANTS, ORCHIDS, &amp;c.

MR. J. C. STEVENS has received instructions to sell by AUCTION, on the Premises, as above, without the least reserve, on MONDAY and TUESDAY, March 16 and 17, at half-past 12 o'clock precisely each day, the COLLECTION of STOVE and GREENHOUSE PLANTS formed by E. J. Coleman, Esq., comprising fine Standard, Half-Standard, and Pyramid Azaleas, Camellias, Orange Trees, Eucharis, Crotons, Dracænas, Greenhouse Rhododendrons, &c.; also the ORCHIDS, including many specimen plants of *Dendrobium nobile*, *Cattleyas*, *Lælias*, *Odontoglossums*, *Phalænopsis*, *Cælogynis*, and other species; a quantity of *Callas*, *Fuchsias*, *Primulas*, *Pelargoniums*, *Bouvardias*, *Strawberry Plants*, &c.

On view Saturday prior and mornings of Sale, and Catalogues had on the Premises, &c. of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

Flowering Orchids.

MR. J. C. STEVENS begs to announce that his next SALE of FLOWERING ORCHIDS will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 18. Gentlemen desirous of entering Plants for this Sale will please send particulars not later than THURSDAY NEXT, March 12.

Caversham Park, Reading.

MR. J. C. STEVENS has received instructions from the Executors of the late Mrs. Crawshaw, to sell by AUCTION, on the Premises, as above, EARLY IN MAY, without reserve, the collection of STOVE and GREENHOUSE PLANTS, consisting of Crotons, Dracænas, Marantas, Palms, Allocasias, Camellias, and Azaleas, Ferns, &c.; also 12,000 BEDDING PLANTS, of all the best varieties; a small collection of ORCHIDS, including several nice plants of *Dendrobium nobile*, *Cypripedium isopseum*, *C. venustum*, *C. barbatum*, *Cattleyas* of sorts, *Arthurius*, *Scherzerianum*, and other species; a quantity of IMPLEMENTS, comprising 3 Rollers, Water-barrows, Cans, Tanks, Mowing Machines, Farm and Spring Carts, together with a Cart-horse, Cob, &c. Date of Sale will shortly be announced.

A Most Magnificent New Cattleya.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, at an EARLY DATE, a grand importation of a most magnificent new CATTLEYA, and one of the very finest novelties we have introduced for years. It has just been brought home by Mr. E. Seidl from the Roraima Mountains; it is as rare as it is beautiful, and the importation is in superb order. Full particulars in next week's *Gardeners' Chronicle*.

Orchids from the Roraima Mountains.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, at an EARLY DATE, a superb Collection of ORCHIDS, from the Roraima Mountains, just brought home by his collector, Mr. E. Seidl. Full particulars in next week's *Gardeners' Chronicle*.

Tuesday Next.

LÆLIA ANCEPS SCHRODERIANA, new pure white LÆLIA ANCEPS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. F. Sander to sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, March 10, at half-past 12 o'clock precisely, a small but especially fine importation of LÆLIA ANCEPS SCHRODERIANA, Rchb. f., several great masses being amongst them.

This is undoubtedly the finest white variety ever offered. The whole flower is very large and pure white, and entirely distinct from any of the white forms; the throat striped crimson, and the lip extra broad and square, and an inch across or even more. Mr. Edward Klaboch, who has collected every plant in flower, states that this variety is particularly rare, and that the flowers are of great substance, far surpassing anything he has seen. He considers it the finest white *Lælia anceps* ever introduced. Every plant received will be included in this sale, and there are no more coming. *Lælia anceps Schroderiana* is described by Prof. Reichebach as follows:—

"There are before me twenty-seven brilliant dried lips, and a dried flower. The colours are purest white, the disc between lateral lacinia is orange, and the projecting keels running in the base of mid-lacinia are even deeper orange; there are three to five crimson-purple longitudinal and several forked lines radiating outwards. So much for the colour. The complete flower would appear to surpass the dimensions of *Lælia anceps Dawsoni*. The petals seem to be remarkably broad. The great merit of the plant consists in the lip, which is broad with short nearly rectangular blunt lacinia. The mid-lacinia is very broad, blunt, emarginate, and this lip is quite novel to me."

"The result of the description would be that the value of this remarkable white flower is admirably enhanced by the beauty of the great square and flat lip. This very ornamental Orchid bears fully the name of one of our most excellent orchidists, Baron Schroder, and it gives me great pleasure to attach the Baron's name to such a glorious *Lælia*."

It is one of the most recent and most brilliant introductions of Mr. F. Sander.

On view morning of Sale, and Catalogues had.

Tuesday Next.

LÆLIA ANCEPS STELLA, new White Anceps.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Sander to sell by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, March 10, at half-past 12 o'clock precisely, an importation of LÆLIA ANCEPS STELLA (new White Anceps). Prof. Reichebach writes:—"The flowers are of the greatest of the tribe, secrete, pure white. The lip's side lacinia are remarkably curved and broad in front, the long mid-lacinia is narrow at base, dilate and marginate in front; disc of lip and base of mid-lacinia orange, very numerous nerves both radiating outside as longitudinal ones with a deep point of rich scarlet-purple that nearly forms a dark blotch each side in front. This is the great mark of distinction of *Lælia anceps stellata*; it might be called *Dawsoni* or *Sanderiana*, but the anterior lacinia is half yellow and white in front. It is decidedly a very brilliant flower, and the importation is in Mr. Sander's hands." The importation is in grand order, and enormous masses are among them.

At the same time will be sold a fine lot of *ODONTOGLOSSUM ALEXANDRÆ* and many other *ODONTOGLOSSUMS*, and other ORCHIDS.

On view morning of Sale, and Catalogues had.

Important Sale of English-grown Camellias, beautifully set with bloom-buds, AZALEA INDICA and other GREENHOUSE PLANTS, 400 fine Standard and other ROSES, selected FRUIT TREES, Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, DAHLIAS, LILIUUM AURATUM, &c.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, March 10, at 12 o'clock precisely. On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Wednesday Next.

LILIUUM AURATUM, ROSES, PLANTS, &amp;c.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, March 12, at half-past 12 o'clock precisely, 6000 unusually fine and sound bulbs of LILIUUM AURATUM and IRIS KEMP-FERTI varieties from Japan, in fine condition; 1000 Standard, Half-Standard, and Dwarf ROSES of the best sorts, from English nurseries; CAMELLIAS, AZALEAS, AZALEA MOLLIS, PALMS, &c., from Belgium; African TUBEROSES, 3000 crowns LILY of the VALLEY, an assortment of hardy English grown LILIES and BULBS, GLADIOLI, DAHLIAS, BEGONIAS, GLOXINIAS, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.—To the Trade.

6000 LILIUUM AURATUM.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, 6000 exceedingly fine bulbs, just received from Japan.

On view morning of Sale, and Catalogues had.

Friday Next.—Mexican Orchids.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. G. Marriott to sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, March 13, at half-past 12 o'clock precisely, the finest importation of MEXICAN ORCHIDS that has ever reached this country, consisting of a grand lot of *Epidendrum vitellinum majus*, *E. Parkinsonianum*, *E. nemorale majus*; *Cattleya citrina*, fine masses and extra large bulbs; *Odontoglossum maculatum*, *O. Rossi majus*, *O. cordatum*; *Oncidium suave*; *Lælia anceps*, *L. albida*, *L. majalis*, &c.; also a few ESTABLISHED ORCHIDS, including *Cattleya Skinneri alba*, *Cypripedium vexillarium*, *Odontoglossum polyanthum*, *Dendrobium Huttoni*, together with a large quantity of Orchids in flower.

On view morning of Sale, and Catalogues had.

Clapham Common, S.W.

ORCHIDS and GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, on the Premises, the Woodlands, Nightingale Lane, Clapham Common, S.W., five minutes' walk from Wandsworth Common Station, London, Brighton, and South Coast Railway, on WEDNESDAY, March 18, at 12 o'clock precisely, by order of F. Williams, Esq. (the freehold estate having been sold for building), a small but well-grown collection of ESTABLISHED ORCHIDS, including the whole of the choice STOVE and GREENHOUSE PLANTS—Crotons, Eucharis, Orange Trees, Camellias and Azaleas, including several extra fine plants; Palms, Ferns, &c. Also the GARDEN UTENSILS, MOWING-MACHINE, GARDEN FRAMES, VASES, GARDEN SEATS, 100 Iron HURDLES, and numerous effects.

On view day prior and morning of Sale. Catalogues had of the Gardener, on the Premises; or of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

Important Unreserved Sale of the Signal Hall COLLECTION OF ORCHIDS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Walter Williams, Esq., to sell by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, March 10 and 11, at half-past 12 o'clock precisely each day, this VALUABLE COLLECTION, which has been got together with great care during the last dozen years from the oldest established collections in the country, including types not lately imported, embracing a large number of specimen *Cattleyas*, the whole in robust health, including:—

<i>Cattleya Mossie</i> , beautiful old type; six grad specimens	<i>Cattleya Trianae alba</i> "Wallisi" "gigas" "Mendellii" "Eldorado" "Skinneri"
"Warneri"	"Warczewiczii delicata" (log)
"superba"	"labata" (autumn-flower)

Also *Trichocentrum albo-purpureum*, *Angraecum eburneum*, *Sobralia monantha*, *Epidendrum prismatocarpum*, *Oncidium myanthes barbatum*, *Oncidium ampliatum majus*, several *Odontoglossums*, *Dendrobiums*, *Oncidiums*, &c.

The whole of the Collection will be sold, and no plants will be disposed of prior to the Auction.

On view mornings of Sale, and Catalogues had.

Orchids in flower.—Special Sale.

MESSRS. PROTHEROE AND MORRIS beg to announce that their next SPECIAL SALE of ORCHIDS, in flower and in bud, will take place on TUESDAY, March 10, and they will be glad to receive notice of entries as early as possible.

The First Portion of the Valuable Collection of Specimen STOVE and GREENHOUSE PLANTS, the property of

MR. E. TUDGEY, Exotic Nurseries, Waltham Cross, will be offered by AUCTION on March 10, on the Premises; also autumn-flowering Hardwood HEATHS, PALMS in 4-inch pots, and about 1000 PTERIS SERKULATA in 4-inch pots. Also two Exhibition Plant VANS in good repair.

Catalogues to be had on application to E. TUDGEY.

TO BE DISPOSED OF, a WHOLESALE and RETAIL SEED BUSINESS. A splendid going concern. One of the finest in existence, doing a large and profitable trade. An unusual opportunity.

Apply (by letter only) to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

TO BE DISPOSED OF, a good FLORIST, SEED, and JOBBING BUSINESS, in a main thoroughfare about 7 miles from London. Ail in thorough working order.

Address B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Wood Green.

FOR IMMEDIATE SALE, at a low price, the LEASE of the LORDSHIP NURSERY, which comprises about an Acre of Land, Brick-built Residence and Stables, eleven Greenhouses, all heated by hot water and in capital working order.

Apply to PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

To Nurserymen, Florists, Gardeners, and Others.

FLORIST'S BUSINESS.

FOR SALE, by Private Treaty, as a going concern, all that well known and remunerative FREEHOLD BUSINESS PREMISES, called Guildford Street Nurseries, within two minutes' walk of the Barton Railway Station, Hereford, the property of Uriah Hain, Florist, who is relinquishing business on account of declining years. The Property comprises a modern and substantially brick-built Residence, called Bleenheim House, with several Perches of Freehold Garden Ground, a number of Span-roof and Leanto Glass Houses, with Hot-water and other Heating Apparatus, Hot and Cold Pits, and Potting Sheds; together with the Stock-in-Trade, consisting of a well-grown and healthy lot of Bedding, miscellaneous assortment of useful Greenhouse and Hardy Outdoor Plants, in popular demand; small collection of useful Nursery Stock, Horticultural Requisites, Tools, and absolute Goodwill. A splendid opportunity for an enterprising young man or gentleman's gardener with small capital desirous of retiring from service. One-half or so of purchase money can remain on mortgage, if required. For further particulars, apply to GEO. H. BARLOW, Estate and Property Agent, Hereford.

To Market Gardeners, Dealers, &amp;c.

TO BE LET or SOLD, a HOUSE, COTTAGE and OUTBUILDINGS, suitable for the above, with about 3 Acres of good Garden Ground, well stocked with Fruit Trees; about five minutes' walk from a good market. Apply, A. CARVER, Hockley Street, Leighton Buzzard, Beds.

Important to Florists, Nurserymen, Market

GROWERS and OTHERS.

TO BE LET, on LEASE, or SOLD with possession, the valuable FREEHOLD ESTATE known as Osborn's Nursery, Sunbury, Middlesex, comprising 17 Acres of excellent Land with Dwelling-house, Stabling, Sheds, and all the extensive range of modern and recently-erected Greenhouses. The Estate having a frontage of 100 feet to the high road, possesses a great prospective value for building purposes. Full particulars may be obtained of Messrs. PROTHEROE AND MORRIS, Auctioneers, 67 and 68, Cheapside, E.C.



**To Grape Growers, &c.**

**TO SELL or LET, a Capital FREEHOLD VILLA RESIDENCE, OFFICES, and about 2 Acres of LAND** (gravel subsoil), situate at Aisleborough, Norfolk, near the railway, suitable for Erecting Vineries, Cucumber Houses, &c., and Market Gardening. Rare communication, being direct, and labour cheap. This presents a most desirable opportunity.

For plans and particulars, apply to CHAS. BROTHERS, 15, Goudge Street, Tottenham Court Road, London, W.

**Essex.**

Half an hour's ride from London, in an important Market Town. **TO BE LET, on LEASE, a compact NURSERY**, with several Greenhouses, Seed Shop, and Dwelling-house. No stock to take. A capital opening for an enterprising man.

Apply to Messrs. PROTHEROE and MORRIS, 67 and 68, Cheapside, E.C.

**Surrey, 37 miles from London,**

and within easy distance of two important Towns. **To CUT FLOWER and FRUIT GROWERS and FLORISTS.**

**TO BE LET, on LEASE, a compact and well-established NURSERY** comprising 5 Acres of Land, 7 well-built GREENHOUSES fully stocked, detached Cottage, and Sheds. Lease 10½ years. Rent only £50. Price for Stock, including three Houses full of Roses, and Lease, only £150.

Apply to PROTHEROE and MORRIS, 67 and 68 Cheapside, London, E.C.

**TO LET, from March 25 next, THE NURSERIES, Mill Hill, near Hendon, Middlesex,** late in the occupation of Mr. James Wright. There is a fair amount of Stock &c., which would be offered on easy terms to a respectable Tenant. There is a cottage and about 5 Acres of Land. Application for terms, &c., to be made to C. DRUMMOND, Estate Agent, Hertford, Herts.

**JOHN KENNARD'S HORTICULTURAL SUPPLIES.** Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

**To Landed Proprietors, &c.**

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS. Plans prepared. 115, Listeria Park, Stamford Hill, N.

**T. HARPHAM, PRACTICAL ROCK BUILDER and GENERAL HORTICULTURAL DECORATOR** (for many years leading hand with Dick & Co., London), 107 Church Street, Edgware Road, London, W.

**Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSSES to be DISPOSED OF.**

**MESSRS. PROTHEROE and MORRIS' HORTICULTURAL REGISTER** contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

**GUINEA BOX of SPECIALTIES.**—We again offer a choice Collection of CARNATIONS and other POPULAR PLANTS, package and carriage free, for One Guinea, consisting of Six pairs each choice Show Carnations, Picotee, and Pinks to name; twelve true old Crimson Cloves, twelve border Carnations, twelve Pyrethrum, double, named; twelve Show and Fancy Dahlias (dry roots). Half the above, 11s.

ISAAC BRUNNING and CO., Great Yarmouth Nurseries.

**ROSES.**—The finest Show and Decorative varieties, strong, robust, hardly grown plants, from 5s. per dozen, 35s. per 100 and upwards. Standards, from 12s. per dozen, 95s. per 100 and upwards. Many thousands to select from.

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

**To the Trade.**

**MANGEL WURZEL and TURNIP SEEDS.** **H. and F. SHARPE'S Wholesale Priced LIST** of the above-named Seeds is now ready, and may be had on application. It comprises all the very finest varieties of 1884 growth.

Seed Growing Establishment, Wisbech.

**New Kidney Potato.**

**BIRD'S DOCTOR BOB.**—This is the earliest Kidney variety in existence; a very heavy cropper, as many as sixty tubers of all sizes have been counted at a root. It is seedling from Early King. After a trial of several years it has never taken disease. Eyes very shallow; a good cooker, and fine flav. ur. 5s. per stone.

JAMES BIRD, American Nurseries, Downham Market.

**CARNATIONS, PICOTEEES, and PINKS.**—Having a large stock of strong, finely rooted plants of the above, we beg to offer them at the following low prices:—Choice Show CARNATIONS and PICOTEEES, to name, our selection, 12s. per dozen pairs; purchaser's selection, 25s. to 12s. ditto. PINKS, Show varieties, our selection, 4s. 6d. to 6s. per dozen pairs. Old Crimson CLOVES (true), 3s. per dozen. Mixed CARNATIONS, for borders, 3s. per dozen. PYRETHRUMS, choice Double varieties, 3s. per dozen. Carriage and package free for cash with order.

ISAAC BRUNNING and CO., Great Yarmouth Nurseries.

**Wholesale List of Vegetable Seeds.**

**H. and F. SHARPE** will be pleased to forward their WHOLESALE LIST of Home Grown VEGETABLE SEEDS to those who have not yet received it. It comprises all the best varieties in cultivation, and the quality of the seeds is exceptionally good.

Seed Growing Establishment, Wisbech.

**Rhododendrons.—Rhododendrons.**

**JOHN STANDISH and CO.** have to offer many thousands fine bushy Plants of PONTICUM RHODODENDRONS, exceedingly well grown and well-rooted, from 1 to 2½ feet in height, suitable for covert planting, 9 to 12 inches, at 30s. per 100; 12 to 15 inches, 42s. per 100; 18 to 24 inches, 55s. per 100; 24 to 30 inches, 75s. per 100. HYBRID PONTICUM RHODODENDRONS, 2 to 2½ feet, 45s. per 100. Choice named varieties, 1½ to 2 feet, with flower-buds, 27s. per dozen, 210s. per 100.

Royal Nurseries, Ascot.

**SAMUEL SHEPPERSON, FLORIST and SEEDSMAN, Prospect House, Belper, Derbyshire,** begs to inform the readers of the *Gardeners' Chronicle* that he is prepared to execute orders for the following plants, all of which have been grown on the Derbyshire hills, and are very hardy and strong stocky plants, and sure to succeed well. They are of the very finest strains that money can buy. They are carriage free for cash with order.

Descriptive CATALOGUE of Florists' Flowers free. Established 26 years.

**PANSIES a SPECIALTY.**—Probably the best collection in England. The cream only of the most noted raisers. The latest new sorts, and the winners at all the great shows. Good plants correctly named, Show or Fancy, 12 for 3s.; 25 for 5s. 6d.; 100 varieties for 2s. 6d. Postal Orders.

**BEAUTIFUL WHITE POLYANTHUS.**—Strong Plants, full of Bloom-buds, 12 for 1s. 6d., 8 for 1s.

**CARNATIONS, PICOTEEES, and CLOVES.**—Yellow, Pink, Scarlet, Dark Red, Pure White, &c., beautifully striped, Spotted, and Selfs, 12 named varieties, all strong layers for 4s.

**CANTERBURY BELLS.**—Unrivalled Collection, grand new Colours, Double and Single Telescopes, Candelabra, and other new forms, 12 for 1s.; 12 extra strong for 1s. 6d. Postal Orders.

**CARNATIONS and PICOTEEES.**—The new French Perpetual, a really grand new strain, most beautiful colours, twelve varieties, strong plants, to bloom well, for 2s., 6 for 1s. 2d.; 12 extra strong for 2s. 6d.

**AURICULAS (Alpines).**—Fine large Trusses and Blooms, most beautiful colours, strong Plants, to bloom well, 12 for 2s.; 12 extra strong for 3s. Postal Orders.

**AURICULAS.**—The old-fashioned Single Yellow. Most deliciously scented. Soon bloom. 12 strong plants for 2s. 6d., 6 for 1s. 6d.

**POLYANTHUS.**—The finest strain grown; fine large Trusses and Blooms, and splendid Colours; 12 for 1s., 25 for 1s. 9d.

**BEAUTIFUL PURE WHITE GARDEN PINKS,** deliciously Scented.—Good strong Plants, to bloom well, 12 for 1s.; 25 for 1s. 9d.

**CARNATION.**—The new German Scarlet Grenadin, a really fine decorative variety, early and free bloomer. Twelve strong plants, to bloom well, for 2s., 6 for 1s. 2d.; 12 extra strong for 2s. 6d.

**HOLLYHOCKS** of Chater's very finest and most select strain, 12 varieties for 2s. 6d.; 6 for 1s. 6d.; 6 extra strong for 2s. Postal Order.

**DAISIES.**—A fine Collection, three plants each of six distinct sorts, named, for 1s.; Earl of Beaconsfield, the grand New Scotch Dark Daisy, 2 for 1s.

**CARNATIONS and PICOTEEES (Seedling),** from Carter's celebrated strain, All Colours. Strong plants, to bloom, 12 for 1s. 2d., 24 for 2s., 12 extra strong for 1s. 6d.

**FOXGLOVES, Dean's grand new spotted varieties,** very fine, 12 for 1s. 9d.; 12 extra, 2s. **FOXGLOVES, Dean's new Golden,** very extra, 12 for 2s.

**WALLFLOWERS.**—The Covent Garden Dark, the Double German Dark, Cloth of Gold, all fine stocky plants, 12 for 1s.

**STRAWBERRY PLANTS, all Selected.**—Crowns, transplanted, warranted to Fruit well this Year; Black Prince Improved, as early, as prolific, and much larger than the old sort; Brown's Wonder, Alpha, Keens' Seedling, Exquisite, Early Crimson, Pine, and others, 100 for 3s.

**CELERY, FISHER'S No. 1.**—New Pink. Warranted the largest, earliest, and best-flavoured Celery grown. Seed Packets, 1s.

SAMUEL SHEPPERSON, Florist and Seedsman, Prospect Hou e, Belper.

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The seed of Stocks offered here is harvested from plants cultivated in pots. Seed harvested from the grounds, likewise very good, is about 20 per cent. lower in price.

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 " Yellow-berried, a large number of others.  
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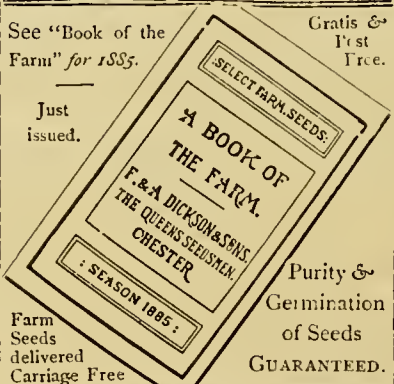
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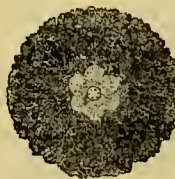
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**HUGH LOW and CO.** offer of fine quality:—**AZALEA INDICA,** double white, 1s. 6d. and 2s. 6d. each. In variety, 1s. 6d., 2s., 2s. 6d., 3s. 6d., 5s. each. **CRASSULA JASMINEA,** white, deliciously fragrant, 1s. 6d. each. **CYLAMENS,** 9d., 1s. each. **DEUTZIA GRACILIS,** 1s. each. **ERICA MELANTHERA,** 1s. 6d., 2s. 6d. each. **GENISTAS,** 1s., 1s. 6d. each. **LAURUSTINUS,** French white, 1s. 6d., 2s. each. **PELARGONIUM,** Zonal, single and double, 6d. each. **ROSE PAQUERETTE,** white, 9d., 1s. each. Clapton Nursery, London, E.

**Gardenias.—Gardenias.**  
**JOHN STANDISH and CO.** have to offer a splendid lot of GARDENIA PLANTS, clean, bushy, and well set, at the undermentioned prices for Cash with order:—In 5-inch pots, 18s. per dozen; in 6-inch pots, 27s. per dozen; in 8-inch pots, 40s. per dozen. Royal Nurseries, Ascot.

**Hollyhocks.—Hollyhocks.**  
**CATALOGUE** containing a splendid collection of finest named Hollyhocks, all fully described and priced, also probably the largest, most select, and best collections of all other Florists' Flowers, Paeonias, &c., ever brought together, is now ready, and will be posted on application. It consists of eighty pages of closely printed matter, and forms a very handy reference book on flowers, which should be in the hands of all who cultivate a Garden or Greenhouse. JOHN FORBES, Nurseryman, Hawick, N.B.

**ABIES DOUGLASII,** 1½ to 2 feet, 25s. per 100; 2 to 2½ feet, 33s. per 100; 3 to 4 feet, 60s. per 100; by the thousand, finely finished and rooted. **ARAU-CARIA IMBRICATA,** 18 to 20 inches, 24s. per dozen; 2 to 2½ feet, 42s. per dozen; each size by the thousand. **CEDRUS DEODARA,** 4 to 5 feet, 30s. per dozen. **CRYPTOMERIA ELEGANS,** 2 to 2½ feet, 60s. per 100. **CUPRESSUS LAWSONII,** 2½ to 3 feet, 60s. per 100; C. GRACILIS distinct, 1½ foot, 12s. per dozen; C. STRICTA, 2 to 2½ feet, the finest upright, 12s. per dozen; C. FUNEBRIS, scarce 1½ foot, 15s. per dozen. **PICEA NOBILIS,** 3 to 4 feet, 60s. per dozen; P. NORDMANNIANA, 1 foot, fine, 50s. per 100; 1½ to 2 feet, 15s. per dozen; 6 feet, extra, 84s. per dozen. **FINUS EXCELSA,** 2 feet, 8s. per dozen; P. INSIGNIS, 1 foot, 30s. per 100; 6 to 8 inches, 15s. per 100. **THUJA LOBBII,** 10 to 15 inches; special by the 1000, the best substitute for Larch. **RHODODENDRON PONTICUM,** 1 to 4 feet, each size in thousands. GAILIES MITCHELL, Nurseryman, Stranraer, N.B.

**DAHLIA TUBERS.**—A large quantity of pot Roots in fine condition, in all the leading varieties, including Showies, Fancies, Cactus, Pompons, and Single. **DESCRIPTIVE PRICE LIST** on application to THOMAS S. WARE, Hale Farm Nurseries, Tottenham, Middlesex.

**Imantophyllum (Clivia).**  
**E. H. KRELAGE and SON,** Haarlem, Holland, have at present a fine stock for sale of IMANTOPHYLLUM MINIATUM, the genuine species, as well as of the best and newest hybrids and varieties. These splendid Decorative Plants become more and more general favourites, and cannot be recommended too much. Special offers will be sent on application.

## TUESDAY NEXT.

# LÆLIA ANCEPS SCHRODERIANA.

## NEW PURE WHITE LÆLIA ANCEPS.

**MESSRS. PROTHEROE AND MORRIS** are favoured with instructions from Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY, March 10, at half-past 12 o'clock precisely, a small but especially fine importation of LÆLIA ANCEPS SCHRODERIANA, Rchb f, several great masses being among them.

This is undoubtedly the finest white variety ever offered. The whole flower is very large and pure white, and entirely distinct from any of the white forms; the throat is striped crimson, and the lip extra broad and square, and an inch across or even more. Mr. Edward Klaboch, who has collected every plant in flower, states that this variety is particularly rare, and that the flowers are of great substance, far surpassing anything he has seen. We consider it the finest white Lælia anceps ever introduced. Every plant received will be included in this Sale, and there are no more coming. Lælia anceps Schroderiana is described by Professor Reichenbach as follows:—

"There are before me twenty-seven brilliant dried lips and a dried flower. The colours are purest white, the disc between lateral laciniae is orange, and the projecting keels running in the base of mid-lacinia are even deeper orange; there are three to five crimson-purple longitudinal and several forked lines radiating outwards. So much for the colour. The complete flower would appear to surpass the dimensions of Lælia anceps Dawsoni; the petals seen are remarkably broad. The great merit of the plant consists in the lip, which is broad, with short, nearly rectangular, blunt side laciniae. The mid-lacinia is very broad, blunt, emarginate, and the lip is quite novel to me."

"The result of the description would be that the value of this remarkable white flower is admirably enhanced by the beauty of the great square and flat lip. This very ornamental Orchid bears fitly the name of one of our most excellent orchidists, Baron Schroder, and it gives me great pleasure to attach the Baron's name to such a glorious Lælia."

It is one of the most recent and most brilliant introductions of Mr. F. Sander.

On view morning of Sale, and Catalogues had.

## TUESDAY NEXT.

# LÆLIA ANCEPS STELLA.

## NEW WHITE ANCEPS.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, March 10, at half-past 12 o'clock precisely, an importation of LÆLIA ANCEPS STELLA (new white Anceps). Prof. Reichenbach writes:—"The flowers are of the greatest of the tribe, stellate, pure white. The lip's side-laciniae are remarkably curved and broad in front, the long mid-laciniae is narrow at base, dilatate and marginate in front, disc of lip and base of mid-laciniae orange; very numerous nerves both radiating outside as longitudinal ones, with a deep point of rich scarlet-purple that nearly forms a dark blotch each side in front. This is the great mark of distinction of Lælia anceps vestalis—it might be called Dawsoni or Sanderiana—but the anterior laciniae is half yellow and white in front; it is decidedly a very brilliant flower, and the importation is in Mr. Sander's hands." The importation is in grand order, and enormous masses are among them.

At the same time will be Sold a fine lot of ODONTOGLOSSUM ALEXANDRÆ and many other ODONTOGLOTS, and other ORCHIDS.

On view morning of Sale, and Catalogues had.



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*Send for Descriptive Catalogue*

OF NEARLY ALL THE  
BEST AND NEWEST VARIETIES IN  
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EITHER FOR EXHIBITION PURPOSES, OR FOR  
GARDEN OR FIELD CULTIVATION.

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Fruit and Potato Grower,  
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SEEDS,  
VEGETABLE, FLOWER, and FARM,  
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THE BEST RESULTS  
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The finest variety in cultivation, either for  
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Early, enormously prolific, and of strong, vigor-  
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DAHLIA SEED,  
SINGLE-FLOWERED.  
Containing the pick of all recent introductions.  
Collection of 25 choice named vars. .. 4s. 6d.  
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Packets of mixed colours, 6d. and 1s.

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Including Show, Border, Clove, Tree and Yellow  
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A most complete CATALOGUE, including all the really  
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Plant of real worth.

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Strong Seedlings, from a splendid collection of choice named  
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Per dozen, 2s. 6d.; per 100, 15s.

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## ASPARAGUS.

This delicious vegetable does not require  
half the expense often incurred; for direc-  
tions see SEED LIST, free. Strong roots  
2s. 6d. per 100; extra strong ditto, 2-yr.,  
3s. 6d. per 100; forcing, 12s. 6d. per 100.

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NEW HARDY SWEET-SCENTED  
WHITE PASSION FLOWER,  
"CONSTANCE ELIOTT,"  
First-class Certificate, R.H.S., 1884.

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Nursery, Exeter, will be prepared to send out this  
Novelty in the Spring of 1885. They have purchased the whole  
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Price 5s. each.

A few extra-sized Plants, 10s. 6d. each.

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ANTHEMIS  
TINCTORIA  
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The most beautiful of all the hardy  
Marguerites; flowers delicate sulphur-  
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for cutting, and should be grown freely  
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9d. each, 8s. per dozen. Carriage free.

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VEGETABLE & FLOWER SEEDS  
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BEST QUALITY—CARRIAGE FREE.  
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Splendid Seeds and  
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The stock at the Clapton Nursery is of such magnitude that,  
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HUGH LOW & CO.

very cordially and respectfully solicit an inspection by all  
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SUPERB COLLECTION. Fine bulbs. Post free. 12 dis-  
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choice collection, 50 varieties, 63s.

ACHIMENES.—12 distinct varieties, 1s. 6d.; 12 do., 3 corms  
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corms of each, 15s.; 100 corms in 50 varieties, 21s.; 100 corms in  
25 varieties, 15s.

GESNERAS.—12 varieties, 5s.

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**THE LIVERPOOL HORTICULTURAL CO.**  
(JOHN COWAN), LIMITED,  
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GARSTON, near LIVERPOOL.

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Manufactured by  
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And sold by them and all Nurserymen and Seedsmen.

**IMPORTANT NOTICE.**

Having made and sold this Manure under the Name of **THOMSON'S VINE AND PLANT MANURE**, for the past three years, we are now making and selling it under the name of

**COWAN'S VINE AND PLANT MANURE,**

and we guarantee that the high character which this Manure attained under the former name shall be maintained under the present one. Every ingredient in it is of the best quality, as experience will continue to prove.

See that all *Bags* and *Tins* bear our Registered Trade Mark.

Bags containing:—				Tins containing:—	
1 cwt.	½ cwt.	¼ cwt.	½ cwt.	7 lb.	2½ lb.
18s.	9s. 6d.	5s.	3s.	2s. 6d.	1s.

Quantities of 1 ton and upwards sent carriage free.

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**NEW MAGNIFICENT BLACKBERRY,**  
**"THE WILSON JUNR."**

In spite of the fact that Blackberries will grow "anywhere" in reason, and everybody likes them, it is yet a puzzling reality that it is only with great difficulty and at a high figure that we can purchase them in our markets.

Surely, then, it must be apparent to all farseeing "fruit growers" that instead of glutting the markets with Gooseberries, Currants, &c., they have here a fruit which, if planted upon any given area of land, will prove far more profitable than any other hardy fruit that could be grown.

And why?

Simply because for half-a-dozen years ahead, at least, the stock throughout the country will not have time to become so great as to exceed the demand.

Landowners, Stewards, and Gardeners, who have each year to show a balance-sheet "of profits," have here a very simple, safe method of for some years obtaining highly profitable results. Planted 3 feet by 8 feet requires at the rate of 18½ plants to an acre.

Gardeners also who grow for house consumption will find this fruit a valuable assistant. It will stand any treatment, and do well where other fruits would fail.

Whilst, however, we have the matter under consideration, do not let us fall into the mistake of planting any variety so long as it is a "Blackberry." Why not, for the sake of a slightly additional first expense, obtain the very "cream" of the family; or in other words, procure stocks of the hardiest, largest, most delicious, and most productive?

By pursuing this procedure the result repays the grower tenfold for the slightly additional first expense incurred.

It was this reasoning that caused us to give the subject our most careful study; the result of which is, we offer a variety, the grandest of the group, producing enormous berries, measuring on an average ¾ inches around, lengthwise, and the same dimensions crosswise. (This will give an idea of the profit to be derived from its culture as a market commodity.) The berries are also glesvy black, very early of exquisite flavour, and enormously productive—the heavy load of fruit often bending the canes to the very ground.

We can offer plants of this grand variety at 1s. 3d. each, 12s. per dozen, 85s. per 100, carriage paid.

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NURSEYMEN, SEEDSMEN, &c.,

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Per packet, 1s. 6d. and 2s. 6d.

A superb strain of very dwarf branch-  
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The finest in cultivation.  
HAS GAINED NUMEROUS FIRST  
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The finest strain in cultivation. For  
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This produces immense flowers, of  
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**PRIMULA SINENSIS FIM-  
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Per packet, 1s. 6d. and 2s. 6d.  
This superb strain has stood the  
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For new Primulas and superb  
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Illustrated Seed Catalogue for 1885,  
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## PRIZE LAWN GRASS SEEDS,

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## EVERGREEN MIXTURES,

SPECIALLY PREPARED FOR

Garden Lawns,  
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### PRICES:—

Sutton's Mixture for Garden	Per bushel, 25s. 0d.
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Grounds .. .. .	„ gallon, 3s. 0d.

Sow 3 bushels per acre to form New Lawns, or 1 bushel  
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"Your new plot of Grass is perfection itself. I don't think  
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"The new Lawn made with Messrs. Sutton's Grass Seeds  
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"I have a wonderfully good Tennis Lawn from the seed  
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THE

# Gardeners' Chronicle.

SATURDAY, MARCH 7, 1885.

## APPLES AND SOILS.

APPLE lovers throughout the country who  
have not seen or so closely studied, as it  
deserves, the official report prepared by Mr.  
Barron since the Congress, will be glad perhaps  
if we repeat some of the lessons of the show,  
stripped of their uninviting aspect when buried  
in necessary statistics. Useful information,  
such as cultural details relating to favourite  
fruits or flowers, can hardly be too frequently  
repeated. It is possible that some person even  
now, in spite of repeated publication, may not  
be aware of the name of the Apple of Apples.  
There are, in fact, a dessert and a culinary  
Apple which excel all others, each in its depart-  
ment, and every one should know their names,  
and plant them if possible.

The United Kingdom was divided into dis-  
tricts at the Congress, and from these came 10,150  
dishes of Apples from 236 exhibitors, as duly  
reported at the time. Kent sent one-eleventh  
of the total number, Middlesex almost as many,  
while Ireland was represented by two exhibitors  
only; Surrey boasts of twelve exhibitors at  
the Congress, or just half as many as Kent,  
so that Surrey, with an area of less than half a  
million acres, contributed more in proportion  
than Kent, which contains rather more than a  
million acres of orchards. But statistics require  
careful reading; and when we turn to the  
western group of counties—England being  
divided into six groups—and find from Devon-  
shire only three exhibitors, from Gloucestershire  
seven, Herefordshire four, Somersetshire two,  
and Worcestershire eight, the truth becomes  
apparent that the Apple growers of the cider  
districts were less strongly represented than the  
private growers of the Home Counties. Gentle-  
men and their gardeners and nurserymen  
formed, in fact, the bulk of the exhibitors, and  
as nurserymen are naturally good instructors  
in their several horticultural departments, while  
the orchards of the hall are certainly superior  
to those of the farmhouse or cottage, as a rule,  
Mr. Barron's report, with its numerous "exhi-  
bitor's remarks" and abundant cultural details,  
forms a volume by competent authors, and is,  
in fact, so much the most useful book on Apple  
growing that has yet been published that we  
are not surprised that a second edition is in  
preparation.

Fifteen hundred and forty-five distinct varie-  
ties of Apples were exhibited, two of them being  
better than all the rest. In each group each  
exhibitor was invited to name the best Apples  
of his district, so that the whole of Great Britain  
was polled, and the Apple selected the greatest  
number of times by these experienced judges  
was placed at the head of the poll.

Among sixty dessert Apples King of the  
Pippins headed the list, with 98 votes; Cox's  
Orange Pippin followed, with 89 votes; then  
Ribston Pippin, 78; Kerry Pippin, 56; and  
Blenheim Orange, 52.

For culinary merit Lord Suffield polled 101  
votes; Dumelow's Seedling, 93; Keswick Cod-  
lin, 84; Warner's King, 70; and Blenheim



Orange, 65. These are closely followed by New or Winter Hawthornden, Cellini, Mank's Codlin, Alfriston, &c. The best in each class are too numerous to mention. All this has been told before more than once, and it will be told fifty times again, for the results of a most important and interesting Apple congress cannot be dismissed like the commonplaces of a news column which will not bear repeating.

The best Apple of Kent is Cox's Orange Pippin, the King of the Pippins following—Dumelow's Seedling and Lord Suffield standing first and second in the list of culinary Apples. Margil is not very generally known in Kent, though it bears a high character with all who have grown it, and Cornish Gilliflower is even a greater favourite as a late dessert Apple.

With regard to sites and soils a situation well uplifted above the fogs and frosts of low levels and yet well sheltered by forest trees or other means is best for orchards, and to this it may be added happy are the gardeners with deep soils and wholesome subsoils. Like George III., when his arbitrary gardener, the headstrong Mr. Brown, died, they can do as they like then. Mr. J. Roberts, gardener to the Baroness de Rothschild, Gunnersbury Park, has a friable loam on a light clay, and can grow Apples on either standards or pyramids, and on Crab or Paradise stocks. He prefers the latter for the early kitchen Apples, the former for late keepers, and he thinks that dessert kinds should be on standard trees on the Crab stock, since the fruit is improved by exposure to the sun. Compare this with Messrs. Veitch & Son's report of their light poor soil and poorer subsoil at the nursery at Fulham, where their "remarkably well-grown, very varied and interesting collection, very correctly labelled," as the official report says, was gathered from trees two, three, and five years old only, and trained as dwarf pyramids grafted on the Paradise stock. A very fine collection, consisting of 100 varieties, came from Chester, from the nursery of Messrs. F. & A. Dickson, gathered from bush and pyramid trees, only from three to six years old, which the exhibitors observe are best suited for small gardens and for the production of fine fruit. Specially noticeable in this "remarkably fine collection," says the report, were Braddick's Nonpareil, Ribston Pippin, Northern Spy, the Old Hawthornden (very large), Peasgood's Nonsuch, Warner's King, Wareham Russet, a large and fine Apple, only noticed in the Chester collections, and a variety named Windsor Castle.

The Royal Horticultural Society exhibited 328 varieties from a garden of loam bordering on clay, with a gravel subsoil. The "exhibitor's remarks" are of special interest. The Apples were all grown on bush and pyramid trees, some on the Crab and some young trees on French Paradise and Doucin stocks, and the finest fruit was from the latter. Pruning is confined to shortening the straggling shoots and thinning out moderately. One of the best collections of Apples we have seen on a soil not of the best, was within the boundaries of a large garden, where small trees, or big bushes, grew alongside the paths, and partook of the liberal dressings applied to the vegetables. The culture was entirely artificial, as compared with that of orchards on deep and favourable soils, where large standards are grown on the Crab, and the surface is in permanent pasture, manured by corn-fed live stock. These are the opposite systems, each adapted to a particular site, which Mr. Woodbridge, gardener at Sion House, had in view when he remarked of his fine specimens of Royal Russet, Old Winter Pearmain, Gloria Mundi, and Ribston Pippin, that they were "grown on bush and standard trees of various ages, grafted on the Crab and

Paradise stocks. Situation sheltered, in walled garden. Soil light and sandy on gravel. We find that trees grown in a bush form, on the Paradise or dwarfing stock, are very suitable for the borders of kitchen gardens. They bear better fruit, require less pruning, and can be allowed to grow in a more natural way. Trees on the Crab, or tree stock, I consider more suitable for orchards." As a case in point, we may mention those excellent orchards at Deepdene, Dorking, from which Mr. Burnett sent 110 varieties, including many of the old sorts not now common. Some of the best collections of Apples in the country may be found on the deep loam of the Greensand in that sheltered valley between Reigate, Dorking, and Guildford. Ribston Pippin scarcely ripens satisfactorily at its native home in Mr. Dent's garden at Ribston Hall, Yorkshire; but in Surrey, sheltered by the "backbone" of the country, the North Downs, and by the groves and plantations of that pictorial district, it finds the climate and the warm soil that bring it to perfection. The same remark applies to other superior dessert Apples which abound in the gardens. Deepdene, under a former owner, was the site of a vineyard, and produced good wine in hot seasons. Mr. Burnett remarks that he gathered his fine fruit mostly from large orchard trees, many of them being old; and he mentions as the most certain bearers Keswick Codlin, Lord Suffield, Cellini, Stirling Castle, Ecklinville Seedling, and Cox's Orange Pippin. He mentions, too, the Blenheim Orange, Pearmain, and Ribstons of the district. But even in this favoured district Apple growing by farmers is much neglected; the trees being starved, the fruit dwindles to half its natural size, and no market can be found for such fruit. "Small and inferior," is the comment on a collection of thirteen varieties which the exhibitor observes were grown on old orchard standards on a heavy undrained loam with stiff clay subsoil, the trees being covered by lichen, eaten up by caterpillars, and the blossoms injured by spring frosts. "We find it a good plan," says an exhibitor, with a subsoil of wet inferior gravel, "to lift as many trees as possible every year, and to put a quantity of old brick rubbish under them, and maiden loam round the roots. When the roots reach the wet gravel they seldom fruit satisfactorily."

Trees planted on prepared soil of road-scrappings and loam and mulched annually with stable manure are apt to canker, but they bear well nevertheless; whereas in some moist subsoils they grow vigorously without a spot of canker, but they yield no fruit, producing wood instead. Large trees on such soils should be extirpated. Mr. Taylor, gardener at Dunevan, Weybridge, with a light soil and wet sandy subsoil, cuts round his pyramids every second year 2 feet 6 inches from the stem, raises the roots and adds fresh soil, treads firm, mulches on the surface, and thereby produces fine fruit.

It is evident, from these examples, that Apples can, by skilful cultivation, be grown in all districts and upon soils naturally unsuited to them. As a rule, the finest fruit is grown on bushes and cordons (see remarks by Mr. Miles, of the Wycombe Abbey gardens, and by Mr. Smith, of Mentmore). In the case of large orchard trees you can only manure the surface, and you cannot control the roots, nor raise the temperature of the soil, except so far as drainage may do so. In growing Apples for market, however, they must be produced at the lowest possible price and of the best possible quality, that is to say, in well treated orchards, where the soil is naturally suited to this particular crop. The report indicates that certain districts possess advantages conferred on them by Nature. Even such skilled growers as Messrs. T. Rivers & Son, of Sawbridgeworth, who exhibited 183 varieties, recognise the superiority of the climate of Kent to that of Herts. Whether

the drift clay and calcareous gravel of Sawbridgeworth, which produces for Mr. Prout such incomparable Wheat crops, equals loams of the Kentish Rag as a soil for Apples, we cannot say, but Messrs. Rivers remark of their climate that it is "too keen to secure the size and colour of the Kentish Apple orchards." In Surrey, as we have seen, there is a sheltered and sunny district where climate and soil are both pre-eminently favourable for Apples; and although we find the superior sorts of Apples heading the lists in the various reports from the north of England and from Scotland, these reports, it should be remembered, refer to gardens sheltered generally by walls as well as plantations. The area from which the best Apples can be produced under orchard cultivation will probably be found far more limited than some over-sanguine writers have imagined.

This point must be left to the sound sense, based on careful observation, of those who propose entering upon this kind of fruit farming. They should also consider, not merely the climate of their own locality, but of England generally; for unless we are favoured by warmer and drier seasons than the average of the last eight years, home-grown Apples—whatever enthusiasts may say of our obligations as patriots—will hardly be found profitable. Something has been said of a small duty on foreign Apples to protect the English grower. In bad seasons he may need it—but he is not likely to obtain it!

In an essay on orchard cultivation, as it now exists, the improvement of the sorts of Apples in the cider districts, as well as of the beverage itself, would have to be treated. We can only add, however, in regard to sorts generally, that the Committee at the Congress considered many of the dessert Apples as too small, and they added, in reference to culinary Apples, that all varieties under the standard of 3 inches in diameter might with advantage be discarded, "excepting always a few sorts that are specially adapted to certain localities." Large Apples, for example, are not desirable in windy situations.

Messrs. James Dickson & Sons, Newton Nurseries, Chester, exhibited, as we read, "a very interesting and instructive" collection of 110 varieties, one half from trees worked on the Crab, the rest from those on the French Paradise, and the latter bearing much larger fruit than the former, would scarcely suit the coast of Norfolk, except in the most sheltered gardens, since large fruit is liable to be blown down by gales or bruised on the trees. These general hints, we hope, may prove useful.

## NOTES ON THE CULTIVATED ASTERS.—X.

(Continued from p. 209.)

THE subgenera noticed in the present paper form a well marked group, from a horticultural point of view, being all dwarf alpiques, suitable for rockery growth.

SUBGENUS VIII. ERIGERASTRUM.—Bracts of the involucre nearly equal in length, leafy from base to apex. Pappus not distinctly biserial. Stem leafy. Ligules numerous.

53. *A. alpinus*, Linn.—Stems 1-headed, hairy, erect, varying from a few inches to a foot in length. Basal leaves numerous, oblanceolate, obtuse, entire, narrowed gradually into a petiole. Stem-leaves few, distant, growing gradually smaller towards the head. Expanded heads about 1½ inch in diameter. Involucre broadly campanulate, ½ inch in diameter; bracts 2—3 serial, subequal, oblanceolate, foliaceous, pilose. Ligules thirty or more, pale lilac, ½ inch long. Achene oblanceolate, compressed, pilose, ¼ inch long; pappus ¼ inch long, copious, flexuose, white or pale red, moderately firm in texture.

Mountains through Europe and Siberia to Arctic America, and southward along the Rocky Mountains to the forty-ninth parallel of latitude. *A. hirsutus*,



Hort.; *A. cylleneus*, Orphan.; *A. Garibaldi*, Brugger, and *A. Wolfii*, Favrat, are varieties, and *A. chrysocomoides*, Turcz., is said to be a discoid form of this species. There are three closely allied species in the Himalayas—*A. himalaicus* and *tricephalus* of C. B. Clarke, and *A. Stracheyi*, Hook. fil., none of which are in cultivation so far as I am aware. To this subgenus also belong the Siberian *A. silenifolius*, Turcz., the North American *A. peregrinus*, Pursh, and *A. pygmaeus*, Lindl., and the Natal *A. natalensis*, Harv., all four of which are well-marked species. *Aster salsuginosus*, Richardson, *Bot. Mag.*, 4942, is now placed by Dr. Gray in *Erigeron*.

54. *A. pyreneus*, Desf.—Stems stout, hairy, erect, 1½–2 feet long. Leaves numerous, sessile, lanceolate, amplexicaul, thin in texture, acute, slightly serrated, the lower ones 3–4 inches long. Heads few, corymbose, sometimes solitary. Expanded heads 2 inches in diameter. Involucre broadly campanulate; bracts subequal, lanceolate, foliaceous, hairy. Ligules 30–50, linear, lilac, above ½ inch long. Achene oblanceolate, compressed, hairy; pappus reddish-white, firm in texture, ½ inch long.

Spanish and French Pyrenees. A most distinct and striking species, well worthy of garden cultivation.

The Andioe and South American subgenus *Heteraster*, of Benthams, contains about three species which differ mainly from *Erigerastrum* by their very short, very numerous narrow ligules.

**SUBGENUS IX. BELLIDIASTRUM.**—Differs from the last by its scapose habit, which is just like that of a Daisy (*Bellis*); represented by a single species. Restricted to Europe.

55. *A. Bellidiastrum*, Scop. *Doronicum Bellidiastrum*, Linn. *Bellidiastrum Michelii*, Cass.—Perennial, with a small rosette of obovate, obtuse, crenate, petioled radical leaves, ½–1 inch broad. Peduncle naked, varying in length from 2 or 3 inches to a foot. Head always solitary, an inch in diameter when expanded. Involucre campanulate, ½ inch in diameter; bracts lanceolate, equal, foliaceous. Ligules 30–40, white, ½ inch long. Achenes glabrous, flattened on the faces; pappus rather longer than the achene, of copious flexuous, pale red bristles.

Widely spread amongst the mountains of Central Europe, but not extending to the Pyrenees nor Scandinavia.

**SUBGENUS X. HETEROCHÆTA.**—Habit and involucre of *Erigerastrum*, from which it differs by the short outer bristles of the pappus, forming a more or less distinct row as contrasted with the long inner ones. Of this section there are about three species in the Himalayas, one in Siberia, and three at the Cape. I give descriptions of the only two I have seen alive.

56. *A. diplostephioides*, Benth.; Hook. f., in *Bot. Mag.*, t. 6718.—Stems erect, hairy, 6–18 inches long. Stem-leaves large, oblanceolate, spatulate, sessile; radical petioled, 2–4 inches long. Heads solitary, about 2 inches across when fully expanded. Involucre campanulate, above ½ inch diameter; bracts equal, foliaceous, lanceolate, acute. Ligules very numerous, bright lilac, ¾ inch long. Pappus biserial, the outer row of bristles short.

Alpine region of the Himalayas from Kashmir eastward to Sikkim. It was introduced lately into cultivation by Mr. Elwes, and is, as may be seen from the figure that was given recently in the *Botanical Magazine*, a very effective species for garden purposes. According to Dr. Aitchison, the roots are used for washing in Kashmir. The two other Himalayan species of this subgenus are *A. heterochaeta*, Benth., which resembles *A. alpinus* very closely, and *A. tibeticus*, Hook. f. The Siberian *A. flaccidus*, Bunge (*A. intermedius*, Turcz.), also resembles *alpinus* very closely.

57. *A. hispidus*, Baker, in *Sturt. Ref. Bot.*, t. 342. *Calendula hispida*, Thunb. *Diplopappus asper*, Lessing, in *DC. Prod.*, v., 276.—Stems a foot long, erect, roughly hairy from the base, usually one-headed. Leaves distant, lanceolate, sessile, hispid, the lower toothed, the upper entire, three-nerved from base to apex, ½–¾ inch broad. Involucre campanulate, ½ inch diameter; bracts subequal, lanceolate, acute, hispid, leavy; expanded heads 1½–2 inches in diameter. Ligules about thirty, linear, bright lilac, ½ inch long. Receptacle conspicuously alveolate. Achene flattened, pilose; pappus white or pale red, firm in texture, nearly ½ inch long.

Mountains of Cape Colony and Natal. Cultivated by Mr. Wilson Saunders from seeds given him by the

late Daniel Hanbury, who received them from Bishop Callaway. There are at the Cape two other allied species (*D. levigatus* and *serrulatus*) not in cultivation. *J. G. Baker*.

(To be continued.)

## ANTWERP EXHIBITION.

IN connection with the Universal Exhibition to be held in Antwerp in the coming summer, an International Exhibition of Horticulture, Pomology, and Market Gardening will be held. The Royal Horticultural and Agricultural Society of Antwerp is charged by the Government with the organisation of these shows, which will take place at intervals from May 2 to October 31, 1885. A part of the gardens and a large open space within the precincts of the Universal Exhibition are specially set apart for this purpose.

The horticultural exhibition comprises the five following series:—I. Permanent exhibition, for the whole period of the exhibition, the gardens of ornamental plants, trees, shrubs, and flowers. II. From May 10 to 12 exhibition of Azaleas, Orchids, Rhododendrons, &c. III. From June 28 to 29 exhibition of cut Roses. IV. From August 2 to 6 general horticultural exhibition. V. From September 27 to 29 exhibition of fruit and vegetables.

I. The programme of the permanent exhibition from May 2 to October 31, 1885, comprises for outdoor trees and ornamental shrubs in groups and clumps, twenty-two classes: for single specimens, five classes; A, for plants suitable for forming beds, edges, and groups:—(1), Outdoor perennials, twelve classes; (2), Stove herbaceous and under shrubs, nine classes; (3), Bulbous and tuberous plants, eleven classes; (4), Annual plants, two classes; (5), Ornamental plants, two classes; (6), Lawns and grass plots, one class; (7), Carpet bedding, three classes.

B. Greenhouse and conservatory plants which can be placed in the open air from May 1 to October 15, twelve classes.

II. Inaugural exhibition from May 10 to 12. Foliage plants, six classes; flowering plants, twenty-eight classes.

III. Exhibition, of cut Roses, June 28 and 29. (1), Amateurs, nine classes; (2), nurserymen, ten classes.

IV. Exhibition, August 2 to 6. New plants. (1), Introductions. Class 1.—Collection of twenty-five plants, flowering or non-flowering, introduced into Belgium since 1882. Class 2.—Collection of six plants, flowering or non-flowering, introduced into Belgium by the exhibitor, but not in commerce. Class 3.—Collection of three plants not yet in commerce. Class 4.—A new plant in flower. Class 5.—A new plant not in flower.

(2), Seedlings, six classes; good cultivation, nine classes; general collections, eleven classes; special collections (1), Ferns and Lycopods, twelve classes; (2), Cycads and Conifers, four classes; (3), Palms, Pandanads, and Musas, eleven classes; (4), Aroids, eight classes; (5), Marantaceae and Liliaceae, eight classes; (6), Bromeliaceae, three classes; (7), Orchids, six classes; (8), carnivorous plants, five classes; (9), Euphorbiaceae, Proteaceae, and Araliaceae, six classes; (10), Begoniaceae, five classes; (11), Gamopetalous plants, Coleus, Bouvardias, Gloxinias, Gesneraceae, and Calceolarias, six classes; (12), Polypetalous plants, Cacti, Echeverias, Bertolonias, Sonerillas, Pinks, Pelargoniums, Fuchsias, and Roses, eighteen classes; (13), room decorations, two classes; (14), bouquets, &c., seven classes.

V. Exhibition September 27 to 29.

Section 1, Pomology, twenty-six classes.

Section 2, Kitchen and market garden produce, twenty classes.

Section 3, Bouquets, &c., three classes.

Section 4, Dahlias, cut flowers, four classes.

Medals of gold, silver-gilt, and silver, accompanied by a diploma, are to be awarded to the exhibitors named by the jury. The value of the gold medal may be had in money.

Competitors who have obtained from the horticultural exhibition a gold medal of the value of 200 francs (£8) will receive in addition the same diploma as that which accompanies the gold medal of the Universal Exhibition, as well as large-size bronze medal from the Universal Exhibition.

Competitors who have obtained three gold medals, as well as those who have most contributed to the success of the exhibition, will get a Diploma of Honour.

Besides the medals mentioned in the schedule, the jury have the power of awarding three diplomas, corresponding to the gold medal, six to that of silver-gilt, and twelve to that of silver, to deserving exhibitors.

The Secretary of the International Commission is M. L. Lubbers, Botanic Gardens, Brussels.

## MARKET GARDENING.

(Continued from p. 115.)

My former remarks, taken in connection with the general display of vegetables at the various leading metropolitan markets devoted to these and similar subjects, show that, whatever system of crop culture market gardeners generally follow, it is a highly successful one, both as to quantity and quality. In connection with this, I have endeavoured to show that liberality in the matter of manuring, the use of highly fertilising manures, properly prepared by periodical turning, timely ploughing, are the chief items which secure these results. An intimate knowledge of both spade and plough labour teaches many lessons, beyond what a study of either, alone, can give.

### A FIRM BASE FOR ROOT GROWTH.

I am far from advocating what is known as shallow culture. Nevertheless, compared with spade labour, trenching, &c., ploughing must be placed in that category—albeit four-horse ploughing is occasionally practised, which gives a moderate depth, though shallow compared with bastard-trenching. Add to this the facts that, below the point of the plough-share the land retains its primitive hardness, and that even such paris as are turned over are not, so to speak, decicated to their utmost depth, and we have, at the best, what gardeners would perform call half-worked land. Yet it is by this means alone that the fine vegetables we see marketed are grown. Before we study the processes in connection with variety in crops, the seed-beds, seed sowing, planting, &c., it may be well to extract all the practical lessons possible from the contrasts shown above. Does the professional horticulturist give anything like sufficient weight to this need of a firm foothold for seedling plants and the crops resulting from them? An old-school doctrine seems to have a better hold on many minds than have the roots of the plants of some culturists on the soil.

If we compare established much-worked garden soils with those in fields generally we shall find them deeply manipulated and manured, so much so that such natural cohesiveness as is possessed by virgin soils is destroyed in very great part. Annually such soils are turned over, and, in the case of such parts as are trenched, tossed up lightly into very porous ridges. This is often done as late in the season as the months of February and March. What does the cultivator do to cause this light mould to become sufficiently firm for good root-hold? Generally nothing. Occasionally, in connection with the Onion and Carrot crop, he trends or rolls the surface. This shallow practice proves, however, of very little use, and the result is that the roots go down into anything but a suitable subsoil. If the same cultivator had to use some of this same soil for potting purposes he would press, ram, jerk, and otherwise make it very firm within the pot, knowing that, unless he did so, the plants would not thrive. A contrast in practice, which it seems hard to believe possible. For a contrast to this method turn to field cropping. Generally, after land is ploughed up it is harrowed, then well rolled with heavy iron rollers, and trodden, as of necessity it must be, by the feet of heavy horses. Not only is the land thus rolled to receive the plants or seed crops, but it is rolled so soon as they get well hold of the ground subsequently, both in connection with planted plants and seedling crops the result of seed sowing. Nor is this confined to one given kind, almost all are treated alike. Lisbon Onions when 6 or 8 inches high, Turnips when with four or five leaves, "plants," Tares, cori, one and all are subject to pressure from heavy iron rollers, and as a result they thrive and give crops of superior quality. To ensure good crops in the garden, more especially upon light soils and such as have been under spade culture for a decade or more, all trenching should be done as long as possible before cropping. Many crops of what would have been good were lost last summer owing to the simple and easily avoided practice of working the soil late in the month of February and during March. Owing to the drought which prevailed, the lands were dried in process of digging or trenching, and they continued to dry subsequently, so much so that seeds sown absolutely failed to germinate, owing to want of moisture, latent or otherwise, in the soil, and to the fact that after being turned up it was permitted to remain unpressed or otherwise made firm, and sown in so light a state as to permit of all the moisture



contained in it being lost by evaporation. Market garden farmers suffered far less by this evaporation, and secured their customary good crops by such rolling as I have suggested.

#### HARDINESS OF VEGETABLES.

Gardeners and their *confères* of the farm hold very different views as to the real hardness of the more hardy kinds of vegetables. This is particularly observable in connection with the whole of the Brassica family. Market garden farmers prepare their huge seed-beds, consisting of acres in extent in kind, and sow the seeds broadcast generally during the latter part of the month of February or very early in March. These comprise hardy Greens, Veitch's Autumn Giant Cauliflowers, Brussels Sprouts, Broccoli, Curled Kale, Savoys, &c. All are sown together upon an open and exposed field—all germinate, grow, and form the most dense beds of sturdy young plants.

In gardens warm, sheltered corners are chosen for such things, and dates are chosen with nervous exactitude, these latter being generally later than those of the farmers. By these means late, weakly plants are secured. In preference to this the above dates should be substituted, and the most open, exposed, and sunny situation in any garden chosen whereon to sow and form a sturdy nucleus for many future important crops. *William Earley, Ilford.*

(To be continued.)

### THE NATURE OF LICHENS.

SYSTEMATIC students of Lichens seem very unwilling to accept the views of anatomists and physiologists, who regard Lichens as really composite beings, consisting of the threads of a predatory fungus, which establish themselves between and upon the green globules, or "gonidia," formerly considered a special attribute of the Lichen, but which are now considered to be, in reality, forms of *Algæ* embedded in the web of fungus thread. The theory, when first started, seemed startling enough, but gradually it has come to be accepted by the one class of botanists and rejected by the other. Recently Mr. Crombie, an expert lichenologist, has strongly combated the modern notion, arguing *inter alia* that whereas parasitic plants usually exhaust their prey, and bring about its death, here we have a parasite many hundred times bigger than its host, and yet, so far from the latter being exhausted, it continues to thrive, and the two plants, fungus and *Alga*, jog on comfortably together in that condition of happy cohabitation which botanists call "symbiosis." Mr. Hartog, in *Nature*, shows how this may be. A fungus requires for its food a supply of mineral or earthy constituents, nitrogen in the form of nitrates or ammonia, and carbo-hydrates (combinations of hydrogen and carbon). An *Alga* does not require a ready-made supply of the latter ingredients, because it supplies its own wants from the carbonic acid of the atmosphere and water under the influence of solar light. The spawn-threads (hyphæ) of the Lichens, aided by carbonic acid, can dissolve the earthy matters, nitrates are furnished by rain, while the carbo-hydrates, as above stated, can only be obtained from the atmosphere by the green Lichen-gonidia.

But Mr. Hartog points out that there is no necessity for the fungal threads (hyphæ) to penetrate the green tissue (gonidia) of the Lichen in order to obtain the carbo-hydrates they require. The green matter of the *Algæ* is contained within membranous bags, or walls, of cellulose (a carbo-hydrate), and these cellulose layers undergo constant transformation into gummy or gelatinous matter, which is continually repaired by new formation. It is on this layer of jelly, and not on the enclosed nitrogenous protoplasm, that the fungal threads feed, and as it is constantly formed there is no excessive strain on the resources of the green algal matter so long as it is duly nourished and exposed to light. It is interesting to see that in this case, as in most plants, the nitrogen required is not derived from what would seem to be the most readily accessible supply (in the case of the gonidia the protoplasm, in the case of other plants the atmosphere), but from nitrates furnished by the rain, &c.

**THE ICE PLANT.**—M. Hervé Mangon finds that the juice of this plant, *Mesembryanthemum crystallinum*, the leaves of which are studded with translucent vesicles of fluid, contain 33 per cent. of sea-salt. It is considered that the culture of the plant in the salt-laden soil of some parts of France would be beneficial, by abstracting much of the salt and thus rendering them fertile.



### PEAR, BEURRÉ FLON.

#### DESCRIPTION OF THE TREE.

WOOD, of average strength; branches, rather numerous, spreading, rather weak and short, slightly bent, hairy, yellowish-brown, with fine and close lenticells, and prominent cushion-like swellings on the bark; buds, small, ovoid, downy, closely applied to the bark, having the scales convex and loosely united; leaves, small, abundant, generally elliptical irregularly dentate, slightly reflexed at the margins, provided with a strong and very short petiole; fertility average.

#### CULTURE.

Grafted on the Quince this Pear does not succeed well, it is then feeble and very late. On the free stock it is more vigorous, but its pyramids still leave much to be desired.

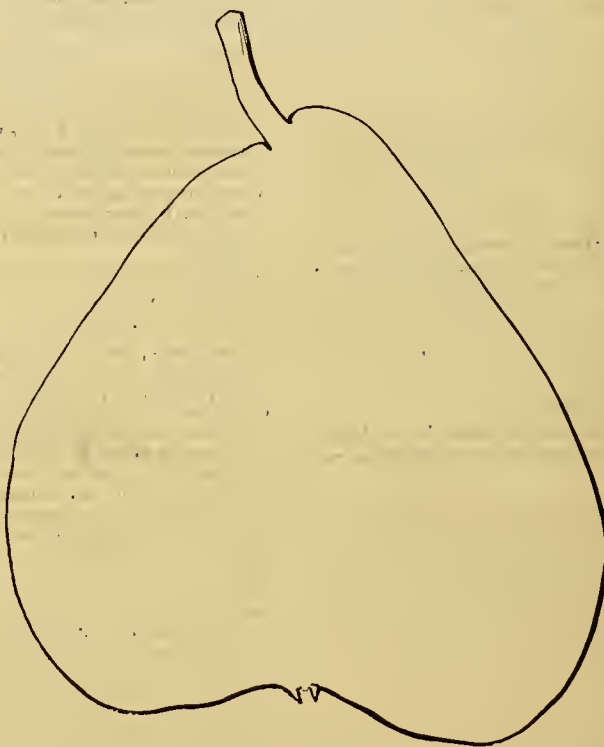


FIG. 57.—PEAR BEURRÉ FLON.

#### DESCRIPTION OF FRUIT.

Size, rather large; form, turbinate, very obtuse, knobbed, usually having one side larger than the other. Peduncles short, stout, straight, swollen at the summit, inserted into a shallow cavity bordered by a very decided prominence. Eye small, open, placed in a deep, funnel-shaped basin. Skin harsh to the touch, thick, citron-yellow, entirely covered with red-grey spots, largely marbled and spotted on the side exposed to the sun. Flesh white, rather delicate, tender, juicy, slightly gritty. Juice abundant, sweet, aromatic, endowed with an agreeable and delicate acid flavour. Season from the middle of September to the middle of October. Quality, first.

#### HISTORY.

It was obtained at Angers by M. Flon, nurseryman, Bas-Chemins du Mail. The tree fruited for the first time in 1852.

These particulars, taken from Leroy's *Dictionary*, constitute all we know of this Pear, respecting which enquiry has been made. Perhaps some of our readers may recognise the Pear from the description and outline we now give.

### THE CHERKLEY YEWS.

ONE of the most interesting features in the grounds at Cherkley Court, near Leatherhead, the seat of A. Dixon, Esq., consists in the noble clumps of Yew along the hill-side (fig. 58). How old they are no one can tell. It is more than probable that, long before Brown Bess and her more deadly successors drove the bowmen from the field their branches furnished goodly material for the weapon of the day. Much time might pleasantly be spent in ranging among the Cherkley Yews alone, as they in various ways supply ample material for thought and speculation. For example, a wonderful difference exists in their habit of growth, and in the arrangement of their branches, some of them being dense and compact like an *Erica Cavendishii*, while others are loose and straggling; some are broad and flat, and others narrow and erect; one gigantic specimen, with straggling branches (illustration, p. 309), measures 25 feet round the trunk 6 feet above the ground. Can it be that the differences come from their variation as seedlings,

or have they been acquired by the roots getting into different strata and different soils? [Seedlings.] Be it as it may, the Yews at Cherkley are wonderful, and form a study in themselves. It is pleasant to see that they are treated with the greatest respect, and rather than remove them from the line of the road, tunnels have been formed through them, such tunnels and avenues forming delicious retreats in summer. B.

### ORCHIDS IN FLOWER AT DOWNSIDE, LEATHERHEAD.

THE spring review of Orchids has well commenced at Downside, and Mr. Lee's pleasant Saturday "at homes," as usual, call thither the *élite* of the Orchid world to enjoy the privilege of seeing at their best, comparing and discussing the relative merits of the rare things there to be found. In the case of such things as *Cattleya Trianae*, of which there can scarcely be found two exactly alike, and with the numerous varieties of *Odontoglossum*, the benefit and pleasure to be derived from an inspection of them in flower in such an establishment is hardly to be overrated, as it is only by actual comparison side by side that the merits and the differences of the varieties can be deter-



mined. It is very difficult to remember a flower sufficiently well to be able to compare it with another which is present, and hence it is that many who flower among their imported *Trianae* varieties, which they vaunt as being better than *Dodgsoni*, *Osmani*, &c., would in most cases have the conceit taken out of them if they were to bring flowers of their *protégés*, and place them side by side with those they are supposed to eclipse.

The great *Cattleya*-house is, of course, at present the centre of attraction, and although it is even better than it was last year a reference to our illustration at p. 677 (May 24) will give an idea of the extent of the display and to that of the plan of the structure (which is one of the most perfect in the country),

able in the features which caused them to be originally selected. With respect to any variety which Mr. Lee may sanction the naming of the utmost confidence may be felt, for with the Saturday gatherings if there be any virtue in trial by jury the plant will have been severely tested before the honour was accorded.

The best variety of *C. Trianae* now in flower at Downside are *C. T. Leeana*. This must be judged the giant among them all, and now that culture has improved it its flowers are marvellously massive. Some of them measure  $8\frac{1}{2}$  inches in width, and have petals  $3\frac{1}{2}$  inches broad. Altogether the variety is a phenomenal one, and the price (250 guineas) was not so extravagant as some would suppose.

*C. T. Emiliae*.—As *C. T. Lecana* represents mascu-

*C. T. Backhousiana*, with its dark velvety maroon lip and crimson feather in the petals also stands by itself.

*C. T. Normani* resembles *Backhousiana*, but has plain rosy-lilac petals.

*C. T. delicata*.—This is in flower in several grand masses, the flower being pale lilac all over except the throat, which has yellow marking.

*C. T. Victoria Reginae* is a perfectly formed variety, with pale lilac sepals and petals, bright ruby-crimson lip, and orange throat.

Besides the above beautiful kinds, *C. T. Russeliana*, *C. T. Dodgsoni*, and other rare varieties are in bud.

Also in bloom in great beauty throughout the

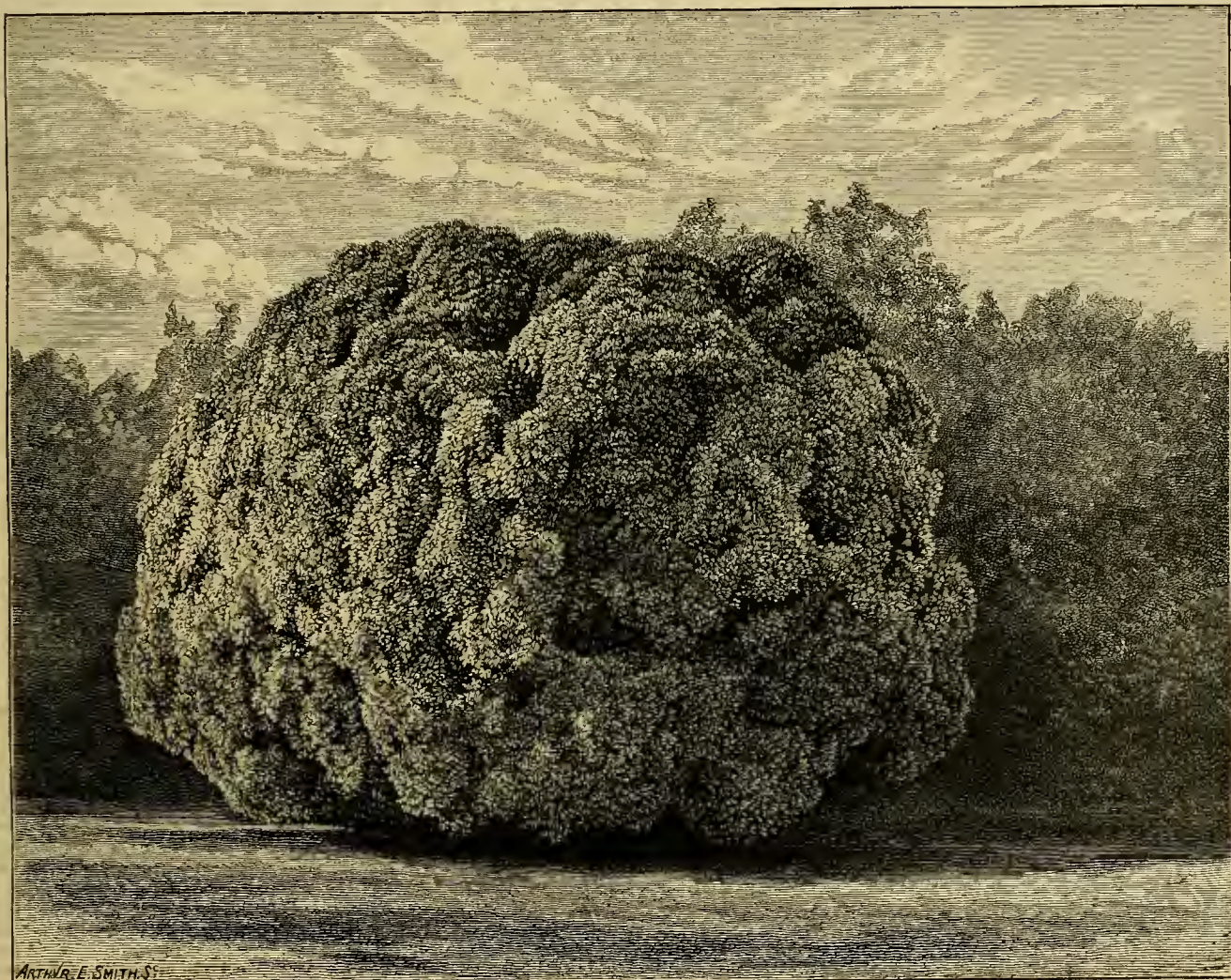


FIG. 58.—GLOBOSE YEW AT CHERKLEY COURT. (SEE P. 308.)

given by us March 10, 1883, p. 308, will furnish interesting details which will be useful to many, the more particularly that the venture having now stood the test of time proves even more satisfactory than it was anticipated, and leaves nothing in the building to be regretted.

The Downside *Cattleya*-house is a most enchanting sight just now, with its banks of flowers on either hand. Of *Cattleya Trianae* undistinguished by special varietal title there are great numbers of fine specimens in full bloom, the variation among them, and the consequent interest by comparing them, being very great; many of them are of the first merit and still they are to remain untitled, in fact, a review of all the named forms of *C. Trianae* shows that distinguishing names have not been thoughtlessly given—the old *Dodgsoni* with its peculiar shape and tubular lip, *Osmani* with its broad velvety crimped edged labellum, and all the other old favourites, are each unapproach-

able in grandeur, so does Mrs. Lee's *Trianae* personate feminine grace. Its lovely pearly-white petals and mauve lip (which is even brighter than that of *Osmani*), edged with pale lilac and tinged with light yellow in the throat, constitutes it a lovely variety. The plant has about twenty-five blooms.

*C. T. magnifica* runs *Leeana* hard for size. Its petals, which are very massive, are pale lilac, lip crimson, tinged in the throat with sulphur-yellow.

*C. T. alba*.—Of this there are two fine snow-white varieties, the one without colour of any kind, and the other with lemon-coloured tinge in the throat.

*C. T. Emperor* is a variety of fine form, with rosy-lilac veined petals and dark mauve lip, with orange-coloured throat.

*C. T. Osmani*.—This variety is very handsome, and is unique in the fine flat expansion of its fringed labellum, which in its glowing crimson resembles the lustre on the breasts of some humming-birds.

*Cattleya*-house, which is 100 feet in length, are some good varieties of *C. Percivaliana* and *C. Walkeriana*, some grand specimens of the different varieties of *Cœlogyne cristata*, including *C. c. Lemoniana*, and two well-flowered specimens of *C. c. alba*; many fine forms of *Lælia anceps*, among which the pure white *L. a. Williamsii*, which has no rose tint anywhere about it, and the beautiful white *L. a. Veitchii*, with its bluish-lilac lip and wings to the labellum, are very prominent; *L. a. Hillii* is also good; some *Vandas*, grand plants of *Epidendrum Wallisii* (one with thirteen sprays of its large yellow flowers on a stem), *Lælia harpophylla*, *L. flammea*, *L. Turneri*, the white *Brassavola glauca*, the pretty dwarf *Cœlogyne*, *C. sparsa* and *C. conferta*, and many other odd beauties, lend attraction and variety to the whole arrangement, and stamp it as one of the finest sights of the kind the season has produced. In the lobby at the entrance of the *Cattleya*-house, on the left-hand



side, the *Odontoglossum Roezii*, which thrives so well here, are, as always, in bloom; *Phaius tuberosus* strongly in bud, and *Colax jugosus* and the rare *C. j. rufinus* in flower, on the right being some rare *Cypripediums*, among which *C. Dayanum*, *C. Swainianum*, *C. barbatum* Warneri, *C. b. biflorum*, *C. vexillarium*, and other notabilities, are in bloom; while overhead the *Vanda Sanderiana*, *Nepenthes*, and *Oncidium Marshallianum*, give good examples of the effects of good culture. The *O. Marshallianum* are grown in a cold house, but brought in here to perfect their flowers, but during and after flowering they are still kept in the cold house.

The long lean-to Masdevallia-house, which protects the end of the Cattleya-house, contains vigorous plants, with healthy foliage and bristling spikes, giving promise of even better things in their season than in former years. Many plants of *Sphronitis grandiflora*, with their scarlet flowers, brighten it, and one of *S. g. rosea* gives its soft rose bloom to help the bright orange-scarlet of the *Masdevallia ignea*, *M. Chelsoni*, *Aca aurantiaca*, and other odd varieties.

The continuation of the lean-to range gives the chimneroid *Masdevallia*-house, in which the strikingly handsome *M. Roezii rubra*, *M. chimera*, *M. bella*, and *M. radiosa* are in bloom; and the long cold-house, in which the *Oncidium macranthum* and some hybrid *Odontoglossums* are grown on the back, and the lesser *Masdevallias* on the front. Here blooming are *Odontoglossum macrospilum* (the only plant), with flowers like those of *O. crispum guttatum*, with a suspicion of *O. Andersonianum*, *O. Jenningsianum*, *O. species* like *Chestertonii* with *O. Andersonianum* marking, *O. triumphans*, *O. Ruckerianum*, *O. hebraicum*, true *O. Cervantesii decorum*, with lovely large flowers; *O. Uro-Skinneri* and many of the small *Masdevallias*, such as *M. Shuttleworthii*, *M. Arminii*, &c.

The 100 feet long span *Odontoglossum*-house—like all the rest of the establishment, bright, clean and fresh, with unspotted foliage and profusion of flower—is sprinkled throughout with good spikes of *O. crispum*, *O. Pescatorei*, *O. luteopurpureum*, in all grades; *O. Wilckeanum*, *O. mirandum* (which is just intermediate between *O. polyxanthum* and *O. Lindleyanum*), and many forms of *O. odoratum*, which, as well as giving variety to the display, diffuse a grateful Hawthorn scent through the houses. The span range, in three divisions, has well-bloomed plants of *Odontoglossum blandum*, *O. pulchellum majus*, *O. Sanderianum*, *O. aspersum*, *Maxillaria venusta*, *M. grandiflora*, *Laelia harpophylla*, and many *Cypripediums*, both species and hybrids.

In the old block of houses something like the splendour of the Cattleya-house is given by the great show in the *Lycaste*, *Dendrobe*, and *Phalenopsis*-houses. The forms of *Lycaste Skinneri*, like those of *C. Trianae*, are scarcely two alike, but all hands will go up to give the award of first merit to the beautiful, massive, snow-white *L. S. alba*, of which there are several plants in bloom with six or seven flowers each. Other handsome kinds are *L. S. labella alba*, *L. S. delicatissima*, *L. S. rubella*, and *L. S. atrorubens*. In the same house are fine specimens in bloom of *Cymbidium eburneum*, *Oncidium cheiroporum*, *O. unguiculatum*, the rare *O. cucullatum macrochilum*, *Odontoglossum Oerstedii*, &c.; and here in this cool house the *Dendrobium Falconeri* and *D. F. giganteum* grow and flower well.

Of the *Dendrobium*-house the lovely violet-crimson *D. nobile nobiliss* is the king. It is a lovely variety, with a richly glowing colour. *D. splendidissimum*, best variety, is also very striking, with its wax-like rosy petals and orange stained lip, and a fine specimen of the pure white *D. Wardenianum album*—a chaste and substantial beauty. The show is made up of many grand specimens of *D. Wardenianum*, *D. Ainsworthii*, *D. heterocarpum*, *D. Findleyanum*, *D. Kingianum*, *D. fimbriatum*, Day's variety, *Barkeria Skinneri*, *Epidendrum arachnoglossum*, and many other pretty *Epidendrums* and *Dendrobes*. The *Phalenopsis*-house is a beautiful sight, with the numbers of arching spikes of the sweet-scented, rose-coloured *P. Schilleriana*, the massive white *P. grandiflora* and *P. amabilis*, and the curiously varied but always lovely *P. Stuartiana*, aided by the long graceful spikes of the profusely flowered *Angraecum citratum* falling over them from the shelf above in the manner which has been often admired and noted at Downside. The East *Iodia*-houses are the least showy just now, but a specimen of *Dendrochilum glumaceum*, with fifty spikes; *Saccolabium bellinum*, and some other *Saccolabiums* and *Aërides* are already in bloom. Mr.

Lee appears to be more enthusiastic than ever with his Orchids, for building is again about to commence. Neither Mr. Lee nor his able assistant, Mr. Woolford, need praise to encourage them. They seem to get pleasure enough out of the work as it goes on.

## FILMY FERNS.

THE removal of a large proportion of the collection of *Filmy Ferns* grown at Kew into a house with a lower temperature than has hitherto been considered necessary for these plants has been followed by results as satisfactory as to be worthy the attention of Fern growers. Messrs. Backhouse, of York, were perhaps the first to discover that the majority of *Filmy Ferns*, including even those from distinctly tropical regions, could be much better grown under artificial management when placed in a comparatively low temperature than when treated as stove plants. Mr. Cooper Forster also has demonstrated by his success in the cultivation of a collection of these plants in a house where little or no artificial heat is employed that a high temperature was not only unnecessary, but very often harmful to most *Filmy Ferns*. Any one who remembers what miserable objects these plants were when grown in a tropical house, and who has seen the beautiful and healthy collection of them now grown in the York nurseries, or the equally healthy though smaller collection possessed by Mr. Forster, will find no difficulty in admitting that in most cases tropical treatment for *Filmy Ferns* was a mistake. Equally strong evidence in favour of cool treatment is shown by the condition of that part of the Kew collection which has been subjected to it, as compared with the health of the plants before they were removed from the tropical-house into the cool fernery in April last. Some anxiety was felt for the success of the experiment, because it seemed not unlikely that plants which had for a long time grown in a stove temperature all the year round would suffer from the change to a temperature which in winter, owing to the heating arrangements, could not be kept above 50°, and in very severe weather would fall as low as 45°. Instead, however, of harm resulting from this change, the effect has proved beneficial to almost every one of the plants which all through the winter have been growing vigorously, and apparently enjoyed the lowness of the temperature. Many of the *Filmies* grow freely in winter time, but we were not prepared to see these "pampered" specimens take advantage of the change in so short a time.

The cool fernery at Kew is a low T-shaped structure in which *Gleichenias*, *Nothochlænas*, *Aspleniums*, some *Adiantums*, &c., are grown. In the "big" division of the T there is a wide central stage, and a narrow one on each side. The stage on the east side of this part of the house has been made into a case for *Filmy Ferns*, by fixing sliding sashes along the front from the stage to the roof, and erecting slate slabs along the back, leaving a little space between the slate and the side of the house to allow the warm air to pass all round the case. Over the top, and spanning from the slate to the sashes, panes of glass are placed, so that the case is practically doubly roofed, a current of warm air passing between the roof of the house and the panes of glass. In this way a temperature as warm as that of the house itself is secured in the case without allowing the heated air to come in contact with the *Filmy Ferns*. Inside the case a layer of crocks is placed upon the stage, then a layer of moss, and upon this the stones (sandstone) and soil are arranged, so as to form a sort of rackery. Very little soil was used—peat fibre, charcoal, and broken sandstone being principally employed—as *Filmy Ferns* generally do not care for a close soil. Some of the plants are growing upon portions of Tree Fern stems. The spaces between these and the stones are planted with various species of *Filmies* or covered with moss (*Hypnum*). Water is frequently poured over the stones and moss and upon the slate slabs at the back, and in this way it is found easy to keep the atmosphere in the case at saturation point, so that the *Ferns* seldom or never require watering directly. Watering overhead is always carefully avoided, as very few of these plants care to be wetted with ordinary water.

The temperature of the case varies from 60° to 65° in summer, and, except in very severe weather, from 50° to 55° in winter; for although a little lower temperature does not appear to do much if any harm, it would not be wise to allow it to fall below these figures. Sunlight direct must never be allowed to

reach *Filmy Ferns*, nor should hot dry air ever be permitted to pass over them.

It is much easier to supply the conditions required for the management of a large number of these plants than at first sight appears. The most important points to be observed are a sweet fibrous substance for the roots to grow in, an atmosphere constantly saturated, subdued light, and an equable temperature, to be procured, if possible, by means of cases or bell-glasses, so as to prevent the currents of air, quick changes in temperature, and the dry air from hot pipes from affecting these delicate, easily injured plants. The only amateur known to us whose taste for horticulture has turned to the cultivation of *Filmy Ferns* is Mr. Cooper Forster, and without disparaging the tastes of others, it may be said that in the variety, the grace, and the delicacy of their forms, in their rarity, and in the interest that attaches to them at different stages of their development, Mr. Forster finds, as he tells us, sources of the highest pleasure and most enjoyable study in his management of a choice collection of *Filmy Ferns*, which he has gathered together in that little "drawing room greenhouse" of his, since he first commenced to grow them, now many years ago—in Grosvenor-street!

The following list comprises all the species which have succeeded in a cool fernery at Kew. It will be seen that several are included that are almost hardy, viz., *Todeas*, *Trichomanes radicans*, *Hymenophyllum tunbridgense*, &c.; they are not omitted because the list aims at showing the whole of the *Filmy Ferns* which may be grown under cool treatment:—

<i>Hymenophyllum asplenoides</i>	<i>Trichomanes apifolium</i>
" <i>chloense</i>	" <i>auriculatum</i>
" <i>ciliatum</i>	" <i>attenuatum</i>
" <i>cruentum</i>	" <i>crispum</i>
" <i>demissum</i>	" <i>ex-ectum</i>
" <i>flabellatum</i>	" <i>humile</i>
" <i>fuciforme</i>	" <i>macilentum</i>
" <i>hirsutum</i>	" <i>maximum</i>
" <i>javanicum</i>	" <i>membranaceum</i>
" <i>var. flexuosum</i>	" <i>parvulum</i>
" <i>polyanthos</i>	" <i>Petersii</i>
" <i>pectinatum</i>	" <i>pyxidiferum</i>
" <i>pulcherrimum</i>	" <i>var. olivaceum</i>
" <i>toruosum</i>	" <i>radicans</i>
" <i>tamaricifolium</i>	" <i>var. alabamense</i>
" <i>tunbridgense</i>	" <i>Bochianum</i>
<i>Todea Fraseri</i>	" <i>frondosum</i>
" <i>hymenophylloides</i>	" <i>Luschthianum</i>
" <i>intermedia</i>	" <i>reniforme</i>
" <i>pellucida</i>	" <i>trichodeum</i>
" <i>superba</i>	" <i>venosum</i>
<i>Trichomanes alatum</i>	

H. H.

## FORESTRY.

### WORK IN THE NURSERY: TRANSPLANTING.

MARCH is the busiest month in the nursery, the work of which, more so than perhaps any other operation in connection with forestry, requires to be not only carefully but energetically conducted. The manuring and trenching or digging of all vacant borders, the transplanting of young trees, the preparation of seed-beds, and the sowing of many kinds of tree seeds, are all duties which, during favourable weather, require prompt attention, and will tax to the utmost the energies of all employed. Hard woods of all kinds, as well as *Thorn*s, should be transplanted early, after which the various *Pines* and all such plants as are late in budding may be taken in hand, in every instance proportioning the distance in the rows to the size of plants, as well as length of time they are intended to remain in the nursery. For seedlings of *Oak*, *Ash*, *Elm*, *Beech*, &c., 18 inches between the rows, and 4 inches from plant to plant, will be ample, but in the case of 2 year seedlings nearly double the latter distance between individual plants may be required. Overcrowding should at all times be sedulously avoided, this being generally the bane of nursery stock, and one of the most fertile causes of failure or of weak, straggling, and slow growing trees in many of our woodlands. In transplanting great care is also necessary to avoid cramping or in any way displacing the roots, which should be spread evenly around the base of the stem, and not, as is usually the case, all on one side.

### METHOD OF SETTING OUT PLANTS.

Under the present system of home management, which I may also say is the method adopted in the majority of our public nurseries, a garden line is stretched along the surface of the ground where the plants are to be inserted, and a notch taken out along one side of and close to the line. The plants are



then placed against the perpendicular cut, all the roots being directed towards the planter, after which they are covered with soil and the line removed further on. Now under this treatment it is quite evident that the roots will all grow to one side and produce trees ill-adapted for planting in any but the most sheltered situations. A much better method, although one requiring a little longer time, is to take out a sloping notch on both sides of the line and into which the roots can be spread to their full extent. By this method the roots are in a measure trained from their infancy in the position which they should occupy as forest trees, and as they will thus form a complete whorl round the base of the stem they are not only enabled to withstand the fiercest storm but to collect food from all quarters.

#### WOODLAND PLANTING.

In nursery management it is also now well to remember that as the month advances the risk from continuous dry weather after planting increases, so that quick and careful removals can alone insure success and safety in the operation. With favourable weather all woodland planting and "beating up" should be prosecuted and quickly brought to a close. Thinning or extending game coverts may still be carried on, indeed the present time is one of the best for layering such underwood as the Privet, Laurel, Rhododendron, &c. Osiers, for the cooper and basket maker, may now be cut and left standing in pools of water until required for use.

#### RESOWING AND MENDING GRASS VELGES.

Woodland drives and all bare patches occasioned by the removal of timber should be prepared by a slight digging or forking and laid down in grass. For such purposes we find the following a good mixture:—

Timothy grass, Tall Fescue, Hard Fescue, and Meadow	
Footail, 2 lb. of each	8 lb.
Rough Cocksfoot, and smooth-stalked Meadow, 4 lb. each	8 lb.
Sweet-scented Vernal, and rough-stalked Meadow, 4 lb. each	8 lb.
Wood Meadow-grass	8 lb.

32 lb.

A. D. Webster.

### CHINESE VEGETATION.

[THE following extracts are taken from a letter of the Abbé David prefixed to M. Franchet's enumeration of the plants collected by that adventurous traveller, recently published in the *Nouvelles Archives du Muséum*]:—

From a naturalist's point of view I divide the Chinese empire into three large regions—1st, Northern China, extending from the Yellow River, or Hoang-ho, to the confines of Mantchouria; 2d, all Eastern Mongolia, which adjoins the Great Wall; 3d, all that region, generally mountainous, which forms the South of China, including the immense basin of the Blue River or Yangtsekiang.

#### NORTHERN AND EASTERN CHINA.

The two first regions resemble each other greatly in vegetable and animal productions and in climate. The last is characterised—1st, by great dryness, interrupted in summer by occasional storms; the rare showers of rain or snow which take place in the rest of the year are for the most part insignificant, and dews are not seen until about the commencement of July after the first rains; 2d, by an unusually clear sky, with north winds, as disagreeable as they are frequent; 3d, by the regularity of the seasons—the cold of winter and the heat of summer being rarely broken by abrupt alterations of temperature; 4th, by a long very hot summer, and by a rigorous winter. At Peking the severe cold commences suddenly in November, but the waters of the rivers and sea are not frozen over until December, to thaw in March. Each summer the thermometer attains, and sometimes exceeds, 40° C. (104° Fahr.) in the shade, while the severest cold of winter varies between -8° C. (17° Fahr.) and -12° C. (10° F.), descending exceptionally to -20° C. (-4° Fahr.); but in Mongolia a cold of -30° C. (22° below zero Fahr.) is not rare.

This peculiarity which Northern China shows of being subject to regular alternations of hot summers and rigorous winters makes it impossible for a perennial or ligneous plant from a cold country to live there,

although species of tropical annuals prosper there, and are cultivated far north. For the same reason Bamboos are not found in a wild state higher than the Hoang-ho, although they abound in all the mountains of the South beyond Tsing-ling. On the other hand, Rice, Sesamum, Cotton, Sweet Potato, and a number of the Cucurbitaceae, are cultivated with success as far as the confines of Mantchouria. Again, although China has many species of wild Vines, the two or three varieties which are cultivated in the neighbourhood of Peking (introduced, no doubt) only live there because the people are careful in winter to cover them entirely with earth.

It appears that several centuries ago the Chinese destroyed all the forests, perhaps to satisfy their agricultural and industrial requirements—perhaps, as I believe, to destroy the haunts of the great and formidable animals (tiger and leopard) near which man could not live in security, especially if he kept but few cattle, as is the case here. It is among the reputedly inaccessible mountains that remnants of the ancient forests are found, and generally the country is without spontaneous shrubby vegetation, even on the hills. As to the plains, almost every part is so devoted to agriculture, that the indigenous plants have almost completely disappeared: especially so, as the Chinese have no meadows, and as they are careful in winter to hoe up all the wild plants with their roots to supply their kitchen fires!

The vegetation of the northern region is poor and little varied, especially on the Mongolian plateaux, where the meagre plots of grasses, widely scattered, alternate with immense plots formed by *Artemisia*, *Iris*, *Glycyrrhiza*, studded here and there with bushes of *Caragana*, *Ephedra*, *Clematis*, and *Roses*. Inside the Great Wall the ligneous wild vegetation which has best resisted the vandalism of the Chinese, and which gives to the flora of the country its peculiar appearance, belong to the genera *Zizyphus*, *Vitex*, *Lycium*, *Lepedeza*, *Rhamnus*, *Clematis*, *Eunonymus*, *Celastrus*, *Ailantus*, *Morus*, *Ulmus*, *Planera*, *Salix*, *Populus*, *Biota*, *Juniperus*, and *Pinus*. Besides, on the mountains, there are the *Quercus*, *Carpinus*, *Betula*, *Tilia*, *Juglans*, *Corylus*, *Corylopsis*, *Xanthoceras*, *Koeleria*, *Larix*, *Abies*, *Vitis*, *Loisera*, *Fraxinus*, *Syringa*, *Ligustrum*, *Philadelphus*, many *Spiræas* and *Roses*, *Cratægus*, *Sorbus*, *Sambucus*, &c. There is no *Hedera* (Ivy) in the north, but *Cornus* and *Aralia* are found there.

The trees which are commonly planted to shade the habitations are the Willow, Poplar, and *Ailantus*—often the *Sophora* and *Cedrela*, and as a luxury the *Salisburia*, but these last are imported species, like the *Kaki*, which is cultivated on a large scale on the hills. However, it is only in the mountains of Peking that I have seen in a wild state the black fruited *Diospyros*, while it is only in the South that I have found the *D. Kaki* with little yellow fruits growing spontaneously. As to the beautiful Pious Bungeana, which ornaments the courts of the temple of Peking, I have not been able to discover where it exists in a spontaneous state. Of the three or four *Poplars* of China the most remarkable is that which I have pointed out before under the native name of *Ta-yang*. To its height and elegant appearance it joins the advantage of furnishing one of the most esteemed woods of the country. The Chinese cultivate fruit trees but little, and that badly; however, they possess nearly all those genera that we have in the West. On this subject note that we find in the Chinese mountains, growing in their primitive and spontaneous state, the Chestnut, Walnut, Apricot, Peach, and Cherry, but not the true Plum. Can this old land of the extreme East be the principal, or even the only cradle of these useful plants now spread through all the countries of temperate climate?

The little taste of the Chinese for fruits offers an explanation why they have neglected to domesticate the Strawberries, as also numerous species of Gooseberries and Raspberries, the existence of which I have proved in all their large western mountains. In the region of the Tsing-ling the productions of the North mix with those of the South. There, *Paulownia*, *Catalpa*, *Sierculia*, *Cedrela*, *Melia*, *Rhododendrons*, &c., begin to grow spontaneously; but the greater part of the flora is Northern rather than Southern, and it seems to me to contain a good proportion of species peculiar to the country.

The southern provinces, situate to the south of the Yangtse, have a sub-tropical climate, rain is frequent there all the year, less, however, in winter than in

summer. The vegetation, also, is much more abundant than in the North, without being at all varied. By Kiangsi the country is verdant and the hills are covered with large herbs, with a number of bushes interspersed, and with some trees or shrubs peculiar to the South: *Vitex*, *Pachyrhizus trilobus*, *Smilax*, *Liquidambar*, *Fortunia*, *Cunninghamia*, the small *Castanea chinensis*, *Rhus semialata*, *Chamærops Fortunei*, &c. It seems that the flora of this region contrasts greatly with that of Japan.

### MALT.

MALT-MAKING will eventually gain largely by the repeal of the Malt-tax; but, as I pointed out, both before the repeal and after, at the meeting of the British Association, at York, in 1881, farmers must lose largely. The arguments then adduced by me have never been refuted, and experience shows their correctness. English Barley can never again attain to such prices as it might had the tax continued, and the benefits to farmers of securing malt for feeding purposes and brewing beer are so small, that they do not—and never can—compensate for a reduction in the price of Barley of 1s. per quarter. The tax created a monopoly in English Barley, which practically kept the price at the fictitious level of at least 4s. per quarter above its intrinsic value. Farmers would not believe it, but it is proved by stern, incontrovertible fact.

Wheat malt would doubtless be much more largely made and used, especially at the present price of Wheat, were it not for the difficulty of growing it with the acrospire outside the husk. Further, its excess of gluten, and other nitrogenous constituents, give brewers much trouble in their existing state of knowledge.

Oats, when malted, also labour under the latter disadvantage to a very large extent, and in comparison with Wheat and Barley they are, ordinarily, dear. Otherwise they malt freely, and if brewed properly make delicious beer.

Combes are the rootlets of the Barley. They remove from the kernel a large proportion of the ash and nitrogenous matters, as they consist of 30 per cent. or more of nitrogen compounds, with 6 to 8 per cent. of ash. They also contain a great diversity of acids and other substances. Lermier detected upwards of twenty distinct compounds in the samples he examined. They form good food for cattle and sheep, far better than any common food, and are much cheaper. Few farmers seem to be aware of their true position in this respect.

Kiln dust is a very minor product of malting, but is of use to farmers as manure. It consists of the combs or rootlets which fall through the wire or perforated floors of kilns, mixed with the dust and ashes carried by the ascending column of air from the fires and then deposited.

The uses of malt are becoming more numerous, as it is found to be of considerable value for a variety of purposes. Of its use by brewers, distillers, and vinegar-makers every one knows, and its value to these traders is great. Its value to the agriculturist is, however, problematical. For bread and biscuit making, for various extractive condiments and medicines, we are still, as regards malt, in the experimental stage, and much remains to be discovered.

Malt bread is very palatable. It possesses the advantage of remaining moist and soft when several days old. It makes delicious toast, and altogether is of considerable advantage to sufferers from weak digestion, as it is practically partly digested food. To toothless infants who are fed upon starchy food; malt is a great boon, as, until the teeth are formed, children assimilate starch with great difficulty if at all, but if the starch is converted by the diastase of the malt prior to feeding, the infant can derive nourishment and strength from it. *Journal of the Society of Arts.*

### Notices of Books.

#### The Cultivation of Vegetables and Flowers.

Messrs. Sutton have published a second edition of their useful treatise on the management of the flower and kitchen gardens. The several articles are arranged alphabetically. A year's work in the vegetable garden is a very serviceable reminder of what to do and how to do it, and the several articles on the pests of the garden, and the chemistry of vegetation, though somewhat meagre, will be found of much service in calling attention to these matters.



## APPOINTMENTS FOR THE ENSUING WEEK.

		Royal Horticultural Society: Meeting of Fruit and Floral Committees
		National Rose Society: Meeting of Executive Committee, at 3 P.M.
TUESDAY, Mar. 10		Sale of New and Valuable Orchids, at Protheroe & Morris' Rooms; and of Azaleas, Roses, &c., at their City Auction Rooms.
WEDNESDAY, Mar. 11		Sale of Imported and Established Orchids, Hardy Plants, and Bulbs, at Stevens' Rooms.
		Sale of Lilies, Roses, and other Plants, at Protheroe & Morris' Rooms.
THURSDAY, Mar. 12		Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY, Mar. 13		Sale of Imported Orchids, at Protheroe & Morris' Rooms.
		Sale of Hardy Plants and Bulbs, at Stevens' Rooms.
SATURDAY, Mar. 14		General Meeting of the Royal Botanic Society, at 3.45 P.M.

THE articles that have appeared in our columns relating to the admission of GARDENERS TO KEW, to the mode of obtaining gardeners for service in private establishments, and to the wages paid them, have brought us, as such subjects usually do, a number of communications, too large for us to insert even if we deemed it desirable to do so. The education question, we are pleased to see, has hitherto attracted the most attention, judging from the letters we have received; and communications from the West Indies, from Australia, from New Zealand, and from India, relating to the same subject, have come to hand at a very opportune season. On some of these letters, and the deductions to be made from them, we propose to make some comment. Adverting, in the first instance, to the new regulations for the admission of young gardeners to Kew, lately published (see p. 214), we believe they are the outcome of a feeling that youths of a higher class, and with a more earnest purpose, were needed in the Royal gardens, and that it was desirable to secure them, if possible, by making the advantages of Kew more widely known amongst young gardeners, by offering a higher rate of remuneration, and by holding out other inducements. Under the old regulations, any lad of approved character, and not less than two years' experience, could be entered and admitted as soon as a vacancy occurred. Inexperienced lads, who knew not how to crock a pot or water a plant, whose garden experience had been confined to walk-weeding or pot-washing, had no difficulty in getting into Kew as "royal gardeners." It is not asserted that all the candidates were of this nature, but many were. The consequence of this was bad, both for the plants which such men had to take charge of, and for the credit of the gardens. It was equally bad for the men themselves, their ignorance of elementary gardening standing in the way of their progress, and often the last state of such men was worse than the first. The new form of application fixes a higher standard, and offers a higher rate of wages. Kew ought to stand higher in the estimation of gardeners, who should look upon it as a "high school" through which they should pass, and instead of being considered, as by some it has been—with what justice we need not stop to enquire—a refuge for the inefficient the gardens should become the first school of horticulture in the world. The exceptional advantages for the practice of first-rate horticulture, for instructing "rising hopes" in the more scientific branches of the profession, and in other ways rendering high service to gardening, might be turned to the best account. The services rendered by Kew to the colonies and India, and to scientific botany, are the theme of universal admiration. Something more might now be done for practical horticulture. Kew has her opportunities, and she ought to avail herself of them by taking horticulture by the hand, thus effecting a great good, and, by doing it, benefit herself. At present we believe most of the gardeners (journeymen) are employed indoors. If trees, shrubs, borders, and herbaceous plants could also be taken in hand and properly worked it is easy to see how both Kew and horticulture might be benefited.

At present the outdoor collections, except on the rockeries, are mostly kept in natural orders, regardless of the requirements of different species—a plan well suited for botanical students, but not adapted for horticultural requirements. Both these conditions, as well as the demands of visitors who come to see and enjoy rather than to study, have to be met at Kew, and enormously add to the expense and difficulty of management.

First and foremost come the requirements of scientific botany, which can nowhere else be so well met as at Kew. The students' department should be extended, and, as now, be kept separate, and arranged purely on scientific methods. As a general principle to be acted on, as far as circumstances allow, everything should be grown and tested at Kew. Its nomenclature should be verified, its habit of growth recorded, its peculiarities of structure noted, its flowers analysed and drawn, and specimens preserved for the herbarium. Only a very small proportion would need to be kept in cultivation—only those which have some special value as typical of structure, or as ornamental plants, but what is grown should be grown as well as possible. This brings us to the second point of importance, the requirements of scientific and experimental horticulture, which are intimately associated with the preceding, and of which good cultivation is the natural outcome. Much more may be learnt, even by the botanist, from a well cultivated specimen than from one that is indifferently grown. Last of all in importance, so far as Kew is concerned, are such matters as summer flower-beds, and other purely decorative objects of no special horticultural or botanical interest, but to which a certain amount of attention must be paid in order to please the tax-paying public and provide something for all tastes.

Reverting to the question of the work of the garden, young gardeners have, we are informed, each a separate charge, which they manage under directions from foremen. In addition, the work in each department is shared by all men employed in it. Thus a man in the ferneries has a portion of the collection to water and clean, &c., and also to assist in potting the whole collection, and in all bulky work. Instead of cutting the work up into bits for each man, watering and cleaning only are thus treated; all important work is, we believe, done by gangs under foremen. The men are changed, as often as consistent, from one department as they desire it. On three mornings a week the whole of the men are, we believe, allowed half or three-quarters of an hour to visit other departments, and see all that is going on. Under the old *régime* the men were not allowed to do anything but clean plants during public hours; now they go on with usual work all day.

So far as educational requirements are concerned, lectures on chemistry, structural and geographical botany, are already given, and are well attended; and it might be well if the men were subjected to an examination at the end of each course, and prizes or some other inducement to steady work offered. Lectures on practical horticultural subjects—such, for instance, as soils, manures, the structure and physiology of plants, with special reference to the requirements of cultivation—the most important operations in gardening, such as propagation, grafting, &c., might be given. At present there is, we are informed, a reading society, which meets every Thursday evening in the library. The garden library is open every night till 10 o'clock, and is much appreciated. There is a good collection of books, and most of the garden periodicals are taken.

Good as the present modicum of theoretical instruction may be to the fortunate few who can get it, it is obviously inadequate, and we have only to point to what is done in

Belgium, in Germany, and France, to see how far behind we are in this country in the matter of the higher education of gardeners. We have so often alluded to this subject that it becomes stale iteration to revert to it; nevertheless, we cannot avoid substantiating our statements by again calling attention to the exhibition made in the "Healtheries" last year, of the means adopted in Belgium and France to promote this object. Perhaps the following letter from an old Kew *employé* may have more force than anything we can say on the matter. In any case it is a valuable contribution to the discussion:—

"As a gardener, who has worked at Kew, while recognising the unique advantages it offers to young men for botanical study, I think it ought to afford them more than this; for though Kew gives matchless advantages and opportunities to young men for becoming acquainted with the appearance and nomenclature of an immense number and variety of plants, yet it provides no course of instruction as to their cultivation. I think Kew ought to provide this knowledge also, by giving to the young men a systematic course of instruction in the principles and theory of horticulture, which should make Kew a national training school of horticulture, and which, owing to its vast resources and advantages, it is better qualified to be than any other place. But at present no such adequate national school exists. I believe that the best authorities will agree with me, that young English gardeners require more systematic instruction in horticulture, to enable them to successfully compete with their better trained Continental brethren, and I think they ought to be able to obtain this instruction at Kew. That the present system at Kew is inadequate to do anything of this sort no one who is acquainted with the routine there will dispute. As no fruit or vegetables are grown at Kew, the knowledge and experience gained there is necessarily to that extent imperfect, and a young man who possessed no other knowledge than that which Kew at present gives would be quite incompetent to undertake the management of a garden as an all-round gardener—a cultivator of fruits and vegetables as well as flowers. What is required is a system of instruction which would thoroughly demonstrate to the students the theory of horticulture, and make the practical cultivation of plants more a matter of practice based on inductive reasoning than a 'rule of thumb,' which it too often is at present. In my opinion the best way to attain this most desirable end would be to establish a course of lectures on horticulture, accompanied by periodical competitive examinations in order to test the progress of the students in their subject. Though under the new regulations young men will be expected to be pretty well up in practical gardening before they come to Kew, yet though they may have a certain amount of 'rule of thumb' knowledge, yet from lack of opportunities and advantages they are not likely to possess a sound knowledge of the principles and theory of horticulture, on which all scientific practice depends, and I think the best means of affording the young men this information would be by the establishment of a comprehensive course of lectures [and demonstrations, especially demonstrations]—a course of lectures worthy of that central station that Kew should be, namely, a national training school of horticulture, and the head-quarters of scientific gardening, as well as the head-quarters of the science of botany."

We look on the above communication as specially important as coming from one who has passed through the ordinary routine at Kew, and one who is evidently impressed with the need of a fuller system of education than gardeners, as a rule, can now get. It has often been suggested that the Horticultural Society should undertake this work, and, indeed, fitful efforts have been made in past years, and even now, perhaps, Chiswick might co-operate with Kew and supply in a measure what Kew cannot undertake; but to look to the Royal Horticultural Society to become the School of Horticulture is to look at a mirage.

Another letter, received from a correspondent in one of our colonies, and who, if we mistake not, also spent some time at Kew, may be here inserted as giving the views of one who has risen in his calling and has a correct appreciation of some at least of the reasons why he has done so. Our correspondent says:—

"Some years ago test examinations of young gardeners were undertaken by the Society of Arts and also by the Royal Horticultural Society. Lately, however,



I have seen nothing showing their continuance, which is much to be regretted. I was one of those examined nearly twenty years ago, and feel the great benefit derived from the study requisite before going up for the examination, not only for the purpose in hand, but chiefly as an incentive to further study. The certificates I obtained have so far proved of little direct value to me; but that has been more than compensated for by the knowledge derived during the preparation to obtain them, and the love of study by this means inculcated. If I may suggest such a thing, it would appear to me, that if possessors of large private gardens, Curators of Botanic Gardens, and of the Colonial and Indian botanical establishments, were requested to throw open appointments to each of their respective establishments to men who passed in the first, second, or third grades respectively, and such appointments were published by the Examining Committee after each examination,

aminations, as a rule, should be progressive, *i.e.*, the first grade should first be passed, but this need not be absolutely adhered to, but in such a case the educational test of the three R's should be first passed before going into the other subjects in the higher grades. Each grade should carry its own remuneration. If the first is put at £100 to £70 per annum the second would follow at £70 to £50, and the third, who would probably be but beginners, at £50 to £30 per annum. I might easily point to examples selected from the list of those who have passed the old examination, which enable me to speak with confidence of the success of such a scheme. I am sure myself that I could never have held my present position (worth £200 per annum) had I not in the first place undertaken the study so necessary to be undertaken by a candidate for such an examination."

We have now selected evidence, from among those best qualified to give it, of the necessity for that higher education of gardeners which we

beauty of its foliage (fig. 59). As a single specimen on a lawn during the summer months it is unequalled, and for so-called sub-tropical work it is unapproached by hosts of more tender things which require no little care and attention. Even in the smoke-laden atmosphere of large towns it thrives apace, and produces leaves of large size. A few years ago these columns contained an account of a plant which had grown to be the most conspicuous object in a small square in the heart of London itself. It is almost indifferent to soil; we have seen it thriving in deep alluvial loam, in a heavy clay, and in dry gravelly soils. In the latter, however, it does not grow so fast as under more favourable conditions. Not unfrequently the leaves attain a length of more than 3 feet, the breadth at the base equalling the length. By some authorities *A. mandschurica* is considered to

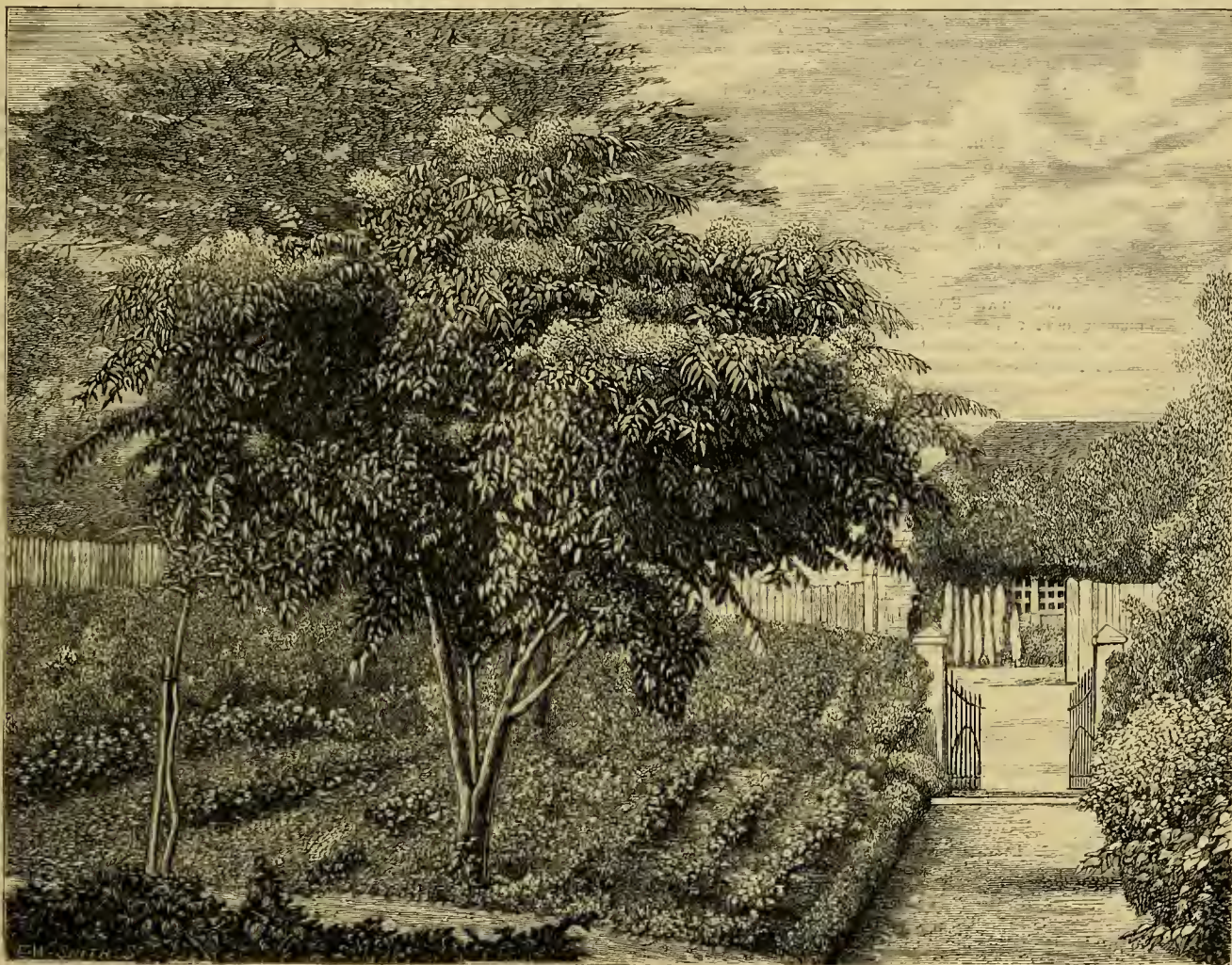


FIG. 59.—*ARALIA CHINENSIS* VAR. *MANDSCHURICA*.

sufficient inducement would be afforded, and would undoubtedly result in numbers coming up for examination. The appointments might be arranged for by the Examining Committee (which should consist of men eminent as well for their scientific as for their cultural qualifications) entering into correspondence with the various proprietors, curators, &c., some time beforehand, ascertaining the nature of the appointment, the rate of remuneration, and the facilities for acquirement of knowledge afforded by the appointment, bad personal character alone being a bar to the appointment of any approved candidate. The grades respectively should carry an equivalent remuneration, though it might be allowed to vary in each individual grade, in accordance with circumstances. The first grade should be examined in botany—elementary, descriptive; elementary, vegetable physiology; chemistry, light and heat, horticulture, floriculture, arboriculture, &c. The second should be examined in botany, elementary; horticulture, fruit and vegetables; arboriculture, floriculture, &c. The third should be examined in horticulture, culture of fruit and vegetables, floriculture. The ex-

have, in season and out of season, advocated from our knowledge of the superiority of our Continental neighbours in these particulars. Now that those who are or who have been in the ranks begin to feel the same necessity, we may have hopes of better things, and of some remedy being found for other evils—such as a low rate of wages—touched on by other correspondents, and alluded to in the onset of this note, but the discussion of which we must leave to a future occasion.

— *ARALIA CHINENSIS* VAR. *MANDSCHURICA*.  
—No tree or shrub, hardy in the climate of Great Britain, surpasses the subject of this note in the

\* *DIMORPHANTHUS ELATUS*, Miq.; *D. mandschuricus*, Max.; *Aralia mandschuricus*, Max.; *A. japonica*, Hort.

be specifically identical with *A. spinosa*, the Angelica tree, or Hercules Club of North America. They are certainly nearly allied, but for garden purposes they are abundantly distinct. *A. mandschurica* has much larger and handsomer leaves, and a nearly naked—not more or less densely prickly—generally unbranched stem, which attains a height of 8 feet (are there any taller specimens in this country?), and forms a magnificent horizontal crown of foliage, from the centre of which emerges much branched panicles of creamy-white flowers, followed—in favoured spots in hot summers—by black Ivy-like berries. There is a form with golden variegated leaves in cultivation on the Continent. We recently saw a description of it in a German periodical, but are unable to state whether or not it has yet found its way to this country. *A. canescens* of SIEBOLD and ZUCCARINI has leaves decidedly hoary beneath,



but otherwise does not seem to differ from *A. chinensis*; therefore, like *A. mandshurica*, it must be placed under that species as a variety. Our illustration is taken from a plant in the nursery of Messrs. BUNYARD, of Maidstone, who kindly sent us specimens of the fruit ripened during the last summer. For subtropical work Messrs. BUNYARD recommend it to be cut down in the autumn when it will spring up again in great beauty in the following season.

— ROYAL PURVEYORS. — Messrs. WILLS & SEGAR, Oslow Crescent, South Kensington, have received the Royal Warrant appointing them Florists to Her Majesty the QUEEN.

— MESSRS. WILLIAM PAUL & SON, Waltham Cross, will make a special exhibition of *Camellias* in pots in flower at the next meeting of the Floral and Fruit Committees at South Kensington on March 10.

— HULL AND EAST RIDING CHRYSANTHEMUM SOCIETY. — We learn from the first annual report of this Society that its last season's exhibition was a great success—a fact surprising when the very late formation of the Society is borne in mind, as it was on September 15, 1884, that it was resolved, at a meeting held in Hull to form a society with the above designation. Starting the present year with a balance of more than £77 actually in hand gives good promise of a successful gathering in due season.

— EFFECT OF PRUNING. — MM. CASOCIA and SAVASTANO have recently compared the analysis of the juice of pruned and unpruned Vines respectively. The Vines, belonging to nine distinct varieties, occupied 1 hectare of space (2½ acres); half were pruned, the other half were left intact. On analysing the juice it was found that that produced from the unpruned Vines was the richest in sugar and the least acid. It would be well if similar experiments could be made on Vines grown on the extension system and otherwise.

— EFFECT OF POLARISED LIGHT. — A correspondent of *Nature* attributes the absence of trees in the extreme north of Scotland, the Shetland Isles, &c., in part to the fact that the light in those high latitudes is polarised, and polarised light is well known to be much less intense in its chemical action than ordinary white light.

— EXETER APPLE AND PEAR SHOW. — We are informed, through a circular sent by the Hon. Secretary, Mr. J. I. PENGELLY, that the great success attending the show in 1884 has induced the committee to make arrangements for another exhibition this year, to be held on Thursday and Friday, October 22 and 23; and, in compliance with a generally expressed wish, the classifications will be based upon a scheme securing a fairer mode of competition to all exhibitors. The prizes have been considerably increased, and the schedule contains fifty-three classes, among which will be the following:—Four for trade growers exclusively, two for tenant-farmers, four for private growers having gardeners, two for private growers not having gardeners, and one for Devonshire cottagers. The full schedule of prizes and rules for the year 1885 will be ready for distribution early in August.

— CEARA RUBBER IN CEYLON. — In a communication to the Agricultural Society of Madras, Messrs. WILLIAM BROS., of Heneratgoda, Ceylon, say:—"We have tapped a Ceara rubber tree of six years of age. Three days successive tapping by an ordinary knife gave 8½ oz. dried rubber. Ceylon Ceara rubber has already been valued in London at 3s. to 4s. per pound, and the operation can be performed twice a year. Three hundred Ceara rubber trees to the acre, at 12 feet apart, at 1 lb. of rubber per tree, gives 300 lb. per annum; at 1 rupee per pound this would realise 300 rupees. The cost for tapping is estimated as follows:—Coolies pay, superintendence, and other expenses, per acre, per annum, 100 rupees; giving a profit of 200 rupees per acre per annum. This is stated to be very encouraging, considering the little outlay required. The quantity of rubber increases yearly with the age of the tree, but experience shows that it is not advisable to tap Ceara trees under the age of five years. Ceara rubber seeds," it is said, can be grown without filing, as follows:—Keep the seeds in cold water for six days, put in the nursery, and covered about half an inch

with soil, about 2 or 3 inches apart, and water twice a day in dry weather. The nursery should not be shaded, or the seeds will perish. Seeds will begin to germinate one month after planting, and will take from two to four months to complete the germination."

— PRIMULA SINENSIS. — This pretty class of winter flowers seems to get additional attractions each succeeding year, as was well observed in a fine collection brought for our inspection from Messrs. CARTER & CO., High Holborn. There were all the well-known Holborn blues, magentas, and crimsons, and some slightly doubled forms in Village Maid, a pale lilac; Snowflake, a very pale flesh tint, and a cerise-coloured kind. The blooms were of medium size, firm of substance, and possessed eyes of greenish-yellow, of much variety of form and dimensions.

— ORCHIDS IN AUSTRALIA. — The great island continent of the South is not devoid of Orchids, as the splendid publication of FITZGERALD shows. It is not improbable that this work, which has from time to time been noticed in our columns, may have done something to stimulate the curiosity of the inhabitants. At any rate it is certain that the taste for Orchid culture is extending in regions that within the memory of man was untrodden wilderness. The *Bendigo Advertiser* has a whole column devoted to the account of an importation of Orchids made by Messrs. KNIGHT BROTHERS, of Sandhurst (some hundred miles from Melbourne). Messrs. KNIGHT received their first consignment direct from Mr. BULL on Christmas eve, after a journey of two months, when they were necessarily exposed to great fluctuations of temperature. Nevertheless the fifty-one well chosen varieties arrived in excellent condition, and form an acceptable addition to a consignment which the same enterprising firm imported direct from the Himalayas. Fifteen years ago, says the *Bendigo Advertiser*, no one would have thought of such a thing as importing Orchids from England, even to Melbourne. Messrs. KNIGHT, in a letter before us, attribute the success of their present venture to the care and skill exercised by the packer, and give practical proof of their appreciation in a way that is not commonly experience, but which must be very gratifying to the recipient.

— THYRSACANTHUS RUTILANS AT GUNNERSBURY HOUSE. — Mr. HUDSON, who has the gardens at Gunnersbury House under his charge, and who deservedly ranks high as a floral decorator, is giving admirable effect to a happy thought, in which he uses this charming winter blooming plant for house decoration. He has a number of plants in 32-sized pots; these were grown on until they attained a suitable height, then stood in a line on the front of the back stage of his stove-house, the heads fastened to lines of stout wire running lengthwise along the rafters; the result being that there is a most effective line of long pendulous racemes laden with tubular shaped bright scarlet flowers hanging down by the side of the pathway along the house. The effect is excellent, and one sees at a glance how great is the decorative value of such a plant. This method of employing it also shows the flowers off to the very best advantage, and they appear all the more effective because hanging below a charming drapery of green.

— NOTTINGHAM LAMBS! — Some 200 men engaged at the relief works of the Nottingham Corporation becoming dissatisfied with the conduct of the holders of the allotment gardens near the works, the other day proceeded with picks and shovels and completely demolished the fences and other property in over 100 gardens. The police were powerless to interfere.

— THE IMPORTS OF CAOUTCHOUC. — Messrs. HOCHT, LEVIS & KAHN, in their caoutchouc report for 1884, state that the year was "one of, if not the most remarkable in the annals of the indiarubber trade." The price of the leading sort, fine Para, furnished by *Hevea brasiliensis*, gradually declined, with few temporary reactions, from 4s. on January 5 to 2s. in July, thus showing a fall of 50 per cent. in a little over six months. The reason of the decline is said to be due to accumulated large stocks, at times pressing on the market; to a decrease of consumption in the United States of America, one of the largest consumers of rubber; and to the "inevitable reaction from the artificially high and unwarranted

rates at which a reckless and desperate speculation had succeeded in keeping them for some years." The total exports from Para to all ports are estimated at 10,600 tons, against 10,130 tons in 1883. The exports into London and Liverpool during the year were 4610 tons against 4637 tons in 1883, showing a decrease of 27 tons. Of the total exports from Para the United States have taken about 5900 tons direct from Para, besides which they have also taken moderate quantities from Europe. The imports into Liverpool of Ceara scrap rubber from *Manihot Glaziovii* amounted to 80 tons—a slight increase on the imports of the previous year. Of Central American rubber (*Castilleja elastica*) the imports were 35 tons, and of the African kinds, from species of *Landolphia*, the imports were 1650 tons. The imports into London were as follows:—Assam and Rangoon, 250 tons; Borneo, 390 tons; Penang and Java, 90 tons; Mozambique, 860 tons; Madagascar, 135 tons; and of Central American, West Indian, Columbian, Carthagena and Guayaquil, 235 tons collectively.

## SPRING CROCUSES.

FROM the time of Linnæus, who regarded all the Crocuses, both autumnal and vernal, as variations of one species, down to the present day, an immense stride has been made towards a full and accurate knowledge of these popular garden flowers. Although this popularity is confined to comparatively few species, and many are satisfied in cultivating the large-flowered garden forms of *Crocus vernus*, together with the common or Dutch yellow, a wide field of ever varying forms and colours is open to any one possessed of a bit of garden ground and the requisite taste for flowers.

It is needless to refer to the almost universally grown *C. vernus* in the following enumeration; but that figured in the *Botanical Magazine*, t. 45, as a variety of it is the Dutch yellow, *C. luteus* of Lamarck, and merely a garden form of *C. aureus*. The latter is the parent of numerous garden forms, the origin of which is obscure or altogether unknown. *C. mæsiacus*, *Botanical Magazine*, t. 1111, *C. lagenæflorus*, *Botanical Magazine*, t. 2655, *C. lagenæflorus lacteus lutescens*, *Botanical Magazine*, t. 3869, and several other varieties, such as *striatus* and *sulphureus*, are all referable to *C. aureus*, *Botanical Magazine*, t. 2986. They flower considerably in advance of the varieties of *C. vernus*, and are all extremely interesting and choice garden plants, diverging from the golden-yellow type with paler flowers, or variously striped and feathered on the external face of the outer segments with bronzy lines. *C. stellaris*, of unknown origin, closely resembles some of the striped forms of *C. aureus* when unexpanded, but during direct sunshine the segments of the former spread out in a stellate manner, while the flowers of the latter are always cup-shaped. By attending to such simple facts of ordinary observation the Crocuses can so be individualised as to be recognisable at sight. The old Cloth of Gold, *C. Susianus*, *Botanical Magazine*, t. 652, is an extremely hardy and early-flowering species, and was known to Parkinson, who, like others of the same school, regarded it as a variety of *C. vernus*. It is closely allied to *C. stellaris*, but the markings are darker in colour, and the three outer segments are reflexed, never closing up again when once expanded—a character that is unique in the genus.

*C. Olivieri*, a hardy free flowering species with fragrant orange-coloured flowers, must not be omitted here. It was formerly considered a variety of *C. lagenæflorus*, but is assigned its true value as a species in the *Botanical Magazine*, t. 6031. Its smaller flowers and much divided stigmas distinguish it.

Another group of species, with striped or feathered markings, that associate well for garden purposes, would include the early-flowering *C. Imperati*, followed by *C. versicolor*, *C. biflorus*, and their varieties. The first is well known by the buff ground colour of its outer segments, and is a robust vigorous grower. The second typically is darker and more nearly uniformly feathered on all its segments, but is also recognisable by a delicious fragrance resembling Primroses (some say Violets). By this means it is easily distinguished from some of the large garden forms of *C. biflorus*, such as *Cloth of Silver*, the smell of which is rather disagreeable than otherwise. The wild forms, variable as they are, present no difficulty to an ordinary observer. The interior of the flower



is white, with scarlet stigmas. Botanically the two species in question are widely separated.

Besides *C. vernus*, there are several other highly ornamental species with blue, lilac, or purple flowers. Amongst these *C. Sieberi*, *Botanical Magazine*, t. 6036, is an early flowering blue species, or deep lilac verging on purple, with an orange throat. It is synonymous with *C. nivalis*, which name would refer to its flowering as soon as uncovered by the snow. *C. banaticus*, a deep bluish-purple, and *C. varius*, with bright blue flowers blotched with purple on the base of the segments, are very choice. This by no means exhausts the list of seasonable and decorative kinds worth cultivating. They may all be seen, with the exception of some varieties mentioned, in the Kew collection, lately greatly enriched by Mr. G. Maw.

Crocuses should not be grown in herbaceous borders subject to much digging, as the corms soon get buried too deeply. They are amenable to endless variety of arrangement, but never look so natural as when growing in scattered irregular clumps or patches on the grass. Four or five species have been figured in *English Botany* as naturalised. *J. F.*

## The Flower Garden.

### THE SHRUBBERY AND PLEASURE GROUND.

IF not already done, no time must be lost in planting young trees wherever required, and cutting out all dead wood. Before planting the young trees the old soil should be removed, and a quantity of loam sufficient for the trees for some years to come put in its place to plant them in. It is quite a waste of time and money to plant young trees without this precaution being taken, as it is seldom that satisfactory results are gained by sticking in trees and shrubs in soil that is much exhausted.

### PROPAGATION OF THE SUMMER BEDDING PLANTS.

This should now have every attention, so as to get the plants well established by the time they are required. Look over your stock to ascertain if you have got a sufficient quantity of each kind, and if not lose no time in making up the number by putting in every cutting available. If put in bottom-heat they will soon and easily strike, and soon make good plants—such plants as Dahlias, Begonias, Lobelias, Pelargoniums, Ageratums, Iresines, Colons, Alternantheras, Calceolarias, and all those kinds that are required for bedding out. If the number of available cuttings are few, sow seeds of such of the kinds as are wanting. Sow seeds in strong heat of the following kinds of sub-tropical plants:—Wigandia, Solanums, Ferdinandas, Acacia Lophantha, and Cannas of sorts; Ricinus, Eucalyptus globulus, Nicotiana of various kinds, Chilian Beet. These will give a beautiful effect if planted in sheltered places about the gardens, giving great relief to the general aspect of the gardens and pleasure ground. *Wm. Smythe, The Gardens, Basing Park, Acton.*

## FRUITS UNDER GLASS.

### CHERRIES.

Few things are, perhaps, more interesting and attractive at this season than a Cherry-house when the trees are full of blossom. In the house which is devoted solely to Cherries here, this is the case at the present time, namely March 2. Amongst the kinds we cultivate for size in the flower and purity of its whiteness none is so remarkable and transparent in appearance as the Elton variety.

### FERTILISATION.

At this time the most important matter to be done is the fertilisation of the flowers. As yet we have not had any assistance from the bees—a circumstance which naturally makes the artificial operation of fertilising the flowers demand more attention than usual, and it should therefore be persistently followed up as the blooms open until a crop of fruit is secured.

### TEMPERATURE.

By no means endeavour to promote growth in the trees hastily; 45° at night and 50° in the daytime by fire-heat is ample for the present, and 60° should still remain the standard point of opening and shutting up the house. If warm weather prevails out-of-doors, so as to raise the temperature inside much beyond this point, open the house entirely.

### GENERAL MANAGEMENT.

Syringe the trees at closing-up time in the afternoon every day, and repeat it next morning if the foliage has become dry, otherwise merely sprinkle the border and paths, &c. When the shoots have made about five leaves pinch out the points of all, excepting those required for first supplies of wood. If fumigation was resorted to as advised before the trees came into flower neither green nor black fly are likely to abound now, but if this was not done it is quite probable that these insects are already present; if so, fumigation should be resorted to immediately the fruit is properly set, or else the trees should be syringed over with strong quassia water; and in order that this may pass easily through the syringe it is necessary to enclose the chips in a bag, which should be submerged in the water a day or two before it is wanted for use. The next pest to which Cherry trees are particularly liable when grown under glass is a small maggot, which will be found rolled up in the leaves, from whence they travel to the fruit, and, boring into it, so destroy it; the only sure remedy to eradicate the pest is to examine the leaves minutely and destroy the grubs by hand. *G. T. Miles, Wycombe Abbey.*



## Plants and their Culture.

### TEMPERATURES, &c.

AFTER the rearrangement of the houses is completed the temperatures by day and by night should be gradually increased. For a warm stove 65° to 68° by night would induce an active growth, with a rise by day of 10° to 15°, or even 20°, rather than give too much top air during keen cutting winds, with sunshine to run up the temperature. An extra amount of top air should be carefully avoided during the early spring months, as it allows of too rapid an escape of atmospheric moisture, which is trying to the plants for the time being. Rather than this should occur I prefer to use a slight shading for an hour or two during the middle of the day, and an additional application of the syringe upon the plants. Early closing should likewise be practised, to box up, as it were, as much heat from the sun as can be done with safety. In the case of a stove with a mixed collection of plants, consisting of those genera that are best grown somewhat cooler, a few degrees less than the above quotations should be the rule. In this case the amount of moisture in the air must be slightly reduced, to avoid injury from damp. The night temperatures are given for mild genial weather, but a reduction of about 5° should rule if frosty weather or easterly winds prevail. If the blinds are already fixed we should advise their use during the night at such times as these rather than drive the fires too severely.

### EXOTIC FERNS.

POTTING.—These will now, in most cases, be showing signs of starting into active growth. This will give us intimation that they are in need of extra attention. Potting in every needful case ought to be seen to without delay, and among the first to receive attention should be *Adiantum cuneatum*. Young growing stock of this indispensable Fern, if pot bound, should receive a shift. Larger clumps that may have lost some of their vigour and become still weaker in the centre, could with advantage be divided for small stock. Large plants are not desirable when grown for cut purposes, neither are the most durable fronds to be obtained from large plants either. Six and 8-inch pots are ample for all such, and if a great run is

made upon the stock it will take some time to get them much beyond these limits in a vigorous condition. In order to obtain such fronds as will prove to be the most lasting when cut, full exposure to the light, with a free circulation of air and a moderate temperature only, will attain these results. If the old fronds are shabby, we would prefer to cut them clean away, rather than they should in any way impede the young growth which will soon take their place. A liberal use of loam in the soil will tend to produce good lasting fronds; these thus grown will be paler in colour than usual—this is the shade that is now most sought after. During the potting of the stove plants some seedlings may have been obtainable, these should be looked after to supply fresh stock. Next to *A. cuneatum* perhaps *A. gracillimum* is one of the most useful of the genus, and for these purposes should be grown under the same conditions. *James Hudson, Gunnersbury House Gardens, Acton, W.*

## The Kitchen Garden.

### MUSHROOMS.

DISPENSE with fire-heat in houses so long as the temperature does not fall below 55° or even 50°, if a plentiful supply is coming on. Fire-heat is prejudicial to the production of good fleshy Mushrooms, and it also shortens the period of bearing. The quantity of water which is necessary for the surface of the beds, and to sprinkle about the floor and walls to keep the proper atmospheric condition, will depend on the way and position in which the house is formed. Houses built with the walls partly under or wholly under ground will require but little attention in this respect, and here the finest produce will be found. Not so in many of the houses built above the natural surrounding ground, with thin walls and slate roofs, and heated with hot-water pipes, which are obliged to be heated during severe weather to an injurious degree, in order to maintain a growing temperature. In such the surface of beds must be frequently syringed with tepid water, and all available surfaces kept damped, or dried up, miserable produce will be the result. In such houses it is as well to cover the beds lightly, to arrest evaporation. Beds from which good Mushrooms may be expected can be made up now in cool moist sheds facing north, behind shady walls, or in the open, where the beds will receive some shade later on.

If a warm frame can be devoted to Vegetable Marrows, a few seeds may now be sown, and they will succeed perfectly well if planted on a gentle hotbed in a frame without hot-water at the beginning of April, making full use of sun-heat in the afternoon, and covering up to expel frosts. *G. H. Richards.*

## The Herbaceous Border.

### TRANSPLANTING FLORISTS' FLOWERS.

FROM this time forward plants and rooted cuttings of the hardy and half-hardy florists' flowers that add beauty to the flower garden may fitly be transplanted to the positions they are to bloom in, and as the last ten days here were more like fine days in April than mid-February, I took advantage thereof to do so. In ordinary seasons and ordinary soils there would as yet be "no growth in the ground," that is, the temperature would be so reduced by the winter's cold as to be less than that of the open air, and therefore not favourable to growth. This winter, so far, only once did my thermometer register 7° of frost, or 25° Fahr., and that passed away before the sun peeped out the following day, so that I have Pelargoniums planted against a wall uninjured in the open air, that have had no protection; *Veronica rosea grandiflora* never ceased to bloom; and this morning I observed a forward bud on that best of all outdoor Tea Roses, *Gloire de Dijon*. So much for our winter in the south of Ireland. Though hardy bulbs are undoubtedly late, for some reason I have not yet seen satisfactorily explained—I could understand the reverse happening, remembering the splendid ripening autumn—for this season and the aforesaid mild winter, the soil should contain an unusual amount of stored-up heat. It certainly



has not been abstracted by a severe winter. For these reasons, then, I think planting, or transplanting, should not be delayed, for the customary reasons. Permit me then to refer briefly to a few matters of present interest, commencing with

#### OUTDOOR CARNATIONS AND PICOTEEES.

I am not sure, after the Roses, if those should not come next. Mr. Douglas very properly says, "the largest proportion of them may be successfully grown in beds or borders and propagated by layers." To the first I agree, but I have never seen the necessity of layering when nine-tenths of all the cuttings I put in root in the open air without care and without trouble. It was those rooted cuttings (pipings) I had been transferring a few days since, each with its ball of earth, from the cutting boxes. Success depends on having the cuttings fairly ripened or hardened, and put in early so as to give them a chance of rooting before winter. I have often tried rooting on a hot-bed, but have long since given it up. For the first time I noticed that the Carnation buds that remained unopened when the temperature fell last November, are now commencing to expand and promise us much beauty and brilliancy for the next nine months. Of what other flower can as much be said?

#### THE ANTIRRHINUM.

When you get a good variety of this which pleases you—tastes differ in the matter of colours—try and keep it by propagating cuttings. You can have no guarantee that even carefully preserved and selected seed will not become hybridised by bees or otherwise, or they may sport. I limit myself to three kinds—the striped and barred, pure white, and a deep velvety blood-red. If cuttings are taken off just as they become firm at the base, and put into a box of sandy loam, they root in a fortnight in August or September. Transfer to beds or borders any time from this forward.

#### PANSIES.

These have now formidable competitors for public favour in the Violas. Both are quite hardy, but I occasionally meet people disposed to "coddle" them in frames or greenhouses. Even in the smoky manufacturing districts of Lancashire and Yorkshire I have invariably found they did best fully exposed. No better time for transferring to a new bed, or filling up blanks, than the present. Left with a ball of earth and the Pansy or Viola continues on its course without check. I so like all three—fancy, show and Viola—that I would say, "grow some of each." It is so hard to define the difference between a Pansy and Viola, especially the recent introductions of the latter, that I take them together.

#### THE POLYANTHUS.

The gold-laced are very beautiful, but require extra attention to keep them. Those I kept during the winter in a cold frame are now transferred to the open border. The fancy kinds take care of themselves, and are very robust. Between the hot sun and consequent red-spider, mine lost every leaf last autumn, but are now again commencing to bloom. There are many other florists' flowers that will now require attention, such as tuberous Begonias, Dahlias, Hollyhocks, Gladioli, Phloxes, Pentstemons, and Pyrethrums. *W. J. M., Clonmel.*

#### RANUNCULUS LYALLI.

This grand New Zealand species proves difficult of cultivation in this country. This is not to be wondered at when its native habitat in the damp gullies of the high alpine regions is taken into account. The finest plants I ever saw were situated at the foot of a waterfall, where they were dashed with the fine spray. The two finest plants I have seen in this country were in the collection of the late Mr. I. Anderson-Henry, of Edinburgh, but the situation chosen did not suit them. These had been raised from seed, which had lain dormant for four years before vegetating. Those who have sown seeds of this plant should not disturb them till three years have elapsed. I know of several plants in this country, but their owners do not appear to know their wants, consequently they only exist. *Aberia.*

#### HELLEBORUS CORSICUS.

In looking over the herbaceous border some time since in the York Nurseries, I was much pleased with the beauty of this truly noble Hellebore, especially at

the dull season of the year. It forms a large handsome bush, about 2 feet high, and as much in diameter. The leaves are thrice divided into large deeply serrated dark green divisions of a thick leathery texture. Each growth or stem was about to burst into flower; the blossoms are very numerous, and are of a light yellowish-green. I have frequently seen this plant in the London nurseries, when it presented a starved gaunt appearance, which may possibly arise from it objecting to the London clay, which made it all the more welcome to see it in such splendid vigour, and so highly ornamental. I also noticed a considerable number of young plants, which seemed equally at home. *R. Potter.*

#### NEW DELPHINIUMS.

It is worthy of notice that new Delphiniums are in course of much more numerous production in the United Kingdom than they were a few years ago. Then we used to look almost exclusively to the Continent to supply new varieties; now our home productions are both numerous and fine. Messrs. R. B. Laird & Sons, florists, Edinburgh, appear to have taken a most decided lead in this work. This year they announce nine new varieties, selected from a very fine batch of seedlings of their own raising, fine in colour and perfect in habit, as follows:—Desdemona, indigo-blue, with white eye, magnificent spike, and extra fine. Favourite, very fine pale blue, grey eye; distinct and very fine. Glitter, bright blue, with white eye; very dwarf habit. Her Majesty, dark blue, with white eye; a semi-double of dwarf compact habit. Maid of Athens, cobalt-blue, with white eye, and tinged with delicate lilac; semi-double. Mrs. Gamp, azure-blue, with rich lilac centre; very large semi-double flowers; extra fine. Rob Roy, dark blue, with white eye; fine branching spike. Theodore, rosy-purple, with grey eye; semi-double, very fine, dwarf habit. And The Prince, brilliant blue, the centre of the petals lilac, grey eye; fine compact spike. The value of the Delphinium as an effective border plant cannot be too highly estimated. The varieties yield blue shades of a desirable character. The plants do well in a rich deep loam, and they are thoroughly perennial in character. *R. D.*

## Orchid Notes and Gleanings.

#### HUGH LOW & CO'S NURSERY, UPPER CLAPTON.

A VISIT to the above nursery will convince any one what a wholesale trade is carried on with Orchids, and the rapid strides they have taken of late years in public favour. Ten or fifteen years ago you could not have found as many Orchids of certain species in Great Britain as the Messrs. Low now have at their nurseries. Whole ranges of houses are devoted to one variety only, and these just simply "packed" together. One can judge, too, of the rapidity with which the plants circulate, as you can see but few established plants, at least large home-grown specimens. This is here comparatively speaking rather a dull season for Orchids as regards bloom, but still there was a nice "sprinkling" in the different ranges. It is, of course, unnecessary to say that Orchids are done well at Clapton, but if we make an exception it would be the Phalæopsis, which simply luxuriates. There is a good collection of them, too, and we were fortunate enough to see most of them in bloom. It would occupy too much space to enumerate all the varieties we saw in bloom, we must confine ourselves to the principal "batches." There is a large house, or rather there are large houses, full of Cattleyas in grand health, and showing fine sheaths, including large consignments of the somewhat rare *C. amethystoglossa*, *C. Acklandii*, *C. Largesii*, *C. speciosissima*, *C. Schilleriana*, *C. Warscewiczii* delicata, and *C. praestans*, the true variety; this latter is not to be confounded, when once seen, with the one usually known under that name, as it is a finer bloomer altogether than the variety that sometimes bears that name. The labelium is more open, of a brighter colour, and the flower generally is not so deflexed and cramped looking. Cypripediums are largely represented both as regards number and variety; the following were in bloom:—*C. Boxalli*, *C. Haynaldianum*, *C. Robellini*,

*C. Stonei*, *C. Lawrenceana*, *C. Spicerianum*, *C. laevigatum*, *C. Harrisianum*, *C. barbatum*, *C. niveum*, and others. Vandas, Aërides, Saccoboliums, &c., were in large batches; a lot of *V. coerulescens* was showing bloom abundantly; as were also *V. Denisoniana*, *Parishii*, *Cathcartii*, and *Sanderiana*. *Oncidium Kramerii*, varicosum, and pudes were looking well. Large masses of *Masdevallias* of most of the well-known kinds, and *Cœlogyne cristata*, and a host of the different varieties of *Dendrobiums*. Amongst the numerous *Odontoglossums* we noticed a new one—*O. tentaculatum*—a good thing, after the way of *O. gloriosum*. A large batch of *Dendrochilum glumaceum* scented a house finer than any perfumer's shop. The pretty *Angraecum citratum* was a mass of bloom, and looked very pretty. We could enumerate many others, but the above will be sufficient to show the extent of the collection, and we may add that any Orchid fancier will be well repaid by a visit to this famed nursery, and will no doubt come away as well pleased as was a Visitor.

#### CÆLOGYNE CRISTATA VAR. LEMONIANA.

We have this lovely form of *C. cristata* in splendid bloom just now. Two large pans, each measuring a yard across, have respectively 251 and 237 blooms. These, with other plants of various sizes, have at the present time an aggregate of 1630 expanded flowers. Besides being one of the most charming of Orchids, we find it one of the most useful and one of the most appreciated. It rarely fails to flower well, and its cultivation is easy. *George Stanton, Park Place Gardens, Henley-on-Thames.*

#### NOTES FROM REDLEAF, PENSHURST, KENT.

A large number of fine Orchids is now in flower at this garden, a new house having been recently erected for them when in flower, in which we found *Laelias*, *Lycastes*, *Odontoglossums*, *Phalæopsis*, *Cœlogyne*, *Cattleyas*, *Dendrobiums*, in great variety, beautifully arranged, as well as many fine and distinct varieties, in the conservatory, which now is very gay. Some grand specimen *Calla æthiopica*, with six to eight flowers on a plant—fine flowers they are, indeed. Such old plants as *Coronilla glauca*, *Echeveria retusa*, *Allium neapolitanum*, are grown in quantities. These, mixed with well-grown *Cinerarias*, *Primulas*, *Epacris*, *Ericas*, *Camellias*, &c., form a very pleasing effect. Great credit is due to Mr. Holah for the practical manner in which he manages the various departments of this fine place. *A. O.*

#### ODONTOGLOSSUM CÆRSTEDII.

As in the case of many species of *Odontoglossum* that are well represented in English collections, this pretty little Orchid, recently imported in quantity, shows some variety both in the form, size, and colour of its flowers, and in the shape of the pseudobulbs. The largest-flowered form was shown at the last meeting of the Horticultural Society, where, owing to the general opinion that the true *O. Cærstedii* has but one flower on each scape, and that a small one, this exhibited plant was allowed to pass as a major variety. It will be seen, however, by a reference to Dr. Reichenbach's description, and the figure in the *Gardeners' Chronicle*, vol. vii., p. 811 that the typical *O. Cærstedii* has two-flowered scapes, and flowers as large in size as what is now called the variety *majus*. Instead, therefore, of dubbing the larger form with a varietal name, it would be more accurate to distinguish it from the smaller-flowered variety by calling the latter minor. It is not easy to convince dealers that such is the proper thing to do. Whoever thinks of calling *O. Rossii*, however small and inferior it may be, by any other name than *O. Rossii majus*? Names which denote superiority are always preferred. Apart from the question of the names, this jewel-like Orchid is one of the most charming among the smaller kinds of *Odontoglossum*. It is easy to cultivate, as it thrives in the coolest house, is not injured by heavy watering, and always looks neat and healthy even when not in flower. We are told that in its native habitat *O. Cærstedii* is exposed to a low temperature all the year. The dense heavy fogs keep the atmosphere about it thoroughly saturated, and as it grows upon the moss-clothed tree trunks the moisture gathers about its roots, so that it is constantly wet. Under cultivation *O. Cærstedii* flowers freely. A few months ago there was a fine batch of it in the Clapton Nurseries, and we are informed that Mr. Shuttleworth has now flowering in his nursery several plants of the true form of this plant. A specimen of the minor variety is now in flower at Kew. *W. A.*



## ERISKA.

WE give (fig. 60) a view of a number of glasshouses and other garden buildings, lately erected by Mr. Stuart at Eriska, an island some 350 acres in extent, which is being drained and reclaimed at a large expense, and which is not far distant from the little town of Appin, in Argyleshire. The mansion and other buildings, gardens, and everything besides are entirely new, the site chosen being farming land. The island enjoys a mild but damp climate. The plan of the flower garden is of irregular hexagonal form, one acre being enclosed. The north wall is 150 feet long and about 18 feet high; against this wall, and lacing due south, is a range of lean-to vineries 17 feet wide, divided into an early and a late by a covered passage leading to the stable court behind. The early vinery is heated by eight rows of 4 inch pipes, and the late vinery by six rows. Behind the vineries on the north side of the wall is a two-storey range of offices, stables, coach-houses, byre, &c., with stores and a couple of dwelling-houses on the upper flat. The south-east angle of the garden is taken up with the Peach-houses, 125 feet long; they are semi-span, and are divided by a covered passage into an early house heated by six rows, and a late house heated by three rows of 4-inch pipes. The north-west angle is covered by the forcing-houses, 125 feet long, divided into four houses, with forcing beds to

house, which stands some distance to the south of the garden, are heated from two powerful terminal boilers placed at the north end of the stokehole.

The pathways of all the houses are of iron gratings, and these, as well as all the other ironwork, are all galvanised.

In addition to the offices already mentioned there are extensive hen-houses and runs to the north of the stable range, the hen-houses being heated with hot water.

The whole of the walls, pillars, &c., are built of Portland cement concrete, made of gravel and crushed granite, a stone-crusher, concrete-mixer, and steam engine being in constant use for many months. It is calculated that no fewer than 7000 tons of concrete were used, as the foundations at some parts are 10 feet deep, in consequence of the nature of the soil.

The whole of the work was planned by Messrs. Mackenzie & Moncur, horticultural builders, Edinburgh and Glasgow (the plans being revised by Mr. Thomson, of Tweed Vineyards), and the work is being executed by them, under the superintendence of Mr. Mackenzie, manager on the island for Mr. Stuart.

## FRUIT NOTES.

GRAPE CHASSELAS SAINT BERNARD.—This is described as a very early Grape, ripening a fortnight earlier than the ordinary Chasselas, the berries being superior in colour, and while the

## ASTON TOWN PEAR.

This is a very hardy little Pear, from the village of Aston, in Cheshire. It is of excellent flavour, and the tree when in bearing is characterised by its long slender branches, which have a half-twisted dangling appearance. It bears freely and regularly, but the fruit is rather small, which is greatly to its disadvantage. The flesh is buttery, moderately sweet, with an agreeable flavour. The tree bears well as a standard—better than on a wall. I have tried them both ways, and found them do best grown as standards. Season September and October. I can confidently recommend these Pears to the notice of planters, and especially for growing for market. *M. Saul, York.*

## PLANT PORTRAITS.

ÆCHMEA CORNUI.—A small Bromeliad with strap-shaped, obtuse, mucronate, coarsely toothed, green leaves spotted with brown, and a terminal spike of crimson flowers subtended by large boat-shaped bracts of the same colour. It is a native of Brazil, and is figured in the *Revue Horticole* for January 16.

CARYOPTERIS MASTACHANTHUS, *Bot. Mag.*, February, t. 6799; *Gard. Chron.*, vol. xxi., p. 48, f. 30.

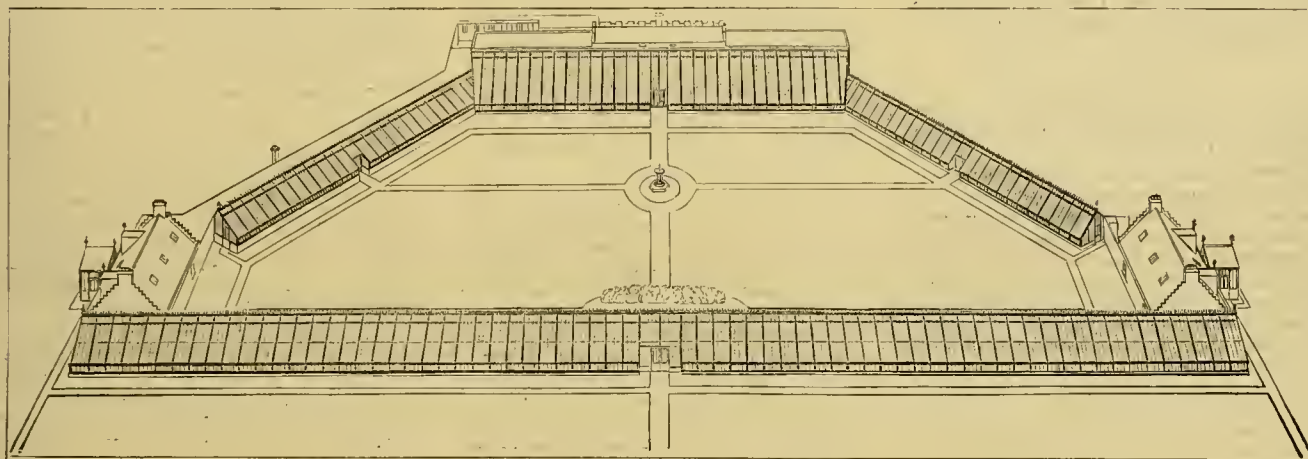


FIG. 60.—PLAN OF THE GARDENS AT ERISKA.

the front and Welsh slate stages against the back wall. Each house is heated by eight rows of 4-inch pipes. Behind the forcing-houses are the gardener's offices, Mushroom-house, fruit-room, seed-room, office, and potting-house. As there is sometimes a scarcity of water on the island, the overflow from all the cisterns in the various houses is gathered into a large tank below the offices: this tank is about 100 feet long, 10 feet wide and 10 feet deep; it is covered over with cement concrete on iron beams, forming floor of offices. Provision is made by which the water from this reservoir may be pumped up and flow back by gravity to all the cisterns in the various houses.

The roof of the offices as well as that of the stable range is flat, made of strong cement concrete on iron beams. At the east and west angles of the garden are built two cottages, the one at the west for the head gardener, consisting of five rooms and kitchen with some outbuildings. The other cottage is intended for the foreman and single gardeners and is divided accordingly, while four additional rooms are added to it to increase the accommodation. Forming the south side of the garden and enclosing it is a range of orchard-houses, 350 feet long and 18 feet wide, span-roofed, and divided into two sections by means of a covered passage forming the principal entrance to the garden. Between the head gardener's house and the potting-house is placed the boiler-house and stokehole. The latter will contain from 50 to 60 tons of coals.

The whole of the hothouses and also the mansion-

berries set well they do not require thinning. It is figured in the *Revue Horticole* for February 16.

## PEAR JOSEPHINE DE MALINES.

A good figure of this excellent Pear is given in the *Bulletin d'Arboriculture* of January. The flesh is of a pale rose colour and exquisite flavour. It originated with Major Espereu at Malines as a seedling. The fertility of the tree, says our contemporary, depends very much on the management during the first few years. At first the tree is hard pruned, but when flower-buds begin to show the shoots are not pruned so severely, and only the strong branches are pinched, the weak ones being broken across in part in August.

## DUNMORE PEAR.

There are so many kinds of Pears now in cultivation that considerable experience is necessary to enable any one to select the choicest and most reliable sorts. The Dunmore is of medium size, and a fine Pear, raised by Mr. Knight, which was distributed over the country from the gardens of the Royal Horticultural Society. It is a strong growing tree, bears exceedingly well, and should become better known. Its blossoms stand well the severe spring frosts. The fruit is of medium size; skin greenish, dotted and speckled with smooth brownish-red russet. The flesh is yellowish, buttery, very melting, with a rich high flavour, and is deserving a place in every garden. Bears freely as a standard. Season end of September and early part of October.

CLEMATIS TUBULOSA VAR. HOOKERI, *Bot. Mag.*, t. 6801.

CYPRIPEDIUM INSIGNE VAR. CHANTINI, *L'Orchidophile*, February.

CYPRIPEDIUM SPICERIANUM.—*Revue de l'Horticulture Belge*, January, 1885.

EICHORNEA AZUREA, *Gartenflora*, t. 1178.

GENTIANA ANDREWSII, *Garden*, January 31, 1885.

HIBISCUS GRANDIFLORUS, *Garden*, February 7, 1885.—A hardy perennial, with cordate three-lobed leaves, and large Mallow-like, rosy-pink flowers.

ODONTOGLOSSUM PESCATOREI, *Orchid Album*, t. 175.

PANAX MURRAYI, *Bot. Mag.*, February, t. 6798.

PHALÆNOPSIS SANDERIANA, *L'Orchidophile*, February.

## Florists' Flowers.

## GREENHOUSE FLORISTS' FLOWERS: THE PELARGONIUM.

DURING the recent mild weather these have made rapid and very vigorous growth. The large specimen plants must be trained out, to give the flowering shoots more room to develop themselves, in some cases the weaker growths may be removed to give the others more vigour. The attention the large plants require



may be summed up in a few words. Ample ventilation, without exposing the plants to a direct current of cold air. Particular attention to watering! each time water is applied sufficient must be given to thoroughly moisten the whole of the soil and roots. Keep the plants quite free from greenfly: this is easily done, easier than to destroy the troublesome pests after they have once made a home upon the young growths. The most useful of plants to make a good display in the conservatory or show house are young plants propagated in early summer, and flowered in 5-inch pots. In order to provide a rapid growth for them, I plant cuttings singly in small pots; they are arranged on a shelf near the glass, where they soon form roots, and when well established are potted on. We pinch them back once only, and generally each plant will produce on an average a dozen good trusses. The varieties classed as the decorative type are the best to cultivate in small pots, they give a greater profusion of bloom than the others.

A few of the fancy or small-flowered type ought to be grown in every garden, they give even a greater quantity of bloom than the decorative type, and they are also so very distinct in character, but they seem to be out of the fashion at present. Perhaps the reason of this is that they are not quite so easily grown as the others. They merely require a lighter compost and a warmer atmosphere in winter.

By the end of January the whole of the winter-flowering zonals have ceased to bloom satisfactorily, and have been removed from the house to make room for spring-flowering plants and bulbs. These zonals make a splendid display if planted out in the flower borders during the summer. It will be time enough to take the cuttings for next season about the end of April. *J. Douglas.*

#### POLYANTHUS.

These are a *specialité* at Brockhurst, and nowhere perhaps does a finer collection exist; this is saying a great deal, but I have no doubt this is so. Strong healthy plants abound on every hand in the choicest variety; old varieties with many most meritorious new ones find a most congenial home under varying conditions, while others require naming, and many more are carefully tended as seedlings having the best of pedigrees. They are a very fine lot in the frame, when we saw them in their resting condition, it is true, but there was vigour beneath the exterior, which in due time will undoubtedly acquit itself with honours upon the exhibition table. Mr. Brockbank thinks he has at last secured the true Pearson's Alexander. There appears to be a great similarity between it and Maud's Beauty of England, and plants in this collection which were up to last year grown under the latter name have been recognised by those most competent to judge as Alexander. This is most desirable, as several counterfeits have been circulated at a high figure, only to afford vexation in the end. In the best condition are George IV., Blackbird, Exile, Cheshire Favourite, Black Diamond, Lord Beaconsfield, and many others; a rarity, under the name of Stafford Favourite, concerning which little is known, and apparently less recorded, here finds a home; indeed, I suppose it would be difficult to name the variety, hitherto distributed or in existence, which is not represented. What strikes one most is the freedom with which they grow, and the abundance in which they exist; beds and lines here, clumps there, in, I should think, a dozen places; and one was prompted to ask if there were any secrets in their cultivation—Lancashire dodges one had suspicions of; but no, nothing more than ordinary mortals can easily bestow is lavished upon them—moderately good loam, with some rotten manure and sand, exhausts the number of soil items, while the positions assigned them are sheltered and usually semi-shaded. Many of the plants are quite exposed now, but will be covered when coming into bloom.

#### THE ALPINE FRAMES.

These contain a multitude of choice gems, which were dormant or only showing signs of renewed activity; some of the Cyclamen will soon be in flower, the curious and pretty *Synthyris reniformis* is also sending up its spikes. *Gentiana bavarica* is established and happy, while *G. verna* has scarcely been out of flower all the year; such a little cushion of *Androsace belvetica* one does not often see. The *Megaseas* are happily accommodated and strong, and in due time will no doubt be most attractive. I was much struck with a span-roofed frame invented at

Brockhurst; iron troughs form the ridge and wall plates, upon which the lights rest, so that all water drops in them and is carried away. Close by the sides are stout posts at convenient distances, and when it is necessary to remove the lights entirely they are stood on their ends and supported between the side of the frame and the posts, thus affording nice shelter without any fear of them being blown over, and all the plants can be examined over them; indeed, they are more convenient than otherwise.

#### THE DAFFODIL.

The season for these has commenced, for Barr's *Pallidus præcox* has opened, and a dwarf double variety which came from Italy as a duplex form of *N. Pseudo-Narcissus* is swelling rapidly; it looks like what I have seen from other Continental sources as *N. nanus plenus*, which is said to be one of the double varieties of *N. lobularis*, but we shall see. The *Narcissus* season must be a treat indeed when at its prime, for they are planted everywhere; I will not anticipate them, but hope to see them in their showiest dress, when a few more jottings may be made upon what is now one of the finest collections of hardy plants in the country. *R.*



## HOME CORRESPONDENCE.

**Pruning Dendrobiums.**—When danger is near, it is well that there are those who will give timely warning; this has been done on many occasions before, but I disregarded the warning, or rather being desirous to excel—I had more than a dozen of *D. nobile*—I thought I would try "J. S. W.'s" method of pruning, and selected two of the best plants so as to give it a fair trial. The result was as I expected—a complete failure; the plants are condemned to the rubbish-heap: as they are not taken there yet, any gardener wishing to see them can do so—two monuments of the folly of acting contrary to the advice of so many experienced Orchid growers. *D. Wardianum*, also pruned, is in the same miserable condition. It would be a grand opportunity for "J. S. W." to convince the gainsayers by taking a plant or two to the Orchid Conference—not just pruned for the occasion, but at the time he recommends; then we might see or hear what others say about them. *David Walker.*

— This subject can be set at rest once for all, as follows. Let "J. S. W." bring his plants to the Orchid Conference in May, they are invited as all illustrations of growth, &c., and methods of growth, are particularly invited. If these much praised plants are not there we who do not approve of and do not practise the system, shall at once conclude that they are not in a condition to be presented for public inspection, and that the upholder in chief of the plan does not think his plants will bear the exceedingly close scrutiny that will be sure to be exercised by the judges there. If they are so remarkably fine as has often been said, there might be a Veitch Memorial Prize awaiting their triumphant victory over all the other poor unpruned *Dendrobiums* present. *De B. Crawshaw.*

**Camellia Blooms Losing their Centres.**—Some large plants of white Camellias have taken it into their heads and shot all the centres out of fully two-thirds of their blooms. The Camellias are planted out and have a very large crop of bloom. The flower-stalks, with a few rows of petals at the base remain firm, the great bulk of the flower being shot out with considerable force. I have never seen this freak of Nature before, and would be glad of an editorial opinion, and also that of your Camellia-growing readers, who must be legion, on this freak of Nature, or of our other eccentricities among our white Camellias. The plants are in robust health,

and show no other abnormal symptom, but that of throwing out their centres. Others have only come out free within the last week. *D. T. Fish.*

**Vegetable Garden, Market and Private.**—I believe that as fine vegetables are grown in private places as any that are sent into the market, and as a rule much superior as regards flavour, as the market growers' land is driven to excessive production by means of strong manures, solid and liquid, so that many of the vegetables have a distinctly disagreeable and nauseous flavour imparted to them. In many gardens, if the close rotation of crops were followed, more would be grown than could be consumed, with the danger that the surplus would find its way to the open market, to the further detriment of the man who lives by his occupation. That that is at the present time the case in many gardens is proved by the great quantity of such produce in all open markets, more being grown than is wanted at home, and rather than crop less, or throw the surplus to the rubbish-heap, it is often disposed of. *M. W.*

**Gardeners at the Present Time.**—Mr. Stevens, under the above heading, at p. 284, has done well to call attention "to the competition to supply noblemen and gentlemen with gardeners, and the low remuneration to competent men" as a consequence, and no wonder when the services of the wife amongst the poultry are sometimes offered along with the gardener, all for the magnificent sum of £50 per annum. I consider the system of nurserymen supplying gardeners bad for all parties concerned, except the nurserymen—as well have butchers supplying cooks, and brewers butlers. A gardener's ability is sometimes only a secondary consideration; this is damaging to the art, and must keep the standard of gardening low. The bad effects of this system are strongly noticeable in young men, 80 per cent. of whom never seek to learn their profession efficiently. Only let them get into a place with a name—Lord Somebody's, it possible—and it little matters how things are managed in it, the fact of their having been in such a place will some day do duty as a recommendation of ability. Genuine ability ought to be the aim of every young man, and this should be rewarded by being made the first consideration in filling a gardener's place. Gardeners would then know what to work for, employers would be better served, and their places more economically managed. I believe "noblemen and gentlemen" will recognise this sooner or later, and take their gardeners from the open market. Another question gardeners themselves ought to face is the filling of foremen's and journey-men's places by nurserymen, and the system of exchange in force in Scotland, by which the nurserymen keep a monopoly of supplying men, gardeners being left almost without any means of making a choice; in fact, on a November term day they are practically powerless; the particulars of the men you require get little or no consideration, neither can they, for the ordeal a nurseryman has to face in disposing of a shopful of gardeners and men, not to mention those standing in the street, all in about three hours, to the satisfaction of all parties concerned, is a practical impossibility, but if seriously undertaken is enough to drive any one mad. Now, do the gardeners of Scotland think this a satisfactory arrangement for themselves or the young men? *A Scotch Gardener.*

**Spring Flowering Plants.**—There is a great charm about the spring flowers opening to the chill January and February winds out-of-doors, that does not appertain to those grown in pots under glass. *Heleborus niger altifolius* is nearly over, the pearly white of the early opened blooms has given place to a dirty white tinted with rose, but we find still the full beauty and perfect development in the very beautiful variety *angustifolius*: while scattered about the borders we have a very plentiful supply of *H. guttatus*: they are still spotted freely, as the name implies, but some have the spotting on a white ground, others have the spots thickly arranged on a purplish-red ground, the shade of colour varying in each. One of the plants that pleases us best is a group of *Cyclamen Coum*; the blossoms seemed to develop even during the rather severe frost in January, and two days after the frost was gone many flowers were fully developed. About the middle of January *Saxifraga Burseriana* major was fully open on the rockwork. The ordinary form flowers a month later with us. Is this usual? Both



forms came from York. *Leontice altaica* is no great beauty, but it has pushed rapidly through the ground, and its small clusters of pale yellow flowers were fully developed before the Snowdrops were fully open. It flowers with the Winter Aconites. The first flowers of *Iris reticulata* opened on St. Valentine's Day. We tried to grow this year after year in pots, but they seemed to degenerate; planted out in a sunny position on the rockwork they gained strength and are flowering well. *Anemone blanda* is the earliest of the genus to open its flowers; they are now nearly developed. It is much superior to *A. apennina*, which will not be in flower for a month yet. *Leucorum vernum* is also in flower, and *L. carpaticum* is pushing rapidly after it. Different species and varieties of Snowdrops are also charming on grass and in borders. *J. Douglas.*

**A Large Leek.**—Bury Port, South Wales, really seems to be a favoured spot as regards soil and climate. An enormous Leek, 14 inches in circumference, is growing in a garden belonging to Mr. John Lewis, at the present period. It would have been appropriate had it been sent to His Royal Highness, our much loved Prince of Wales, to be cooked, *à la Seakale*, on St. David's Day. *Helen Watney.*

**Exudation and Smut on Camellia Leaves.**—This exudation is of insect origin, and the change of colour to black is caused by a fungus named *Capnodium footii*, which grows upon the excretion. It is the habit of the fungus to so grow. A lichen named *Strigula Babingtonii* sometimes accompanies the fungus and the insect excretions. The fungus (*Capnodium*) grows over this lichen (*Strigula*) and destroys it. The black fungus invades both the insect and lichen nuisances, but when necessary it is able to grow on *Camellia* leaves without either insect excretion or lichen. *W. G. S.*

**Rose Cuttings Turning Black.**—I may inform "J. L." that Rose cuttings will become rotten from excess of moisture at their base, owing to the surrounding material not being sufficiently porous, and drained below. Beds in cool frames, for striking Roses in the early autumn months from ripe wood, fulfil the purpose the best, if given a rounded form, and then much of the water that is supplied finds its way to the lowest points, leaving the soil in which the cuttings stand in a healthy condition. Cuttings will go black from exciting them to grow by means of heat before any callus or roots are formed. The best time for making the cuttings of H.P. and the hardest Tea hybrids is the month of September, or even the month of August in warm localities. These may also be put in precisely as Gooseberry cuttings are treated, but without removing the wood-buds, unless you require half or quarter standard forms, when the buds below may be cut off; but that is not often practised on "own root Roses," notwithstanding its being quite as eligible a method as using Brier stocks. There are usually fewer losses from cuttings in open-air beds made in a sheltered but open site, than when put into cold frames; but in the latter shorter lengths of wood may be used, whereas open-air cuttings must not be less than 1 foot long, and may be much more, although not more than 4 or 5 inches should range above the surface. China Roses in all their varieties strike well in a shallow frame on a mild hotbed of leaves, in the month of July. The young side-shoots of 4 to 6 inches in length must be chosen when getting slightly firm and woody, and they must be made with a thin heel of the yet older wood of the shoot from which they sprang. The foliage may be entirely removed, but I have found the best results follow its retention, merely shortening the leaves by one-half their length. The site for such a bed should be full south; the cuttings must be kept close and shaded till rooted, when air must be admitted gradually for a week, and then full exposure without lights. The frame will require syringing or dewing over with a fine rose pot if the foliage shows signs of dryness, and surface watering may be needed once before the cuttings form roots. *M.*

**Late Grapes.**—The present is a good time to note the keeping qualities of the different varieties of late Grapes. Of these the following are represented in our Grape room by specimens of Gros Colmar, Trebbiano, Muscat of Alexandria, Abbercainry Seedling, Black Alicante, Gros Guillaume, Mrs. Pince,

and Lady Downe's. Also a small bunch of Gros Maroc which has been cut since August last, and its condition under the circumstances warrants us in pronouncing this variety to be a first-rate late Grape, and it should undoubtedly be grown as such. Gros Colmar and Trebbiano have suffered from damp, though the room is dry, while all the other varieties named (including the Muscat of Alexandria) are in fine condition. Mrs. Pince and Lady Downe's are likely to keep nice and plump for a couple of months hence. The chief cause of Mrs. Pince—and many other Grapes for that matter—not colouring satisfactorily, is over-cropping and insufficiency of dry air from the time the fruit begins to colour until ripe. *H. W. Ward.*

**The Eucharis Disease.**—In some cases the mite may be the cause of the *Eucharis* becoming unhealthy, but I am quite sure that in many of the cases lately quoted the cause is simply that the soil has got into such a condition as to cause the roots to rot. I find just the same difficulty in cultivating many other stove Amaryllids, many of which are much more difficult to manage in this respect than is the *Eucharis*, such as some of the *Griffinias* and *Hemanthi*. I have had pots of *Eucharis* healthy and vigorous for years, when suddenly the leaves would be seen to flag, and the roots would be found to be all rotten; and they have become healthy again when planted in fresh soil and not over-watered. No doubt if the mite were to attack them when in a weak condition they would hardly recover, and possibly in some cases it might attack and destroy healthy bulbs, but I believe that in most cases the roots failing would be the prime cause of the mischief. *C. W. S.*

**Dendrobium speciosum.**—I observe, on p. 180, *Gardeners' Chronicle*, a note of the above-named *Dendrobium* in flower at the residence of J. Moore, Esq., The Mount, Sevenoaks, having three spikes of flowers on. I may add, there is now to be seen (February 7) a large plant of this fine old *Dendrobe*, having forty-two spikes, averaging 2 feet in length each, at the Welsh residence of Thomas F. Maddock, Esq., Cae-Gwyn, Carnarvon. Mr. J. Cromwell (the gardener) has flowered this fine old plant successfully for a number of years, and kept in a vinery the whole year round.

—In the recent numbers of the *Gardeners' Chronicle* there appears to be so much interest centred in the *Dendrobium speciosum*, that a plant of the same under my care may be worthy of record. It is growing in a tub a yard square, and this year has borne forty-two blooms; some of the bulbs are 2 feet long, and have in some instances four blooms on one stem. *James Cornwell, The Gardens, Cwllwyn, Carnarvon.*

**Early French Short Horn Carrots in Winter.**—Really there appears to be little difficulty in having a supply of these delicious little Carrots all the year round, or nearly so, and grown in the open air. In August every year Mr. Hudson sows this useful Carrot in lines on a south-west border under a fruit tree wall, where the soil is light and early. Now, and for a long time past, he has been pulling Carrots, and is able to keep up a good supply for the table. The seeds are sown thinly, and it is not necessary to pull out many, if any, in a young state; some are certain to come on earlier than the others, and the act of thinning out by pulling for use does all that is required. A sowing might be made in a cold frame in October or November to follow these; but the bed appears almost inexhaustible, as the late plants all grow into useful Carrots. *R. Dean.*

**Thinning of Fruit Buds on Pear Trees.**—Notwithstanding the thinning of spurs, it often happens there are too many fruit-buds left, and if these are all allowed to remain to flower it will exhaust the trees so much that it often causes a stunted growth, and in favourable seasons much more fruit sets on a tree than it is able to mature in the usual run of seasons, but if favoured by a good season it does bring a heavy crop to tolerable perfection. It then generally rests from bearing for a season, thus producing in one year a surplus, which is not much valued and which can never compensate for the subsequent deficiency of supply. A full supply in every season should be aimed at, and every means tending to ensure it ought to be adopted. The principal of these is thinning. The fruit-buds on trained trees, such as wall and pyramids, also espaliers and bush fruit buds, are abundant on some of our trained trees

this season. I intend to have a great many removed at once, as they are plumping up very fast thus early. I have practised this for two or three years past on old and young Pear trees, trained and pyramids, with good results. In some cases I have had removed a half, and a few instances three-fourths of the fruit-buds. It is well known that the largest, best formed, and finest flavoured Pears are produced from the strongest buds and blossoms; these should be left, or part. This practice may appear to some unnecessary, but my humble opinion is, it is not practised enough by many gardeners. The buds are easily removed with the finger and thumb at this time of year. *Robert Smith, Kenward.*

**Cockscombs in Winter.**—These decorative subjects are generally grown for summer and autumn display, but a few well-grown plants with their bright crimson combs go far to light up a warm greenhouse or stove at the dull season. I have grown a late batch for the last two winters, and they have been much admired. Red-spider sometimes attacks them, and which must be checked at first sight, or their beauty will very soon fade. *H. Louth.*

**Free Growing Apple Trees.**—There seems to be some virtue in planting Apple trees for posterity after all, as but for numerous old trees in diverse parts of the kingdom, and especially in the West, we might have had but few Apples this season, and specially of that valuable kind Blenheim Pippin. It is not so long since that "planting for posterity" was made a constant sneer against those who planted or purposed planting free growing Apple trees. The present generation have very largely to thank those of their progenitors who were not so selfish as to refrain from planting for posterity. If we were all to ask the somewhat hackneyed joke "What has posterity done for us?" and be influenced by the obvious reply, only that would be planted that would endure for a few years. Happily such policy does not guide our labours, and yet if we had taken the advice so freely tendered a few years ago we should have planted Apple trees for to-day only and not for the future. If in the previous year the dwarfed or temporary trees had a good season, they certainly failed us last season, whilst generally the old and once condemned trees have proved to be our best friends. If we want fruit immediately we can have it, at least subject to seasons, if we will plant dwarf trees; but wisdom should guide us to plant also standard trees, rising above the dwarfs, that either our later years or those of our children may be blessed with after-abundance. After all it is no wonder that Blenheims are in great demand, for the splendid crops seen in many districts last year when other kinds have been so bare, show that it is an Apple that will prove a friend when it is most needed, and, taken all round, it is one of the very best kinds we have. It is therefore satisfactory to learn that the demand for trees is so great, and that Blenheims promise to be abundant still, some fifty years hence. *A. D.*

**Adiantum Farleyense as a Basket Fern.**—This Fern is grown very extensively in small pots and as specimen plants, but not so much as might be expected as a basket Fern, therefore it will not be out of place to consider its graceful form, delicacy of tint and pinnules deeply fringed, a beautiful Fern for that purpose. We have grown it here as such for several years past, and it has been greatly admired. Our treatment is as follows: I procure nice free-growing plants in February or early in March, which have just begun to make new fronds. Having the basket ready and some nice green moss, I first place some moss over the bottom of the basket and also for a short distance up the sides so as to hold a portion of the soil, which I use a trifle lighter than most people do for this Fern; two parts loam, one part peat, leaf-mould one part, and enough sand to keep it porous. Some growers use all loam, but I have found the above mixture of soils answer very well. Beginning with the first circle of plants about 6 inches from the bottom of the basket, draw the fronds carefully through the meshes and place the plants about 8 inches apart, then fill round the plants with some of the compost firmly and regularly; then proceed with another circle of plants in the same way. Two circles of plants will in most cases be sufficient round the sides of the baskets, but when very large ones are used three circles will not be too many. After the sides are completed one good plant or three small ones will



be required for the top, which should be firmly filled in with soil. When the baskets are finished they are suspended over the walk in the fernery where a genial atmosphere is maintained. Great care is now exercised in watering: and two or three days after the baskets are finished they receive a good watering through a fine rose. It is obvious that the plants should have a good watering before they were turned out of their pots, which will enable them to stand a few days without water. By no means are the plants supplied with much water till the roots permeate the whole of the soil, when a liberal supply is given. By June the baskets will form a complete globe of healthy fronds, which are very attractive, and lovers of Ferns are so greatly charmed with them that they have been borrowed to do duty at some of our public places on occasion. Any amount of trouble will be amply repaid by growing a basket or two of this beautiful Fern. *C. Penford, Leigh Park, Havant.*

## Reports of Societies.

### SCOTTISH HORTICULTURAL.

THE annual general meeting of this Society was held in the rooms, 5, St. Andrew's Square, Edinburgh, on Tuesday evening, March 3, Mr. A. D. McKenzie, one of the Vice-Presidents, in the chair. The Secretary, Mr. Robertson Munro, Abercorn Nursery, Midlothian, read the eighth annual report, which showed that the work undertaken by the Association is being steadily pursued. Eighteen new members were added to the roll during the session, which has now a membership of 431. The exhibits continue to be one of the principal objects of the Association, and forty-four collections of plants, fruits, flowers, and vegetables have been placed before members during the session, and these came from widely separate parts of England, Ireland, and Scotland. The Treasurer's (Mr. McKenzie, Warriston Nursery, Edinburgh) report showed an income of £33 7s. 6d., while the expenditure had been £24, leaving a balance in hand of £9 7s. 6d. Both reports were approved of. The office-bearers for next session were then elected. Honorary President: Alexander Dickson, M.D., Professor of Botany, University of Edinburgh, and Regius Keeper of the Royal Botanic Gardens. President: Mr. William Thomson, Clovenfords, Galashiels. Vice-Presidents: Mr. John Methven, Nurseryman and Seed Merchant, Edinburgh; Mr. R. Lindsay, Curator, Royal Botanic Gardens, Edinburgh. Secretary: Mr. Robertson Munro, Abercorn Nursery, Midlothian. Treasurer: Mr. Alexander McKenzie, Warriston Nursery, Edinburgh. The following gentlemen were elected members of the Council in place of the first five, who retire by rotation:—Mr. M. Dunn, Dalkeith Palace Gardens, Dalkeith; Mr. Hugh Fraser, Leith Walk Nurseries, Edinburgh; Mr. George McKinnon, Melville Castle Gardens, Lasswade; Mr. R. Morrison, National Bank, Edinburgh; Mr. George Simpson, Superintendent Rose Bank Cemetery, Edinburgh. On the motion of Mr. Dunn the retiring President, Mr. John Methven, was awarded a hearty vote of thanks. Eight gentlemen were nominated for admission to the Association as new members.

Mr. Chapman, Easter Duddingston Lodge, exhibited the following bunches of early spring flowers:—*Helianthus niger*, *H. n. angustifolius*, *H. olympicus*, *H. o. albus*, *H. altifolius major*, *Hepaticas* of sorts, *Galanthus nivalis* and *plicatus*, *Leucocodium vernum*, *Bulbocodium vernum*, *Crocuses* of sorts, *Erica carnea*, *MacNab's Primrose*, *Cheiranthus alpinus*, *Primula purpurea*, *Sisyrinchium grandiflorum*, *Rhododendron Nobileanum*, *R. atrovirens*, *R. præcox*, *Daphne Mezereum*, *Jasminum nudiflorum*, *Orobis vernus*, *Garrya elliptica*, *Poplar* and *Willow*. Messrs. Methven & Sons, Edinburgh, showed a white *Polyanthus*; Mr. Begg, Wardie Lodge, Edinburgh, showed *Draba Maweanae*, *Saxifraga Burseriana*; Mr. McMillan, Edge Hill, dwarf *Cinerarias*. The exhibitors received a vote of thanks.

Four Certificates have been awarded during the session to new and meritorious productions.

The meeting concluded with a hearty vote of thanks to the Chairman.

### MASSACHUSETTS HORTICULTURAL.

WE learn from the *Boston Evening Transcript* that at the close of a recent business meeting of this Society Mr. Joseph H. Bourn, of Providence (ex-President of the Rhode Island Horticultural Society), read the following paper:—

#### OLD AND NEW ROSES.

The most popular, because the most useful Roses are the hybrid perpetuals, whose special beauty consists in the [shell] form of the large petals, softly recurring in their glistening freshness of colour. For decorative purposes the varieties should be the free-flowering kinds, noted for elegance *en masse* and brilliance, in preference to those possessed of great symmetry of form. The essayist traced the development of these Roses from the

time when rosarians were delighted with *Baronne Prevost* and *La Reine*, introduced in 1842 and 1843. In 1846 the Giant of Battles was introduced, in 1852 the *Général Jacqueminot* and *Victor Verdier* appeared, and the *Prince Camille* in 1861. Each of these is now the type of a group of Roses, the most valuable being the *Général Jacqueminot* family, leading members of which are *Marie Rady*, *Pierre Notting*, and *Marie Baumann*, though the *Victor Verdier* family is best for forcing, good illustrations being *Mlle. Eugénie Verdier*, *Etienne Levet*, *Comtesse d'Oxford*, and *Captain Christy*. But there is a type recently introduced more valuable than any of the preceding, called "*Hybrid Tea*," of which *La France* was the original in 1869. Roses of this family that give promise of usefulness are the *Duke and Duchess of Connaught*, *Cheshnut Hybrid*, *Viscountess Falmouth*, *Madame Alexandre Bernaix*, *Madame Etienne Levet*, *Jules Finger*, *William Francis Bennett*, and *Lady Mary Fitzwilliam*.

Roses of the past have been the product of Nature, unaided by human art, while those of the present chiefly came from sowing the seeds of varieties which have not been crossed. Roses of the future should be principally the result of artificial fecundation and hybridisation. Our aim should be to control and assist Nature as far as possible in her tendency towards variation, and in order to obtain new sorts of marked individuality we should avoid crossing varieties so much alike. To obtain new varieties by the mixture of those already existing is one of the most fascinating occupations of the floricultural artist, who is moving continually amid ideal scenes, knowing what forms he wishes, but not what he will obtain.

#### CULTIVATION.

In regard to cultivation, the "rosery" should be both exposed and sheltered—a place of sunshine and shade—the centre clear and open, with a protecting screen around. The soil is more a matter of experience than of cultivation. The plants should be so arranged that the sun will shine upon them from its rise to meridian, and then leave them in shade. The hardy kinds may be planted in the autumn, and the tender ones in the spring. Set plants of one or two years' growth, and prune before planting, for the shortening of the shoots reduces the number of buds which draw upon the sap, and a more vigorous increase follows. Choose a day when the earth is friable and easily worked. Place the roots from 3 to 6 inches under the surface, and set deeper in light, dry soils, than in strong, moist ones. They should be transplanted once in five or six years. Budded or grafted plants more frequently become impaired; the wood, annually weaker, does not attain that maturity and size necessary to the production of fine flowers. If we carefully remove a plant in this condition we shall find large sucker-like roots, almost destitute of fibres, which have been burying themselves deeper in the earth each succeeding year. Removed farther from the reach of nourishment, the bush dwindles and becomes debilitated, which is remedied by replanting in the autumn, cutting off the suckers, and pruning the roots.

The ground for Roses should be thoroughly drained and rendered as porous as possible, and fertilised. In clay soils the use of sand, lime, soot, burnt earth and loose, light vegetable matter, such as leaf-mould, will alter the texture and improve the quality. At the time of planting strong fertilisers are not required, and should not be given until the bushes have become established; they then like rich soil, which should be made light for the delicate rooting kinds, and more tenacious for the robust and hardy, and it would be reasonable that the classes and varieties differing in their nature should have more than one soil, if all are to receive that which is most suitable. A renewal of the surface soil with old pasture loam every two or three years will supply important elements unattainable by any other method. We should avoid the application of more fertilisers in a soluble state than the plants can consume. It is well that the earth should be filled with stimulants in different stages of decomposition, that the plant may in all conditions of growth have plenty of food. When the plant is growing, and especially when flowering, weak liquid manure may be applied. Bone and potash act favourably early in the spring. A frequent sprinkling of water adds health to the foliage and prevents injury by insects. The earth should be wet only when dry, and then thoroughly.

#### ARRANGEMENT.

The arrangement of cut Roses is a matter of taste, in regard to which there does not exist a unanimity of sentiment, else we should be wearied with a continual sameness. But there are certain fixed laws that regulate the decorative art in flowers. Too many blooms are used for single baskets and bouquets, where they are crowded together promiscuously, exhibiting a mass of petals, the form and colour of each separate flower being indistinct, with little of its own foliage to render the proper effect. The more nearly Roses are shown as they naturally grow the handsomer they are. The stiff artificial stem, without the leaf of the flower, propped up by *Smilax*, *Ferns*, and other green things than its own, is not like Nature. Hand bouquets of Roses and buds are more beautiful when made of one variety with its own foliage, stems long and loosely bunched, having a small number, well chosen, of sweet odour. A collection in basket form or for parlour decoration had better lack a flower than have one too many, the object being to form a graceful, refreshing, and suggestive picture, preserving an "easy negligence mixed with art." Show each bloom separately, reposing in its own green, and a few colours have a better effect than many. A combination is thought to be desirable red, white, and buff form a pleasing one. The beauty of Roses is much enhanced when displayed in masses. As a rule, if there are to be many flowers, use the delicate shades; if few

the deeper tones. Large and choice Roses are always more effective when displayed in proper standards for their reception as single specimens.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MARCH 4, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.						Hygrometrical Deductions from Glaisher's Tables 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 38 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 50 years.	Dew Point.	Degree of Humidity.	Sat. = 100.	Average Direction.	
Feb 26	In. 29.89	In. +0.09	50.2	40.0	10.2	45.7	+ 6.0	40.7	84		S.E. S.W.	In. 0.00
27	29.66	-0.14	51.5	45.0	6.5	47.7	+ 7.8	43.7	88		S.W.	0.15
28	29.81	-0.01	51.5	41.5	10.0	45.9	+ 5.8	43.6	92		N.E.	0.00
Mar 1	29.98	+0.15	48.0	33.4	14.6	39.0	- 1.3	36.2	90		N.E.	0.00
2	29.87	+0.03	49.5	30.0	19.5	38.1	- 2.3	35.1	88		N.E.	0.00
3	29.40	-0.47	44.0	33.7	10.3	39.5	- 1.0	37.4	93		E.N.E. E.S.E.	0.40
4	29.31	-0.58	53.2	39.0	14.2	45.4	+ 4.9	40.5	84		N.W. S.W.	0.00
Mean	29.70	-0.13	49.7	37.5	12.2	43.0	+ 2.8	39.6	88		S.W.	0.62

Feb. 26.—Fine morning; dull afternoon and night.

— 27.—Drizzling rain nearly all day.

— 28.—Dull day and night.

March 1.—Very fine day and night.

— 2.—Very fine day and night.

— 3.—Rain nearly all day and night.

— 4.—Very fine day and night.

LONDON: "Atmospheric Pressure."—During the week ending February 28, the reading of the barometer at the level of the sea decreased from 30.17 inches at the beginning of the week to 29.80 inches by 5 P.M. on the 22d, increased to 30.09 inches by 9 A.M. on the 23d, decreased to 29.75 inches by 5 P.M. on the 24th, increased to 30.13 inches by 9 A.M. on the 26th, decreased to 29.83 inches by 5 P.M. on the 27th, and was 30.04 inches by the end of the week.

The mean reading of the barometer for the week was 29.92 inches, being 0.28 inch higher than last week, and 0.07 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 57° 5, on the 24th; the highest on the 22d was 45° 2. The mean of the seven high day temperatures was 51° 5.

The lowest temperature was 30°, on the 22d; on the 27th the lowest temperature was 45°. The mean of the seven high day temperatures was 39° 5.

The greatest range of temperature in one day was 16° 5, on the 23d and 24th; the smallest was 6° 5, on the 27th. The mean of the seven daily ranges was 12°.

The mean temperatures were—on the 22d, 38° 4; on the 23d, 43° 9; on the 24th, 49° 6; on the 25th, 46° 8; on the 26th, 45° 7; on the 27th, 47° 7; and on the 28th, 45° 9; and these were all above their averages (excepting the 22d, which was 0° 7 below) by 4° 7, 10° 3, 7° 3, 6°, 7° 8, and 5° 8 respectively.

The mean temperature of the week was 45° 4, being 5° 4 higher than last week, and 5° 9 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 104°, on the 24th. The mean of the seven readings was 82° 2.

The lowest reading of a minimum thermometer with its bulb placed on grass was 31° 7, on the 22d. The mean of the seven readings was 37°.

Rain.—Rain fell on five days, to the amount of 0.47 inch.

ENGLAND: Temperature.—During the week ending February 28, the highest temperatures were 59°, at Leeds, 58° 9 at Liverpool, 58° 8 at Cambridge; the highest at Brighton was 54°, at Plymouth 55°, at Bolton 55° 8. The general mean was 57°.

The lowest temperatures were 27°, at Leeds, 29° 1 at Wolverhampton, 29° 5 at Plymouth; the lowest temperature at Brighton was 35°, at Bristol 34°, at Preston 33° 5. The general mean was 30° 5.



The greatest ranges were 33° at Sheffield, 32° at Leeds, 28° at Bradford; the smallest ranges were 19° at Brighton, 22° at Preston, 24° at Bristol. The general mean was 26°·5.

The mean of the seven high day temperatures was highest at Truro, 53°·7, at Bristol 53°·5, at Sheffield 53°·3, and was lowest at Bolton, 49°·8, at Brighton 50°·1, and at Preston 50°·6. The general mean was 51°·7.

The mean of the seven low night temperatures was highest at Plymouth, 43°·8, at Truro 42°·9, at Bristol 42°·3, and was lowest at Wolverhampton, 37°·1, at Bolton 37°·5, at Sheffield 37°·7. The general mean was 40°.

The mean daily range was greatest at Sheffield, 15°·6, at Cambridge 14°·7, at Wolverhampton 13°·6; and was least at Plymouth, 8°·7, at Brighton 9°·2, at Preston 9°·5. The general mean was 11°·7.

The mean temperature was highest at Truro, 47°·8, at Plymouth 47°·6, at Bristol 47°·4; and was lowest at Bolton, 43°·1, at Wolverhampton 43°·4, at Sunderland 44°·5. The general mean was 45°·3.

**Rain.**—The largest falls were 1·30 inch at Bolton, 1·12 inch at Preston, 0·89 inch at Truro and Plymouth; the smallest fall was 0·02 inch at Sunderland, 0·17 inch at Wolverhampton, 0·32 inch at Cambridge. The general mean fall was 0·58 inch.

**SCOTLAND: Temperature.**—During the week ending February 28, the highest temperature was 54°·8, at Leith; at Perth the highest was 51°·5. The general mean was 53°·5.

The lowest temperature in the week was 26°, at Greenock; at Perth the lowest temperature was 34°·8. The general mean was 30°·6.

The mean temperature was highest at Leith, 46°·2; and was lowest at Perth, 43°. The general mean was 44°·4.

**Rain.**—The largest fall was 1·44 inch, at Greenock; the smallest fall was 0·36 inch, at Perth. The general mean fall was 0·75 inch.

JAMES GLAISHER, F.R.S.

## Obituary.

MR. ALEXANDER MEIKLEJOHN, the Auricula grower, died at the Raploch, Stirling, on the 18th ult. He was one of the old school of florists, and was contemporary with Mr. George Lightbody and Mr. Robert Trail. His specialty was Auriculas, and after his retirement from business he gave his whole time to his plants. His collection was the largest in Scotland; nor had he any idea of growing them in heated houses—they were all cultivated in frames of a span-roofed form, the lights at an angle of 45°. His frames were raised above the surface of the ground, in order to admit of the air circulating freely around the plants. He did not raise many seedlings. The variety Alexander Meiklejohn, sent out by him, was raised by a neighbouring farmer named Kay. He raised the fine shaded edged alpine Auricula, Mrs. Meiklejohn. I visited him eleven years ago, when he told me that he had been growing Auriculas for fifty years. Few people can say that they have cultivated and made a specialty of one species of flower only for sixty-one years. His age is not stated, but he must have been about eighty-seven. *J. D.*

—The death is also announced of Professor T. C. ARCHER. Originally connected with the Custom House at Liverpool, he became familiar with the varied vegetable products that are imported into that port, and published a popular handbook of *Economic Botany*. His technical knowledge led to his nomination as juror or commissioner to several of the exhibitions, and ultimately to his appointment as Director of the Edinburgh Museum of Science and Art. Professor Archer died quite suddenly on the 19th ult.

## Answers to Correspondents.

**APPOINTMENT IN A TEA GARDEN:** *D. M. K.* An application at the India Office, Whitehall, London, for the information you desire would probably meet with a response.

**BLOCKS OF FERNS:** *J. H. H.* The blocks you mention could only be obtained by purchase from the publishers, who might, or might not, be disposed to sell you electros of them. They are not to be had in the open market. We trust, if you secure any, you will not adopt the disreputable practice of not acknowledging the source whence they are derived.

**BOOK ON THE VINE:** *H. H. Barron* on *The Vine*, published by Macmillan & Co., 2s. 6d.

**BOOKS:** *Pomologist.* 1, Hogg's *Fruit Manual* is published at 171, Fleet Street, London, E.C. (*Journal of Horticulture* Office), price 15s. 2, *British Apples*,

published by Macmillan & Co., London, price 2s. 6d. 3, *Manual of Conifers*, published by J. Veitch & Sons, Nurseries, King's Road, Chelsea, London, S.W.

**CORRIGENDA.**—In article "Hybrid Echium," p. 279, February 28, in top line, right-hand column, read "In 1883," instead of "1t 1833."

**CUCUMBERS:** *Thoms.* The disease is the result of the attacks of microscopic worms, often described and figured in these columns. You will do well to burn all the plants, turn out the soil, and start entirely afresh.

**"GARDEN PALMS."**—We beg to inform our Russian correspondent of the reappearance of the "Notes on Garden Palms" in our columns next week.

**FOUL LAWN-TENNIS LAWN:** *J. C.* Spudding out the roots, or cutting them off just below the ground-level, and dropping vitriol on the top of the root, are remedies, but they will take up much time if the weeds are many. It is often more economical to dig up the lawn, throwing out all roots of injurious plants, and after well levelling, sow down with a good assortment of the cleanest sample you can get of lawn grasses.

**JUNIPERUS VIRGINIANA:** *H. W.* The tree will stand the sea-breezes very well—it is very hardy anywhere—but its growth is not rapid in very windy sites, and it gets brown from much exposure to the sea-breezes, unless protected by something deciduous, like Sloe, Tamarisk, Norway Maple, or Sea Buckthorn, as a protecting screen from the first onslaught of the wind. Trees that renew their foliage entirely annually should always be in the majority in seaside planting in the front lines.

**NAMES OF PLANTS:** *R. Dondram.* 1, Rhododendron Falconeri; 2, sp. not identified; 3, Falconeri var. Is not No. 2 a hybrid between R. Falconeri and some other species?—*W. Stachhouse.* 1, Trachelospermum jasminiflorum. The small Trumpet Narcissus is Ajax minor, the other Tazetta orientalis. 4, Cheiranthus longitollis; 5, Tritoma uvaria; 6, Megasia crassifolia var. *O. O.* Dendrobium fimbriatum oculatum, so far as we can judge without knowing the kind of bulb it has.—*J. H. S.* 1, Maxillaria discolor. We cannot undertake to name Camellia hybrids; send them to some nurseryman who grows them.

**NEW YORK VIOLET:** *Mrs. Porteous.* You can obtain this variety, quite true to name, from Messrs. Cannell & Sons, Swanley, Kent.

**PEAT AT AGRICULTURAL HALL:** *S. Pope.* Messrs. Gateril & Sons, Bistern, Ringwood.

**PLANTS FOR FERNERY:** *A Subscriber.* The situation is certainly not favourable for growing anything, but such things as Aspidistra lurida and A. I. variegata, Scolopendrium, Picea repens, and some of the varieties of Selaginella, such as Martensii, umbrosa, denticulata, ought to do fairly well; also Tradescantia discolor, T. d. lineata, T. zebrina, &c. Most likely Grisselinia littoralis, Aucubas, Veronicas, would thrive, and as they are not expensive we would advise you to try them. Nothing will endure for any great length of time, and most things will want replanting yearly. Club mosses perhaps twice in a year. For soil use fibry peat and sound loam, with an admixture of coarse sand, and keep the glass both outside and inside as clean as possible.

**REMOVING THE FIBRY ENVELOPE FROM GLADIOLUS WATSONIA AND OTHER IRIDS' CORMS:** *W. W.* It is quite immaterial, if not done severely; but our opinion is that it is better not done at all.

**TUBEROUS BEGONIAS:** *L.* The tuber is formed by a swelling of the caudex, or portion of the stem intervening between the root and the seed leaves.

**VINES, CISTERNS, &c.:** *W. D.* Some of our best Grape growers pinch off the fruit-bearing shoots at the second joint from the bunch. You may remove the buds then left on such shoots beyond the bunch, except the leading one, if you like to do so. It is immaterial whether you do so or not. All laterals must be kept in check by pinching them back to one leaf, thus letting them increase a joint at a time; or you may remove them entirely till the crop is finished, when they may be allowed almost unrestricted growth, as undue checking of the Vines all through the growing season results in checking likewise the natural and healthy extension of the roots; a thing to avoid. Stoves, forcing-houses, and the like structures, should be fitted with covered cisterns for holding soft water, if possible, for watering and syringing uses. Evaporating troughs and pans are not essential, as the air of a house can be made sufficiently moist by sprinkling floors, walls, &c. In a forcing-house a heap of fermenting manure is useful during the winter and spring months for the same purpose.

**YELLOW FLOWERED RHODODENDRON:** *W. Messrs.* J. Veitch & Sons.

## CATALOGUES RECEIVED.

**THOMAS S. WAKE,** Hale Farm Nurseries, Tottenham, London.—Chrysanthemums, Hardy Florists' Flowers, Hardy Climbing, Creeping, and Trailing Plants; Choice Hardy Perennials.

**DICKSON, BROWN & TAIT,** 43 and 45, Corporation Street, Manchester.—Farm Seeds.

**ELLWANGER & BARRY,** Mount Hope Nurseries, Rochester, N.Y.—Fruits.

**H. ELLIOTT,** St. Helier's, Jersey.—Chrysanthemums.

**A. LIETZE,** Caixa 644, Rio Janeiro.—Orchids and Caladiums.

**LITTLE & BALLANTYNE,** Carlisle.—Farm Seeds.

**W. TOOGOOD,** Southampton.—Farm Seeds.

**COMMUNICATIONS RECEIVED:**—Muir, Margam (packet, with thanks).—M. Foster.—J. H. Emergo.—H. G. Rebb.—J. Carter & Co.—A. D. W. Arbre.—P. F. Keir.—W. W.—W. Dod.—J. W. A. D.—C. Herrin.—W. B.—B. Birmingham.—W. E.—P. G.—J. S.—J. D.—J. A. D. M.—H. H. Eliacombe.—Camjee.—J. H.—G. M. K.—J. B.—C. K.—H. V.—J. W.—T. A. Buitenzorg.—U. D. St. Petersburg.—T. M.—B. T. L.—A. S. W.—R. B.—B. F.—John B.—J. F.—Dr. Bonavia, Etawah.—C. F. Y.—M.—A. W.—F. S. & Co.

## Enquiries.

"He that questioneth much shall learn much."—BACON.

**WHITE WATER LILY.**—Can any of our readers give the name of an English author who mentions the white Water Lily previous to 1600?

## Markets.

COVENT GARDEN, March 5.

PRICES as last week, with the exception of Apples, which, owing to indifferent samples from abroad, are now realising good values. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve ..	1	6-5	Lemons, per case ..	12	0-18
— Nova Scotia and ..			Pine-apples, Eng. lb. 100 ..	1	0-20
— Canadian, barrel 120 ..	0	21	— St. Michael, each 2 ..	6	0-8
Cobs, per 100 lb. ..	52	0-55	Pears, French, doz. 300 ..	9	0
Grapes, per lb. ..	3	0-0			

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Globe, per doz. ..	4	0-6	Lettuces, Cab., doz. 12 ..	1	0-1
Asparagus, English, per bundle ..	3	6-10	Mint, green, bunch. 1 ..	1	0-1
— French, bundle 150 ..	0	20	Mushrooms, p. basket 100 ..	1	0-1
Beans, Eng., per 100 3 ..	0	1	Onions, per bushel ..	4	0-1
Beet, per doz. ..	1	0-1	— Spring, per bun. 60 ..	4	0-1
Cabbages, per doz. ..	1	6-2	Parsley, per bunch ..	4	0-1
Carrots, per bun. ..	0	6-1	Peas, per lb. ..	1	0-1
Cauliflowers, English, dozen ..	2	0-4	Potatoes, new, per lb. 0 ..	0	1-0
Celeriac, per root ..	0	4-1	Radishes, per doz. ..	1	0-1
Celery, per bundle ..	1	6-2	Rhubarb, bundle ..	0	6-1
Cucumbers, each ..	0	2-6	Salsify, per bunch ..	0	1-0
Endive, per dozen ..	2	0-1	Small salad, per ..	2	0-6
Garlic, per lb. ..	0	6-1	— punnet ..	0	4-1
Herbs, per bunch ..	0	2-0	Spinach, per bushel 4 ..	0	1-0
Horse Radish, bun. 300 ..	0	4-0	Tomatoes, per lb. ..	2	0-2
			Turnips, bun. ..	0	5-1

POTATOES.—MAGNUM BONUMS, 42s. to 70s.; Regents, 70s. to 90s.; Champions, 45s. to 60s. per 100. Markets have a downward tendency.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilon, 12 bunches 2 ..	0	4-0	Marguerites, 12 bun. 3 ..	0	6-0
Acacia, Fr., basket ..	4	0-5	Mignonette, 12 bun. 6 ..	0	0-0
Acemone, 12 bunch. 4 ..	0	0-0	Narcissus, Paper ..		
Arum Lilies, 12 blms. 3 ..	0	6-0	— white, 12 sprays ..	2	0-2
Azalea, 12 sprays ..	0	6-1	— French, 12 bun. 2 ..	0	6-0
Bouvardias, per bun. 1 ..	0	1-6	Pelargoniums, per 12 ..		
Camellias, per doz. ..	1	0-4	— sprays ..	1	0-1
Carnations, 12 blms. 1 ..	0	3-0	— scarlet, 12 sprays 0 ..	9	1-0
Cinerarias, per bun. 0 ..	9	1-0	Primrose, 12 bunch. 0 ..	9	1-0
Cyclamen, 12 blooms 0 ..	3	0-6	Primula, double, bun. 0 ..	9	1-0
Epiphyllum, 12 blms. 0 ..	4	0-6	— sinensis, 12 bun. 4 ..	0	6-0
Eucharis, per doz. ..	4	0-6	Roses (indoor), doz. 2 ..	0	6-0
Euphorbia jacquini- ..			— French, per doz. 1 ..	0	2-0
— flora, 12 sprays ..	3	0-6	Spiraea, 12 bunches ..	6	0-9
Gardenias, 12 blms. 4 ..	0	8-0	Tropeolum, 12 bun. 2 ..	0	4-0
Heliotropes, 12 sp. ..	0	6-1	Tulips, 12 blooms ..	0	9-1
Hyacinths, Roman, 12 sprays ..	1	0-1	Violets, 12 bun. ..	0	6-1
Lapageria, white, 12 ..			— French, bunch. 1 ..	0	1-6
— red, 12 ..	2	0-3	— Parme, French, ..		
— blooms ..	1	0-2	per bunch ..	3	0-5
Lily-of-Val, 12 sprays 1 ..	0	2-0	Wal-flower, 12 bun. 4 ..	0	6-0
			White Jasmine, bun. 0 ..	6	1-0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, per ..			Ferns, in var., dozen 4 ..	0	18
— dozen ..	6	0-24	Ficus elastica, each 1 ..	6	0-7
Arbor-vitæ (golden), ..			Foliage Plants, vari- ..		
— per dozen ..	6	0-12	— ous, each ..	2	0-10
— (common), dozen 6 ..	0	12	Geists, 12 pots ..	9	0-18
Arum Lilies, dozen 9 ..	0	15	Hyacinths, per doz. 6 ..	0	9
Azaleas, per dozen ..	18	0-42	Lily-of-the-Valley, 12 ..		
Begonias, per doz. ..	6	0-12	— pots ..	15	0-24
Bouvardia, dozen ..	9	0-18	Marguerite Daisy, ..		
Cinerarias, per doz. ..	9	0-12	— per dozen ..	8	0-15
Cyclamens, per doz. 9 ..	0	24	Myrtles, per doz. ..	6	0-12
Cyperus, per dozen 4 ..	0	12	Narcissus, 12 pots ..	12	0-18
Dracena terminalis, ..			Palms in variety, ..		
— per dozen ..	30	0-60	— each ..	2	6-21
— viridis, per doz. 12 ..	0	24	Pelargoniums, scar- ..		
Epiphyllum, doz. ..	18	0-24	— let, per dozen ..	4	0-9
Erica, various, doz. 9 ..	0	18	Primula sinensis, per ..		
Euonymus, various, ..			— dozen ..	4	0-6
— per dozen ..	6	0-18	Solanums, dozen ..	9	0-12
Evergreens, in var., ..			Spiraea, per dozen ..	12	0-18
— per dozen ..	6	0-24	Tulips, dozen pots ..	8	0-10

## SEEDS.

LONDON: March 4.—Messrs. John Shaw & Sons, of 37, Mark Lane, report that for the time of the year unusual quietude continues to characterise the trade for farm seeds. Values for all descriptions are now so low that they may be regarded at about a holding over level. Italian and perennial Rye grass keep steady. For spring Tares there is a fair sale at full prices. Winter Vetches are scarce. The trade for Canary and Hemp is very slack. Rapeseed holds its own, and has a good demand. Feeding Linseed is depressed.



## SHARPE'S EARLY PARAGON PEA.

*The Earliest Large Wrinkled Marrow.*

First-class Certificate, Royal Horticultural Soc., 1884

PARAGON shows in many respects a great improvement upon any variety at present in the trade. It is a Blue Wrinkled Marrow of fine flavour; height from 3 to 4 feet. The pods are produced two and three together in such abundance as to almost conceal the foliage. They are of an unusual size, broad and thick backed, containing from twelve to fourteen immense Peas packed in a double row.

Paragon is the earliest of the large Wrinkled Marrows, being ready before Prizetaker. It is very hardy, and will stand earlier sowing than any Pea of its class. It is most valuable for succession crops, as it is not liable to mildew, and a constant supply of Peas for four months can be obtained from this one variety.

Paragon will prove a most invaluable Market Gardeners' Pea, its earliness, hardness, and immense cropping quality surpass anything yet sent out—it also stands long railway carriage without injury.

*The following Testimonial is from the largest dealers in the kingdom in Peas for Market Garden Purposes:—*

"December 6, 1884.—In reply to yours respecting your Paragon Pea. We grew it last season and were favourably impressed with its qualities. We consider it a great improvement on Telephone, the pods being a much better colour and the Peas in it being much finer. We consider it is the finest Pea in our trials last season, and we grew every Pea we thought of merit and nearly every novelty."

CHARLES SHARPE & CO., SLEAFORD.

### Special Cheap Offer.

R. AND A. MORRISON, The Nurseries, Elgin, beg to offer:—  
ABIES DOUGLASII, 2-yr., 15s.; 3-yr., 1-yr., 35s.; 6 to 9 inches, 60s.; 9 to 15 inches, 75s. per 1000.  
ACACIA THORN, 1-yr., 2s. 6d. per 1000.  
ALDER, 1-yr., 3s.; 1½ to 2 feet, 1s. 6d. per 1000.  
BRIER, Dog, 1-yr., 3s. 6d. per 1000.  
Sweet, 1-yr., 3s. 6d. per 1000.  
HORNBEAM, 2-yr., 7s. 6d. per 1000.  
LARCH, 1-yr., 2s., £6 10s. per 100,000; 18 to 24 inches, 22s. 6d.; 2 to 3½ feet, 15s. per 1000.  
ASH, Mountain, 3 to 4 feet, 15s. per 1000.  
PINUS LARICIO, 1-yr., 1s. 3d. per 1000.  
"MARTINA, 1-yr., 3s. per 1000; 1-yr., 1-yr., 5s. per 1000.  
MONTANA, 12 to 18 inches, 12s. 6d. per 1000.  
FIR, Scotch, true native, 1-yr., 2s. per 1000, £7 10s. per 100,000; 2-yr., 2s. per 1000, £7 10s. per 100,000; 9 to 15 inches, 9s. per 1000; 12 to 18 inches, 10s. 6d. per 1000.  
SERVICE TREE, 1-yr., 7s. 6d.; 4 to 5 feet, 15s. per 1000.  
SYCAMORE, 1-yr., 2s. 6d. per 1000.  
ELM, Wych 2 to 3 feet, 12s. 6d. per 1000.  
RHODODENDRONS, Hybrids, named, 2-yr. grafted, 40s. per 100; 12 to 24 inches, 10s. per 100.  
ROSES, newest sorts, 20s. per 100.  
APPLE STOCKS, 1-yr., 2s.; 2-yr., 5s.; 1-yr., 1-yr., 10s. 6d. per 1000.  
Samples on application.

### New and Choice Chrysanthemums.

R. OWEN begs to call attention to his choice collection, which comprises only the best new and old varieties. Strong rooted cuttings, twelve varieties for 1885, 7s. 6d.; ditto for 1884, 3s. 6d.; best old varieties, 2s. 6d. per dozen—cuttings, 6d. per dozen less, post-free for cash. CATALOGUE one stamp. Mr. BOWERMAN, Hackwood Park Gardens, says:—"They are the best cuttings I ever had sent me."

The Floral Nursery, Maidenhead.

GILBERT'S UNIVERSAL SAVOY and CHOU DE BURGHEV.—"The Times of Horticulture" says:—"Universal Savoy proved to be of excellent quality, and the great public show their appreciation of same by ordering 400 packets last week."

GILBERT'S CHOU DE BURGHEV.—"The Times" again says:—"Mr. Gilbert is to be congratulated on such a sterling novelty, and the great public show their appreciation of same by daily ordering it."

Free by post, UNIVERSAL SAVOY, 2s. 6d. per packet; CHOU DE BURGHEV, 1s. 6d. per packet. Trade supplied.

CHRYSANTHEMUMS.—Specialty.—420 varieties, guaranteed true to name. One of the largest and cheapest Collections in the Trade. Plants, purchasers' selection, 2s. 6d. per dozen, 16s. per 100; cuttings, 1s. 6d. per dozen, 10s. per 100; W. E.'s selection, cheaper. For the new English and Continental varieties see CATALOGUE, with Essay on Cultivation, one stamp.

W. ETHERINGTON, The Manor House, Swanscombe, Kent.

## LAING'S BEGONIA TUBERS.

All Good Tubers, just starting into Growth. Free by Parcels Post. CATALOGUES Gratis.

Our own Unrivaled Varieties. Named Sorts, per dozen, Singles:—A, 42s.; B, 36s.; C, 30s.; D, 24s.; E, 18s.; F, 12s. Named Sorts, per dozen, Doubles:—K, 63s.; S, 48s.; T, 42s.

Unnamed Sorts, per dozen, Singles:—G, 21s.; H, 18s.; J, 15s.; K, 12s.; L, 9s. For Bedding, per 100:—M, 40s.; N, 30s.; O, 24s. Unnamed Sorts, per dozen, Doubles:—W, 80s.; X, 45s.; Z, 18s.

LAING AND CO., Nurseries, Forest Hill, S.E.

**ALL WANT FLOWERS**  
WHERE SHALL WE GET THE  
**BEST CHEAPEST AND MOST CORRECT**  
CERTAINLY AT  
**H. CANNELL & SONS, GOMER**  
THE HOME OF FLOWERS, SEE OR  
SWANLEY, KENT. SEND

### Cheap Plants.—Special Offer.

WILLIAM BADMAN offers as under from store pots, all healthy, well-rooted, and fit for present potting:—

TRICOLORS.—11s. 6d., one of the best, 2s. per dozen, 15s. per 100; Lady Cullum, S. Dumaresque, Sir R. Napier, 2s. 6d. per dozen, 18s. per 100. Twelve choice varieties Tricolors, for 5s.

SILVERS.—May Queen (Turner's). Flower of Spring, Prince Silverwings, Little Trot and Bijou, 2s. per doz., 10s. per 100.

GOLD LEAF.—Crystal Palace Gem, 2s. per dozen, 10s. per 100; Happy Thought, 2s. 6d. per dozen.

BRONZE.—McMahon, Black Douglas, Czar (best bedders), 2s. per dozen, 15s. per 100.

SCARLET.—Vesuvius, Jean Sisley, Col. Seely, 1s. 6d. per dozen, 8s. per 100.

PINK.—Master Christine, Mrs. Levers (fine), 1s. 6d. per dozen, 10s. per 100.

WHITE.—Madame Vaucher and Virgo Marie, 1s. 6d. per dozen, 10s. per 100.

CRIVSON.—Herry Jacoby, 2s. per dozen, 15s. per 100; William Seeding, 1s. 6d. per dozen, 8s. per 100.

LOBELIA.—Brighton, Blue Stone, Pumila magnifica, 3s. per 10, 20s. per 100.

HELIOTROPE.—Jean d'Amour, Miss Nightingale and Light, 6s. per 100.

AGERATUM.—Imperial Dwarf Blue, 5s. per 100, 40s. per 1000.

CALCEOLARIA.—Golden Gem and Dark Camden Hero, 5s. per 100, 40s. per 1000.

COLEUS Verschaffelt and IRESINE Linden, 5s. per 100.

TROPEOLUM.—Vesuvius, dwarf, good bedder, 8s. per 100.

PELAGONIUMS.—Shaw and Fancy, in single pots, 3s. per dozen, 20s. per 100.

Packing included. Terms Cash.

Cemetery Nursery, Gravesend.

PRIVET, strong bushy oval-leaved, 4 to 5 feet, suitable for Hedges. Common LAURELS, strong, bushy, 3 to 4 feet. Samples and Prices on application to T. JACKSON AND SON, Nurseries, Kingston-on-Thames.

TO BE SOLD, for want of room, TREE FERN, DICKSONIA ANTARCTICA, 4 feet stem. Apply at The Dales Lodge, Whitefield, near Manchester.

## GARDEN REQUISITES.

### COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 27s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 27s.; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton, in 2-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, LOBACCO CLOTH, IRON MATS, &c. Write for Free Price List. H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 174, Coal Yard), W.C.

### Notice.

COCOA-NUT FIBRE REFUSE.—Reduced price. The same as supplied to the Royal Horticultural Society of England. Truck-load, loose, of 2 tons, 2s. 6d. Large quantities contracted for. In sacks:—Tea, 8s.; twenty, 15s.; forty, 25s.; bags included. Free on Rail. Cash with all orders.—J. STEVENS AND CO., Cocoa-nut Fibre Merchants, "Greyhound Yard," and 153, High Street, Battersea, S.W.

COCOA NUT FIBRE REFUSE.—Best and fresh only, 1s. per bag; 15 bags, 12s.; 30 bags, 22s. sent to all parts; trucks, 23s. free to Rail. PEAT and LOAM.—A. FOULON, 34, St. Mary Axe, London, E.C.

GILBERT'S UNIVERSAL SAVOY and CHOU DE BURGHEV.—"The Times of Horticulture" says:—"Universal Savoy proved to be of excellent quality, and the great public show their appreciation of same by ordering 400 packets last week."

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TO BE SOLD, for want of room, TREE FERN, DICKSONIA ANTARCTICA, 4 feet stem. Apply at The Dales Lodge, Whitefield, near Manchester.

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BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £66s. per Truck. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bags, 5s. 1s. 6d.; 10 Bags, 45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per Bag. SILVER SAND, Coarse or Fine, 52s. per Truck of 4 tons. WALKER AND CO., Farnborough Station, Hants

### LEMON OIL INSECTICIDE (Registered).

Soluble in water. The cheapest, safest, and most effectual Insecticide extant. Harmless to flower and foliage, Instant death to Mealy Bug, Scale, Thrip, &c. Sp. der, Green and Black Fly, American Blight, Mildew, Ants, &c. As a winter dressing unequalled. See circulars, with testimonials, from many of the leading Gardeners on its behalf.

Sold by most of the leading Nursery men, Seed-men, and Garden Manure Manufacturers, in tins—per pint, 1s. 6d.; quart, 2s. 6d.; half gallon, 5s.; gallon, 9s. Directions for use with each tin.

Wholesale, J. W. COOKE, Market Place, Wincford; and A. LAING, Kew, Surrey, Selwyn, York; also Messrs. OSMAN AND CO., 15, Windsor Street, Bishopsgate, London; and W. FRASER, 14, High Street, Perth.

### CALCUTTA BONE MEAL.—For sale, in

quantities to suit purchasers, Fifty Tons Bates' Pure, in 2 cwt. bags, lying in the Royal Albert Dock. Guaranteed to contain 55 per cent. Phosphate, and 4 per cent. Ammonia. For samples, price, and copy of analysis, apply to the Brokers, A. AND W. NESBITT, 10, Fenchurch Avenue, London, E.C.

### GENUINE GARDEN REQUISITES, as

supplied to the Royal Gardens.—Fresh Cocoa-Nut Fibre Refuse, 4 bushel bags, 1s. each; 30 for 25s.—bags included. Two Ton Truck, free on Rail, 25s. Best Brown Fibrous Peat, 5s. 6d. per sack; 5 for 27s. 6d.; 10 for 35s.; 20 for 65s. Best Black Fibrous Peat, 4s. 6d. per sack; 5 for 20s.; 10 for 30s. Coarse Beddy Sand, 1s. 6d. per bushel; 14s. per ½-ton; 25s. per ton. SPECIALITE TOBACCO PAPER, 10d. per lb.; 28 lb., 21s.; cwt., 70s. Second quality, 7d. per lb.; 28 lb., 16s. Finest Tobacco Cloth, 8d. per lb.; 28 lb. for 12s. Leaf-Mould, 5s. per sack. Peat-Mould, 4s. per sack. Yellow Fibrous Loam, 3s. per sack. Charcoal, 2s. 6d. per bushel. Bones, Guano, Sphagnum, &c. LIST free. Special prices to the Trade for cash. W. HERBERT AND CO., HOP EXCHANGE WAREHOUSES, SOUTHWARK STREET, S.E. (near London Bridge).

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MANURE.—This Manure is now solely manufactured by us, on our premises here, and to be had through all Nurserymen and Seedsmen, or direct from us. We will be happy to forward descriptive circulars in reply to applications, containing terms, &c. Intending purchasers are requested to see they get the Manure manufactured by us.—W. THOMSON AND SONS, Tweed Vineyard, Clovenfords by Galashiels.

### EPPS'S SELECTED PEAT.—Forty sacks,

2s. 6d. per sack; 30 ditto, 25s. 6d.; 20 ditto, 35s. 6d.; 10 ditto, 45s. 6d.; sacks, 6d. each. In trucks of 14 cubic yards, 11s. per yard. For Rhododendrons and common purposes, 14s. per ton, not less than four tons to a truck. Leaf-Mould, LOAM, SAND, LEAF-MOULD, SPHAGNUM, &c. See Special List, also for the Trade. Ringwood, Hants.

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## VINE AND GENERAL PLANT MANURE.

Manufactured by Joseph Meredith, late of The Vineyard, Garston.

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CIRCULARS, with price and full directions for use, free on application to

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## INSECTICIDE.

Prepared by

WILLIAM SMITH, Chemist, Stockbridge, Edinburg.

Highest Award, Forestry Exhibition, Edinburg.

"Clovenfords, by Galashiels, N.B., July 25, 1883.

"Mr. Smith,—Dear Sir,—We have now tried your Insecticide on all the Insects we can find on any of our Plants, including Orchids, and used as directed by you we find it instant destruction to them all, while it neither stains nor injures the tenderest leaf. We shall in future use no Fire-tree Oil, or other Insecticide but yours.—We are, yours truly, "WILLIAM THOMSON AND SONS."

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### GISHURST COMPOUND, used by leading

Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in later from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s. 3d., and 12s. 6d.

### GISHURSTINE keeps Boots dry and soft on

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### SILVER SAND, excellent, coarse, 7s. and

8s. per ton. PEAT, excellent, 6s., 8s., and 10s. per cubic yard. LOAM, excellent, 10s. and 12s. per cubic yard. Free on rail by truckloads. In sacks at moderate price.

W. SHORT, Horticultural Company, Midhurst, Sussex.



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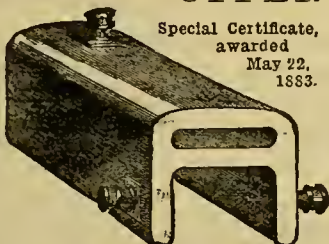
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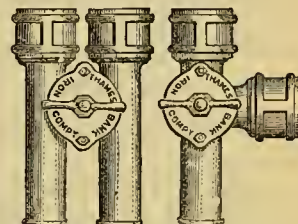
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HOT-WATER BOILERS, PIPES, and CONNECTIONS,  
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Hot-water and Hot-air Apparatus erected Complete, or  
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Patent Rellance Rotary Valves.

Flue and Terminal-end Saddle Boiler.

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**SPECIAL ISSUE OF NEW DESIGNS in GARDEN CHAIRS & ROLLERS**  
AT REDUCED PRICES FROM FORMER LISTS  
SINGLE CYLINDER ROLLERS, 16x16, 20x20 AND 24x24 DOUBLE DO SAME SIZES.

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OF EVERY DESCRIPTION  
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MESSINGER & CO.'S GREENHOUSES are constructed so as to obtain, with the least obstruction to light and sun the greatest Strength and Rigidity.

The best Materials and Workmanship, at prices which, owing to their facilities, defy competition.

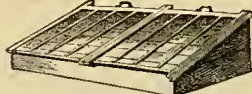
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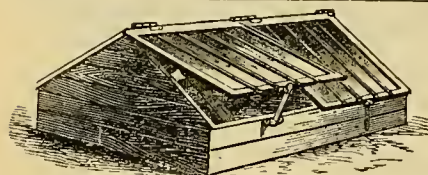


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NORWICH.

No. 75. Melon or Cucumber Frames.

CASH PRICES, CARRIAGE PAID. Packing Cases.  
No. 2, 8 ft. long, 6 ft. wide, £3 5 0 } Allowed for in  
No. 3, 12 ft. long, 6 ft. wide, 4 12 6 } full returned  
No. 4, 16 ft. long, 6 ft. wide, 6 0 0 } at once.  
13 inches deep in front, and 24 inches at the back; lights 2  
inches thick, with iron bar and handle to each light. All  
painted four coats of best oil colour, the lights glazed with  
2-oz. English glass.

Catalogues and Lists post-free.



## PORTABLE PLANT FRAMES.

The above are without exception the most useful kind of  
Frame for Plant Growing, and every one with a garden should  
possess one. The sashes turn right over one on the other, and  
the boxes are put together with wedges, and can be taken apart  
in a few minutes. Sizes and prices, carriage paid to any station  
in England, ready glazed and painted:—

0 feet long, 4 feet wide, packing cases free	£2 15 0
12 feet long, 4 feet wide, " " "	4 15 0
6 feet long, 5 feet wide, " " "	3 15 0
12 feet long, 5 feet wide, " " "	6 10 0

The glass is nailed and puttied in.

## R. HALLIDAY &amp; CO.,

Hothouse Builders and Engineers,  
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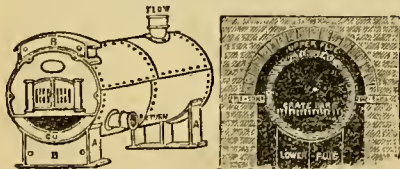
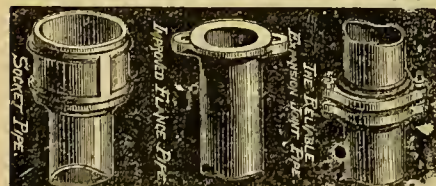
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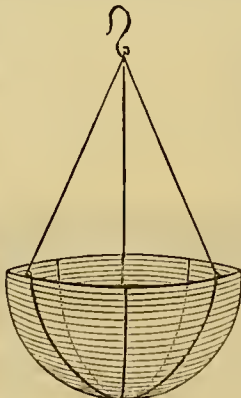
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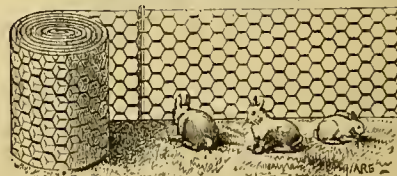


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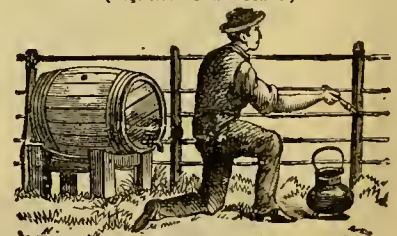
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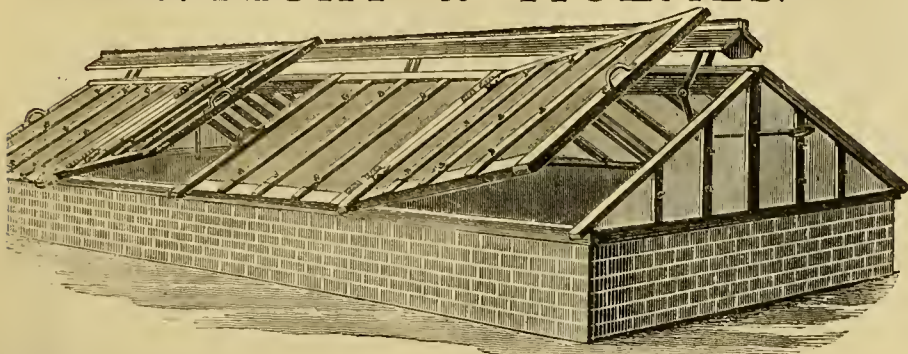
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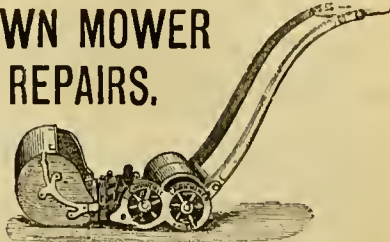
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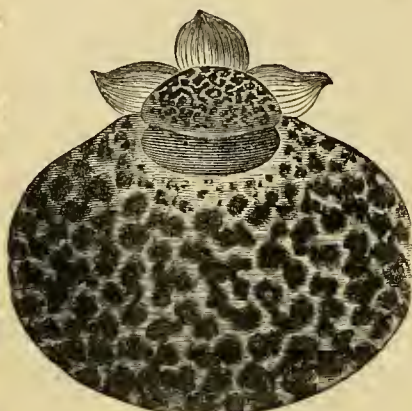
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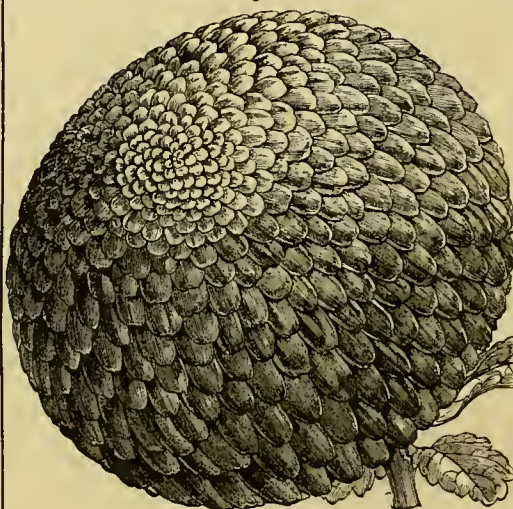
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**THE GARDENERS' CHRONICLE,**  
Volume XXII. JULY to DECEMBER, 1884.  
W. RICHARDS, 41, Wellington Street, Strand, W.C.

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IN AMERICA.

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**ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.**

**SPRING FLOWER SHOW,** in the Town Hall, Manchester, on TUESDAY and WEDNESDAY, March 17 and 18. Schedules for the National Horticultural Exhibition of 1885 can be had from the undersigned. **BRUCE FINDLAY.**  
Royal Botanic Gardens, Manchester.

**LIVERPOOL HORTICULTURAL ASSOCIATION.**

**POSTPONEMENT of SPRING FLOWER SHOW.**  
THE THIRD ANNUAL EXHIBITION of HYACINTHS, TULIPS, MISCELLANEOUS and HARDY HERBACEOUS PLANTS, &c., will be held in St. George's Hall, on TUESDAY and WEDNESDAY, March 24 and 25. Entries close March 17. Schedules of Prizes and further information may be had from **EDWARD BRIDGE, Secretary.**  
White Brook Cottage, Dinah's Lane, Huyton.

**GLASGOW and WEST of SCOTLAND HORTICULTURAL SOCIETY.**

The **SPRING FLOWER SHOW** will be held within the St. Andrew's Hall, Granville Street, Glasgow, on WEDNESDAY, March 25. Prize Schedules and Tickets of Admission to be had from the Treasurer, Mr. CHAS. MACDONALD WILLIAMSON, 104, West George Street, any of the Directors, or at my Office here. Members' ticket, 2s. 6d. each.  
**FRANC. GIBB DOUGALL, Secretary.**  
167, Canongate Street, Glasgow.

**ESSEX AGRICULTURAL SOCIETY'S MEETING,** at Waltham Abbey, JUNE 4 and 5.

**GREAT HORTICULTURAL SHOW—£200 in Prizes.** Schedules now obtainable from, and Donations towards Prize Fund received by **HUBERT GOUGH, Waltham Abbey, or GEORGE PAUL, Cheshunt.** Hon. Secs.

**THE GRAND INTERNATIONAL POTATO EXHIBITION** will be held at the Crystal Palace, Sydenham, S.E., on OCTOBER 7, 8 and 9. For Schedules apply to **P. MC KINLAY,** Hedley Lodge, Croydon Road, Annerley, S.E.

**NATIONAL CHRYSANTHEMUM SOCIETY.**

**ROYAL AQUARIUM, WESTMINSTER.** Schedule of Prizes for 1885 has been posted to all Members of the Society, and may be had (free) on application to the Honorary Secretary, Mr. WILLIAM HOLMES, Frampton Park Nursery, Hackney E.

## WANTED, Back Numbers of GARDENERS' CHRONICLE.

ONE SHILLING each will be given for June 9, 16, 23, 30, July 7 and 14, 1866; August 15 and 22, 1868. Apply in first instance by Letter or Post-card to **PUBLISHER, 41, Wellington Street, Strand, W.C.**

**NEW ROSES, BEDFORD BELLE and GIPSY (Laxton).**—Full particulars of these distinct and beautiful new Roses on application. Strong Plants in May next; Bedford Belle, 7s. 6d.; Gipsy, 5s., or of **T. LAXTON, Bedford.**

Must be Cleared by March 25.  
**A FEW THOUSAND good LARCH, 3 to 4 feet; also a quantity of PICEA NOBILIS, 12 to 15 inches, good. Samples and Prices on application to T. JACKSON AND SON, Nurseries, Kingston-on-Thames.**

**JERSEY CHRYSANTHEMUMS.**—All the best, New and Old. LIST free, from **H. ELLIOTT, Springfield Nursery, St. Helier's, Jersey.** Established 1834.

**SCOTCH FIR SEED,** guaranteed True Native, our own collecting. Price on application. **R. AND A. MORRISON, The Nurseries, Elgin, N.B.**

**LARCH,** strong, transplanted, 2 to 3 feet, and 3 to 4 feet; **QUICKWOOD, SPRUCE,** and **Scotch FIR,** up to 3 feet. See Advertisement, February 28, page 268. Apply to **W. JACKSON AND CO., Nurseries, Bedale.**

**GLADIOLI.**—Twenty Acres. The largest collection in Europe. CATALOGUES free, with Cultural Directions. **KELWAY AND SON, Langport, Somerset.**

**BARR'S COLLECTIONS of SEEDS for** Flower or Kitchen Garden, for Home or Abroad. Purchasers can make any alterations they please. CATALOGUE free on application. **BARR AND SON, 12 and 13, King Street, Covent Garden, W.C.**

**CAULIFLOWER PLANTS,** Autumn-Sown, strong, 2s. 6d., 120, 18s. 1200. **CABBAGE PLANTS, HERBS, LETTUCE, &c., PLANTS,** cheap, carriage paid. LIST free of **EDWARD LEIGH, Ivy House, Cranleigh, Surrey.**

**EARLY PURPLE ARGENTEUIL ASPARAGUS.**—The earliest and finest which comes into Covent Garden. Strong plants, 7s. 6d. per 100; Seed, 1s. 6d. per packet. **T. LAXTON, Seed Grower, Bedford.**

**WANTED, EUCARIS or AZALEA FIELDING,**

in EXCHANGE for the following large SHOW PLANTS, FERNS, and PALMS:—1 *Lætia borbonica*, 1 *Thrinax elegans*, 1 *Aspidium nidus-avis*, 1 *Adiantum Farleyense*, 2 *Davallia Mooreana*, 1 *Microlepia hirta cristata*, 2 *Adiantum trapeziforme*, 2 *Gymnogramma*, 1 *Blechnum brasiliense*, 2 *Anthurium Scherzerianum*, 2 *Anthurium crystallinum*, 1 *Moranta Veitchii*, 1 *Cycas revoluta*, 1 *Clerodendron Balfourii*, 1 *Allamanda Schottii*. Address, **C. B. MANSFIELD, Llys-onen Gardens, near St. Clears, Carmarthenshire.**

**WANTED, regular supplies of CHOICE CUT FLOWERS.**

**ROBT. DASHWOOD,** Commission Salesman, Covent Garden, W.C. Address, Queen's Road Nursery, Peckham, S.E. Terms and References on application.

**SQUELCH and BARNHAM,** Long Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatos, Cucumbers, choice Flowers, &c.

**SQUELCH and BARNHAM,** giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

**SQUELCH and BARNHAM.** ACCOUNT SALES sent daily, and CHEQUES forwarded weekly. BANKERS and TRADE REFERENCES. BASKETS and LABELS supplied.

**WISE and RIDES, Covent Garden, W.C.,** are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS, CUCUMBERS, TOMATOS, FRENCH BEANS, Gros Colmar and Alicante Grapes.

**WANTED,** half a dozen extra fine varieties of *CATTLEVA PERCIVALIANA*, in Flower. Particulars, and if possible a Flower, to **MR. HAMMOND, The Gardens, York Lodge, Stamford Hill, N.**

**WANTED, ASH, Mountain and Common, CHESTNUT, ELMS, LIMES, FIRS, POPLARS, various, and PLANES, 8 to 14 feet; EUONYMUS, 5 to 8 feet; RED MAY, and small AUCUBAS.** Sample with price delivered free to London, to be sent to **W. T. BARBER, 17, Belsize Crescent, Hampstead, N.W.**

**WANTED, TURF, 3 feet by 1 foot, per 100.** Also following Trees, 2 to 3 inches through:—ELMS, POPLARS, PLANES, SYCAMORES, ACACIAS. Send price delivered free at West Brighton Station. **W. WILLET'S Estate Offices, 61, The Drive, Hove.**

## BEAUTIFUL LAWNES.

**CARTERS' INVICTA LAWN SEED,** for present sowing. Price, in sealed packets, 1s., 1s. 6d., and 2s. 6d., post-free; 25s. per bushel, carriage free. Sow at the rate of four bushels per acre.

**CARTERS' GRASS SEEDS for TENNIS LAWNES,** for present sowing. Price, in sealed packets, 1s., 1s. 6d., and 2s. 6d., post-free; per bushel, 21s., carriage free.

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**LAWNES and TENNIS GROUNDS—How to Make and Renovate Them.**—See **CARTERS' PAMPHLET,** gratis and post-free.

**CARTERS, SEEDSMEN by Royal Warrant** to H.R.H. the Prince of Wales. 237 and 238, HIGH HOLBORN, LONDON, W.C.

**PAUL'S, WALTHAM CROSS.**—ROSES, TREES, EVERGREENS, SHRUBS, CLIMBING PLANTS, FRUIT TREES, GRAPE VINES, CAMELLIAS, BULBS, SEEDS, of every description, of the best quality, and low in price. See Priced Descriptive CATALOGUES, free by post. **WM. PAUL AND SON, Paul's Nurseries, Waltham Cross.**

**PRIVET,** strong bushy oval-leaved, 4 to 5 feet, suitable for Hedges. Common **LAURELS,** strong, bushy, 3 to 4 feet. Samples and Prices on application to **T. JACKSON AND SON, Nurseries, Kingston-on-Thames.**

**TWELVE CAMELLIAS or AZALEA INDICA,** full of buds, 21s., large perfect plants of either, in 5½-inch pots, all different named sorts; or 1 dozen of each sent carriage paid on receipt of 42s. **E. VANDER MEERSCH, Queen's Nursery, Selhurst, S.E.**

**ROSES.—ROSES.—ROSES.**—Fifty choice Perpetuals sent on receipt of remittance for 21s.: purchaser's selection from 400 best varieties. List of names on application. Twenty-four choice Standards, or Half-standards, 21s. **JAS. WALTERS, Mount Radford Nursery, Exeter, Devon.**

**SURPLUS STOCK.**—Beautiful Specimens of ORNAMENTAL and EVERGREEN TREES, in perfect condition for removal, at extraordinarily low prices. Special LIST, just published, on application. **RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.**

**GIANT SCARLET BROMPTON STOCK.**

—Producing splendid large double flowers with spikes 1½ to 2 feet long. New Seed, grown in 1884, price 1s. and 1s. 6d. per packet, post-free. **JOHN ETHEKINGTON DIXON, Seed Grower, Gainsborough.**

**OAKS (Quercus pedunculata), English.**—For Sale, about 20,000 1-yr. Seedlings. For Sample and Price apply to **J. HARTNELL, Bailiff, Houghton Hall, Swaffham, Norfolk.**

**NEW CHRYSANTHEMUMS, 1884-5.**—Our Descriptive Priced LIST is now ready, and can be had free on application to **T. JACKSON AND SON, Nurseries, Kingston-on-Thames.**

**CALADIUM ARGYRITES.**—Sound Dry Bulbs, 50s. per 100; Smaller Bulbs, 25s. per 100, for Cash only from unknown correspondents. **TURNER BROS., Green Hill Nursery, Allerton, Liverpool.**

**LOVEL'S STRAWBERRY PLANTS.** Price 2s. 6d. per 100, 10s. per 500, 17s. 6d. per 1000. Sample and Pamphlet, post-free, 4d. **W. LOVEL AND SON, Strawberry Growers, Driffield.**

**THE PRIZEWINNER'S PEA, LAXTON'S EVOLUTION.**—The premier Exhibition Pea of 1884, described by Mr. H. Marriot, the chief prizewinner, as "The Everlasting." Sealed half-pints, 3s. 6d. **T. LAXTON, Seed Grower, Bedford.**

**ASPARAGUS.**—A large quantity to offer, of very fine transplanted stuff, 2-yr. and 3-yr., 2s. 6d. and 3s. per 100, 25s. and 25s. per 1000. Also 2-yr. from drills, 10s. per 1000. All packages free on rail. **S. BIDE, Alma Nursery, Farham, Surrey.**

**ASPARAGUS.**—Strong 2-yr. and 3-yr. Conover's Colossal, 2s. and 2s. 6d. per 100, 15s. and 20s. per 1000. Bags included. Special quotations for large quantities. **E. QUINCEY, Fulney, Spalding.**

**ASPARAGUS.**—Extra strong three and four years stuff. Samples and prices on application to **THOMAS S. WARE, Hale Farm Nurseries, Tottenham, Middlesex.**

**ASPARAGUS.**—A large quantity of strong plants, 2, 3, and 4-yr. old. Prices on application to **J. CHEAL AND SONS, Lowfield Nurseries, Crawley.**



## SALES BY AUCTION.

## Tuesday Next.

**LÆLIA ANCEPS** (white type), **ODONTOGLOSSUM ALEXANDRE**.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Messrs. Shuttleworth, Carder & Co., to **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, March 17, at half-past 12 o'clock precisely, fine masses of the White **LÆLIA ANCEPS** and **ODONTOGLOSSUM ALEXANDRE** of the best type, in splendid condition; **TRICHOPILIA SUAVIS**, **CHYSIS AUREA**, **MASDEVALLIA HARRYANA**, **M. CHIMÆRA**, **M. RACEMOSA** **CROSSI**, **M. SHUTTLEWORTHII**; **ONCIDIUM KRAMERI**; established **ODONTOGLOSSUM PESCATOREI** and **O. ALEXANDRE**; a few established **ORCHIDS**, including a large plant of **Lælia anceps** with over 100 Buds; Terrestrial **ORCHIDS**, and fine Buds of the rare **PLAGIOLIRION HORMANNI**, and **CALLIPSYCHE AURANTIACA**.  
On view morning of Sale, and Catalogues had.

## Clapham Common, S.W.

**ORCHIDS and GREENHOUSE PLANTS.**

**MESSRS. PROTHEROE AND MORRIS** will **SELL BY AUCTION**, on the Premises, the Woodlands, Nightingale Lane, Clapham Common, S.W., five minutes' walk from Wandsworth Common Station, London, Brighton, and South Coast Railway, on **WEDNESDAY**, March 18, at 12 o'clock precisely, by order of F. Williams, Esq. (the freehold estate having been sold for building), a small but well-grown collection of **ESTABLISHED ORCHIDS**, the whole of the choice **STOVE and GREENHOUSE PLANTS**—**Crotons**, **Eucharis**, **Orange Trees**, **Camellias** and **Azaleas**, including several extra fine plants; **Palms**, **Ferns**, &c. Also the **GARDEN UTENSILS**, **MOWING-MACHINE**, **GARDEN FRAMES**, **VASES**, **GARDEN SEATS**, 100 iron **HURDLES**, and numerous effects.

On view day prior and morning of Sale. Catalogues had of the Gardener, on the Premises; or of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

## Wednesday Next.

**LILIIUM AURATUM**, **ROSES**, **PLANTS**, &c.

**MESSRS. PROTHEROE AND MORRIS** will **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT**, March 18, at half-past 12 o'clock precisely, 6000 unusually fine and sound Buds of **LILIIUM AURATUM**, and 20 varieties of **IRIS KEMPERI**, just received from Japan in fine condition; 1000 Standard, Half-standard, and Dwarf **ROSES** of the best sorts, from an English Nursery; English-grown **CAMELLIAS**, **PALMS**, **ARUMS**, **GARDENIAS**, **RHODODENDRONS**, **PINKS**, &c.; African **TUBEROSES**, 3000 Berlin Crown **LILY** of the **VALLEY**, an assortment of Hardy English-grown **LILIES** and **BULBS**, **GLADIOLI**, **DAHLIAS**, **BEGONIAS**, **GLOXINIAS**, &c.  
On view morning of Sale, and Catalogues had.

## Wednesday Next.—To the Trade.

6000 **LILIIUM AURATUM**.

**MESSRS. PROTHEROE AND MORRIS** will **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT**, 6000 exceedingly fine **BULBS**, just received from Japan.  
On view morning of Sale, and Catalogues had.

## Friday Next

**VERY VALUABLE IMPORTATIONS.**

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. F. Sander to **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, March 20, at half-past 12 o'clock precisely, a grand importation of **CATTLEYA MOSSIAE**, and the beautiful **VANDA SANDERIANA**, **AERIDES LAWRENCEÆ** and **A. LEEANA**, **PHALÆNOPSIS SPECIES**; a splendid lot of **MEXICAN ORCHIDS**, and other **ORCHIDS** of value.  
On view morning of Sale, and Catalogues had.

## Important Unreserved Sale of the Suggall Hall COLLECTION OF ORCHIDS.

**MESSRS. PROTHEROE AND MORRIS** are favoured with instructions from Walter Williams, Esq., to **SELL BY AUCTION**, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on **TUESDAY and WEDNESDAY**, March 24 and 25, at half-past 12 o'clock precisely each day, this **VALUABLE COLLECTION**, which has been got together with great care during the last dozen years from the oldest established collections in the country, including types not latterly imported, embracing a large number of specimen Cattleyas, the whole in robust health, including 1—

**Cattleya Mossiae**, beautiful **Cattleya Trianae** alba old type; six grand specimens  
" Wallisi " gigas  
" Warneri " Mendellii  
" Warszewiczii delicata " Eldorado  
" superba (ing) " Skinneri  
" labiata (autumn-flower)

Also **Trichocentrum albo-purpureum**, **Angracum eburneum**, **Sobralia macrantha**, **Epidendrum prismatocarpum**, **Oncidium myanthes barbatum**, **Oncidium ampliatum majus**, several **Odontoglossums**, **Dendrobiums**, **Oncidiums**, &c.

The whole of the Collection will be Sold, and no plants will be disposed of prior to the Auction.

On view mornings of Sale, and Catalogues had.

## Orchids in Flower.—Special Sale.

**MESSRS. PROTHEROE AND MORRIS** beg to announce that their next **SPECIAL SALE OF ORCHIDS**, in Flower and in Bud, will take place on **TUESDAY**, March 31, and they will be glad to receive notice of entries as early as possible.

## Stoke Park, Slough.

**STOVE and GREENHOUSE PLANTS, ORCHIDS**, &c.  
**MR. J. C. STEVENS** has received instructions to **SELL BY AUCTION**, on the Premises, as above, without the least reserve, on **MONDAY and TUESDAY**, March 16 and 17, at half-past 12 o'clock precisely each day, the **COLLECTION** of **STOVE and GREENHOUSE PLANTS** formed by E. J. Coleman, Esq., comprising fine Standard, Half-Standard, and Pyramid **Azaleas**, **Camellias**, **Orange Trees**, **Eucharis**, **Crotons**, **Dracænas**, **Greenhouses**, **Rhododendrons**, &c.; also the **ORCHIDS**, including many specimen plants of **Dendrobium nobile**, **Cattleyas**, **Lælias**, **Odontoglossums**, **Phalænopsis**, **Cœlogyne**, and other species; a quantity of **Callas**, **Fuchsias**, **Primulas**, **Pelargoniums**, **Bouvardias**, **Strawberry Plants**, &c.  
On view Saturday prior and mornings of Sale, and Catalogues had on the Premises, or of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

## Wednesday Next.—(Sale No. 6875.)

**SPECIAL SALE OF ORCHIDS in FLOWER.**

**MR. J. C. STEVENS** will **SELL BY AUCTION** at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT**, March 18, at half-past 12 o'clock precisely, a choice and extensive collection of **ORCHIDS in FLOWER**, comprising fine plants of **Dendrobium Schroderi**, **D. Ainsworthii**, **D. nobile**, with over 700 flowers; **Odontoglossum Alexandree**, many fine lo-ns; **O. Pescatorei**, including a grand spotted variety; **O. Edwardsi**, **O. Andersonianum**, several hybrid **Odontoglossums**, **Phalænopsis Stuartiana**, and **P. Sanderiana**, **Masdevallia Roezlii** and **M. Chimera**, **Cymbidium eburneum** **Dayii**, **Cœlogyne cristata**, with 45 spikes; 24 fine plants of **Calanthe Regineri**, and a great variety of other good things; also about 100 lots of **ESTABLISHED ORCHIDS** from a well-known private collection.  
On view morning of Sale, and Catalogues had.

## Wednesday Next.—(Sale No. 6874.)

**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT**, March 18, at half-past 12 o'clock precisely, a consignment of choice named **INDIAN AZALEAS**, Hybrid **RHODODENDRONS**, **PALMS**, **AZALEA MOLLIS**, and other **PLANTS** from Ghent; 1000 first-class Standard and Dwarf **ROSES**, from well-known French and English growers; **FRUIT TREES**, **PLANTS** and **BULBS** from Germany, **CARNATIONS** and other **BORDER PLANTS**, a choice collection of Home-grown **LILIES**, together with many other **HARDY BULBS** and **ROOTS**.  
On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6876.)

5000 **LILIIUM AURATUM** from Japan.

**MR. J. C. STEVENS** will include in his **SALE BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, March 19, an importation of 5000 **LILIIUM AURATUM**, just received from Japan in the finest possible condition.  
On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6876.)

**LÆLIA ANCEPS SCHRODERIANA**, new pure white **LÆLIA ANCEPS**.

**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on **THURSDAY NEXT**, March 19, at half-past 12 o'clock precisely, a small but especially fine importation of **LÆLIA ANCEPS SCHRODERIANA**, **Rchb. f.**, several great masses being amongst them. This is undoubtedly the finest white variety ever offered. The whole flower is very large and pure white, and entirely distinct from any of the white forms; the throat striped crimson, and the lip extra broad and square, and an inch across or even more. Mr. Edward Klaboch who has collected every plant in flower, states that this variety is particularly rare, and that the flowers are of great substance, far surpassing anything he has seen. He considers it the finest white **Lælia anceps** ever introduced.

**Lælia anceps Schroderiana** is described by Prof. Reichenbach as follows:—"There are before me twenty-seven brilliant dried lips, and a dried flower. The colours are pure white, the disc between lateral lacinia is orange, and the projecting keels running in the base of mid-lacinia are even deeper orange; there are three to five crimson-purple longitudinal and several forked lines radiating outwards. So much for the colour. The complete flower would appear to surpass the dimensions of **Lælia anceps Dawsoni**. The petals are remarkably broad. The great merit of this plant consists in the lip, which is broad, with short, nearly rectangular, blunt side-lacinia. The mid-lacinia is very broad, blunt, emarginate, and this lip is quite novel to me. The result of the description would be that the value of this remarkable white flower is admirably enhanced by the beauty of the great square and flat lip. This very ornamental Orchid bears fully the name of one of our most excellent orchidists, Baron Schroder, and it gives me great pleasure to attach the Baron's name to such a glorious **Lælia**.  
It is one of the most recent and most brilliant introductions of Mr. F. Sander.

On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6876.)

**LÆLIA ANCEPS STELLA**—new White **ANCEPS**.

**MR. J. C. STEVENS** will **SELL BY AUCTION** at his Great Rooms, 38, Kings Street, Covent Garden, W.C., by order of Mr. F. Sander, on **THURSDAY NEXT**, March 19, at half-past 12 o'clock precisely, an importation of **LÆLIA ANCEPS STELLA** (new White **ANCEPS**). Prof. Reichenbach writes:—"The flowers are of the greatest of the tribe, stellate, pure white. The lip's side-lacinia is remarkably curved and broad in front, the long mid-lacinia is narrow at the base, dilate, and marginate in front, disc of lip and base of mid-lacinia orange, very numerous nerves, both radiating outside as longitudinal ones, with a deep point of rich scarlet-purple that nearly forms a dark blotch each side in front. This is the great mark of distinction of **Lælia anceps stellata**, it might be called **Dawsoni** or **Sanderiana**, but the anterior lacinia is half yellow, and white in front. It is decidedly a very brilliant flower, and the importation is in Mr. F. Sander's hands." The importation is in grand order, and enormous masses are among them.

At the same time will be sold a fine lot of **ODONTOGLOSSUM ALEXANDRE**, and many other **ODONTOGLOTS** and **ORCHIDS**.

On view morning of Sale, and Catalogues had.

**Cattleya Lawrenceana**, **Rchb. f.**, new species.

A distinct and beautiful new **CATTLEYA** from the Roraima.  
**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on **THURSDAY**, March 19, at half-past 12 o'clock precisely, the entire importation of this most superb **CATTLEYA**. The consignment, brought home under the personal care of the Collector, is in exceptional order, and it has not been our fortune before to offer a finer, more compact, and altogether satisfactory lot of plants; and we do not hesitate to say that we have never seen such splendid sound pieces—they are well shaped, leaves fresh and green, and eyes perfectly dormant, and are the result of two years' diligent search. **Cattleya Lawrenceana** belongs to the very finest of the genus, the colour of the large flower is deep, rich, and warm; the lip is flat and large, the lower half intensely dark and brilliant, throat yellow and often finely spotted red. There are no pure or light coloured varieties among them, and although this **Cattleya** varies in the markings of the inner lip, all are superb. It is a free-growing, free flowering species, the flower-spikes on plants show up to fifteen flowers; habit of plant is most compact, bulbs thick and varying in size from 6 to 15 inches. The leaves are in some varieties reddish in colour, in others green, and from 6 to 9 inches long.  
On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6876.)

**ORCHIDS** from the Roraima.

**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on **THURSDAY NEXT**, March 19, at half-past 12 o'clock precisely, a fine importation of Roraima **ORCHIDS**, just brought home in superb condition by Mr. E. Seidl, and consisting of a fine batch of the lovely white and black **Oncidium nigratum**; also **Cypripedium Lindleyanum**, and the beautiful **Zygopetalum Burkei** (First-class Certificate, November, 1883); a fine **Scuticaria**, and a **Zygopetalum** like **rostratum** in growth, &c.; also a splendid batch of **Cattleya Mossiae**, early flowering variety—this species is of upright stiff growth, and a plant of it will be sold in flower; the specimens are very superb, thoroughly well grown, and with plenty of sheaths and buds; also many other **ORCHIDS**.  
On view morning of Sale, and Catalogues had.

## Wood Green.

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" PARRYANA GLAUCA, 1½ to 2 feet, hundreds.

PICEA COMNOLOK, 2 to 4 feet, hundreds.

" GRANDIS, 5 to 7 feet.

" LASIOCARPA, 3 to 5 feet, hundreds.

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" NOBILIS, 1½ to 3 feet, thousands.

" NORDMANNIANA, 6, 7, to 10 feet.

" PINSAPO, 6 to 10 feet, hundreds.

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The habit is good, being dense and bushy, attaining a height of 2 to 3 feet.

The plant is covered with pods from the ground to the extreme top of the haulm.

On one plant no less than sixty-nine pods have been counted, containing from nine to eleven Peas in a pod.

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In constitution it is robust and hardy; and, without hesitation, we can say that it is the perfection of Peas for either the Market Gardener or the Private Grower, for exhibition, or for ordinary use.

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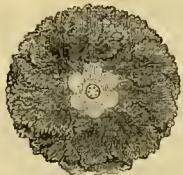
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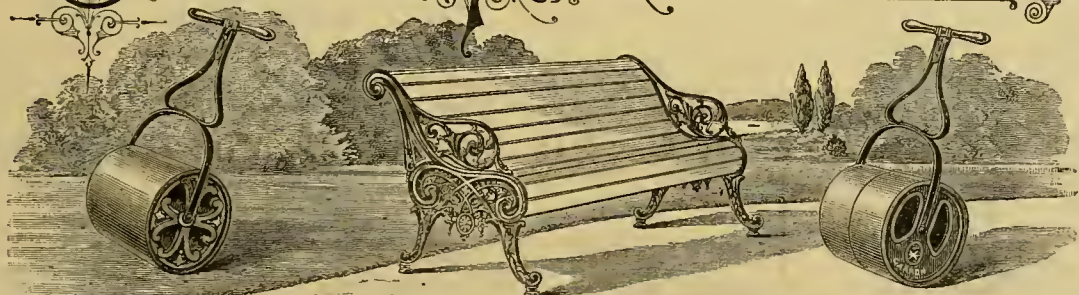
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THE

# Gardeners' Chronicle.

SATURDAY, MARCH 14, 1885.

SHERIFFMUIR.

MR. STIRLING, of Kippenross, is the owner of Sheriffmuir, the scene of the only battle of the Rebellion of 1715. In Mr. Hunter's book on Perthshire, he mentions Sheriffmuir in writing of Kippendavie, a much older property than the one just named, which is a comparatively recent acquisition, dating from the last century. But the present mansion house of the Stirlings stands on the land last acquired, and the Stirlings of this place are known now as of Kippenross.

They are a branch of the Stirlings of Keir, a place which once attracted public notice when Sir William Stirling-Maxwell received a visit from Lord Beaconsfield, who planted a tree in the grounds. A curious collection of appropriate mottoes is displayed at Keir, where you may read such legends as "Gang forward," the family motto; and on the clock tower, "Tak tent of time ere time be tint," "It is later with the wise than he's aware," "Hours are Time's darts, and one comes winged with death."

Sheriffmuir is still a bleak, black, and extensive waste, though its area has been diminished, a former laird of Kippendavie having planted part of it with mixed Fir, Scotch, Spruce, and Larch, now sixty years old—the trees on the best land having reached the size of 50 feet or 60 feet high and 3 feet in girth at 5 feet from the ground. In this part of the plantation the ground is thickly covered with a layer of decayed Fir leaves, in which the usual grasses of such sites grow freely, the soil below being very much ameliorated by the increase of the vegetable matter which is now accumulating, and is destined to enrich the land for any crop that may be sown in it after the removal of the trees. Where the soil happens to be poorer the trees are small and stunted and covered with lichens, and the fall of the leaf has not proved sufficient to crowd out the natural growth of Heather and coarse grass that still covers the surface in this part of the wood, as it does that of the moor outside.

It is satisfactory to find trees growing on the former battlefields of Scotland, and to know that the very sites of battles, such as Sheriffmuir and Culloden, have been covered with profitable and ornamental timber.

Sheriffmuir Wood suffered much from the storms of a few years since, that of December, 1879, having overturned 80,000 of its trees. I had almost omitted to mention the "Gathering Stone of the Clans," which lies within the wood on the highest ground of what was once the moor. A stout iron grating surrounds the stones, of which there are now three, the one original stone having been broken into three pieces. An inscription on the grating runs:—"The gathering stone of the Highland army on the day of the memorable battle of Sheriffmuir, fought in November, 1715. This grating has been created to preserve the stone, by John Stirling, Esq., of Kippendavie, principal heritor of the parish of Dunblane: November, 1840."



I must not conclude this short notice of Sheriffmuir, and the property to which it is attached, without describing the "Big Tree of Kippenross," a Sycamore 440 years old, which at its prime contained 875 cubic feet of timber, and which measured 100 feet in height and 19 feet in the circumference of the trunk. It has now become a wreck from old age. If space permitted the measurements of many other noble trees might be given. I walked 3 miles from the ancient town of Dunblane to pay a visit to the well-known moor without being aware of the near neighbourhood of so many fine trees, of such a venerable Sycamore, and of that delightful walk by the river side known in song as the "Banks of Allan Water." H. E.

## GARDEN PALMS.

(Continued from p. 743, vol. xxii.)

*Catoblastus*, Wendland.—The two or three species of which this genus is composed were originally included in *Iriarteia*, now limited to about five species, the remainder being now separated under *Socratea* and the above. *C. premorsus* is included by Seemann among the cultivated Palms of 1856, but it does not appear to have become established in any English garden, though there is a fine specimen of it in the Botanical gardens at Berlin. No other species has yet been introduced, though seeds of *C. pubescens* were sent to Kew by Messrs. H. Low & Co. in 1881, none of which germinated. *C. premorsus* is represented at Kew by only small specimens. There is a close resemblance between this genus and *Iriarteia* in characters of habit and foliage, so that it is difficult to distinguish them when young. *Catoblastus* has a tall, erect, columnar stem, unarmed, remotely annulated, and the base surrounded with, sometimes raised upon, stout roots. The leaves are arranged in a somewhat close head and are unequally pinnate, the segments being trapeziform, cuneate at the base, and divided at the apex into numerous teeth or lobes. The shining deep green of the foliage, and the cylindrical, rather stout, petiole, give these plants a fresh and distinct appearance. They are found in the humid forests of Tropical South America. Young plants are ornamental, and are easily kept in good health by growing them in a moist shaded stove, bright sunlight being somewhat harmful to them. They require an abundance of water always. The seeds are almost round, as large as a Chestnut (*C. pubescens*), and are less firm and bony in texture than most Palms, being more like that of the Catechu-nut; they are covered with a crisp papery pericarp. I have not seen the seedling characters of this genus.

*C. premorsus*, Wendl.—Venezuela.

*Ceratolobus*, Blume.—A small genus of Calameæ, represented in gardens by only one species, always, however, in a small state. Like their allies the Calami, this cultivated species and the only other one are climbing in habit, with spiny stems and leafstalks, but with no spines upon the leaf-segments. The slender stems grow to a height of about 30 feet, are covered with broad spines an inch long, and bear all along their upper portions rather long (7 feet) pinnate leaves, the segments of which are alternate or opposite in pairs, are smooth and green above and glaucous below; they are about 9 inches long by 3 inches broad, tapering to each end, the upper end being interrupted and jagged (crenate-erose). The rachis is triangular, green, and is clothed on the underside with stout hooked spines. The fruit is a Plum-shaped berry,  $1\frac{1}{2}$  inch long, and is covered with ciliated brown scales enclosing the seed, which is smooth, and of the size and shape of a robin's egg. Young plants of the cultivated species are handsome stove plants, quite different in appearance from other Palms. The genus is limited to the islands of Java and Sumatra.

*C. glaucescens*, Bl.—Java.

*Cattleya Lawrenceana*, n. sp.  
At last we have a *Cattleya*, bearing Sir Trevor's excellent name. Of course it ought to be an extra good plant, and so it is. My knowledge of the novelty is based on the flowers, which have been dried with extraordinary skill, even the colours being neatly preserved. Then I have before me two plants and several cut bulbs, which illustrate once more the variability of these organs. One before me is a little, plump, short thing, m. 0.1 high to 0.025, with a short broad leaf scarcely much longer, 0.06 broad. The longest bulb before me is m. 2 high by 0.025 in diameter. The plants may have been grown exposed to the sun, as they have a reddish hue on the bulbs and on some leaves, the longest of which is 0.22 long by 0.05 wide. The trans-section of the bulbs is nearly tetragonal, and there are four furrows each side. Those bulbs remind one a little of *Cattleya Mossiae*. The rhizome is of extraordinary strength. The sheath of the flower-stalk is singularly long, 0.16 long by 0.015 wide—measured in the withered state.

Now come the flowers, the grand things. The peduncle is very strong, 0.23 long, of purple colour. I have the scars of seven flowers on one, and I learn there is evidence of the possession of fourteen flowers, which is very promising. The flowers are as large as those of a very good *Trianae*. Sepals uncommonly broad. Petals much broader, usually blunt. There are some flowers with broader petals, and those will, no doubt, be received with uncommon favour.

The lip is quite novel in its shape for the labiate group. It is panderate emarginate, rather broader in front than at the base. If you like to see its outline well represented, take *Botanical Register*, 1847, plate 42, *Cattleya bulbosa*. This outline makes me record it as a new species, not one of the endless varieties of *Cattleya labiata sensu amplissimo*. The column is singularly small, but it may have lost a good deal by being dried.

And now the colours. The flower is of a fine purple-lilac. The whole anterior part of the lip is of the darkest, warmest purple. You might nearly compare this part to the end of the tail of a heath-cock. The side wings of the superior part are purple, the centre light yellow. I think dried flowers and plants will give evidence of the accuracy of my description. It would be superfluous to lose many words in recommendation of this unexpected novelty. I will only say that I regard it a very good fortune to inscribe such a plant to such an orchidist as is Sir Trevor, and that I think the *Cattleya Lawrenceana* will rank, when established, under the finest Orchids imported by Mr. F. Sander. H. G. Rehb. f. [This, as we believe, quite new *Cattleya* was discovered on Roraima, the mountain in British Guiana recently ascended for the first time by our correspondent, Mr. Im Thurn, and sent home by Mr. Seidl. The flower is so well dried, and the bulbs are so healthy, that good materials exist for a woodcut, which we hope to issue very shortly. ED.]

tallow, for making candles. "To obtain the wax the tree must be felled, each tree yielding about 25 lb." (Purdie). Specimens of the wax, candles, &c., with portions of the trunk bearing wax are exhibited in the museums at Kew. As a garden Palm this species is most suitable, as it is a free grower and soon assumes an ornamental character, whilst when large the specimen at Kew shows how strikingly beautiful this Palm becomes. Seeds of it are frequently imported, and germinate freely in a warm moist house, a similar house being required for the plants.

*C. andicola*, H. and B. (*Iriarteia aodicola*, Sp.; *I. Klopstockia*, Hort.; *Klopstockia cerifera*, Karst.; *Beethovenia cerifera*, Engel.), *Illustr. Hort.*, 3 ser., t. 157.—New Grenada and Venezuela.

(To be continued.)

## THE DISCOVERY OF APOSPORY IN FERNS.

As sundry paragraphs relating to the above have recently appeared which are not altogether correct in their details it may perhaps be of interest to your readers to have the facts at first hand. In your issue of December 22, 1883, under the heading of "Proliferous *Athyria*," I gave an account of the discovery of proliferation upon several varieties of *Athyria* in the shape of bulbils upon the upper surface of the fronds of precisely similar nature to those produced upon *Asplenium* and other families, and bulbils of a different character which were developed upon the backs of the fronds in the place of sori, a form of proliferation which has not been remarked in connection with any other Fern than four forms of *Athyria*, all natives of Britain and all of the plumose character. In the same article and in conjunction with the above-cited discoveries, I mentioned some exceedingly curious growths which had been remarked by Mr. G. B. Wollaston upon an *Athyrium* in his possession (*A. f. clarissima*), and which were thought to be bulbils also. Upon examination, however, I came to the conclusion that they were of a different nature, since no definite axis of growth was apparent, and instead of the scales common to bulbils proper, there was in all cases an indusium, which led me to the belief that they were abnormal sporod bodies and not bulbils capable of producing plants by direct bud growth.

To test this point I laid down, in November, 1883, sundry pinnæ of the plant in question and carefully observed and recorded their development through the winter, with the result that in 1884 I reported to the Linnæan Society that plants had been raised from the said excrescences through prothalli into which they had developed while still attached to the pinnæ, the said prothalli being formed by the dilatation, bifurcation and extension of the tips of the pseudobulbils and bearing in the normal manner archegonia and antheridia, by the inter-action of which the plants had been formed.

The fact being altogether new and so far unconfirmed I was requested to continue my investigations, and if possible bring forward more evidence in the following autumn. Accordingly, in November, 1884, I laid before the Linnæan Society a number of plants, and, what was more to the point, pinnæ of the parents, showing such a manifestly abnormal state of the pseudo-sori that my report was accepted as correct.

Professor Thiselton Dyer thereupon was provided with material for that deeper microscopic research which the subject merited, and Mr. F. O. Bower of the Jodrell Laboratory, Kew, was deputed to pursue the investigation *au fond*. The result was that on December 18 he confirmed the discovery in every respect, and gave the term apospory to the absolutely new phenomenon of reproduction, the existence of which was thus established, viz., the production of a Fern from prothalli, which were not developed through the mediation of a spore, but by direct growth from the parent Fern. It will thus be seen that *Athyrium Filix-femina clarissima* has the proud privilege of being the first of the Filices to bear, if not flowers, at any rate their homologues, the alternation of generation being superseded.

This discovery led to another very shortly afterwards, for Mr. G. B. Wollaston found the same phenomenon of apospory upon a *Polystichum* (*P. ang. var. pulcherrimum* Padley) in his possession, but developed in a still more extraordinary and unparalleled fashion, viz., by the production of prothalli by the direct uninterrupted extension of the points of the



pinnules, such prothalli being provided with antheridia and archegonia. This case, as I have indicated, is so much stranger than that of *A. F.-f. clarissima* as to eclipse it quite, the prothalli not even being connected locally with the sorus. An interesting fact in connection with these two Ferns is, that both are wild finds, discovered in North Devon, and both were given to Mr. Wollaston by Colonel Jones, of Clifton.

I may add, that Mr. Bower's investigations showed that the prothalli in *A. F.-f. clarissima* were developed from the stalks of the sporangia, that portion containing the archesporium, which by fusion would form the spores, being previously aborted. *Chas. T. Drury.*

## MUSTARD.

PROBABLY but few are aware of the extent to which Mustard is cultivated in this country for economic purposes. The great Mustard growing districts of England are Cambridgeshire, Lincolnshire, Yorkshire, Essex, and Keot, on account of the adaptability of the soil. It is computed that the average growth of Mustard in Lincolnshire is from 5000 to 6000 acres annually. Some persons grow from 50 to 150 acres each of the white and brown Mustard, many grow less. Taking the average of the acreage of Mustard in the counties named above, the quantities of white and brown are pretty nearly equal. The black-brown or red Mustard, as it is variously termed, is *Sisaps nigra*, and grows wild in many parts of the country in cornfields and waysides. The white Mustard, of which large quantities are grown in gardens for salad purposes, is *S. alba*, a native of the South of Europe, but now naturalised in this country. There are decided specific differences between the two. The Charlock or wild Mustard (*S. arvensis*) is well known as a great plague in cornfields, with its numerous large and brilliant yellow flowers. The seed of Charlock is a limited article of commerce in this country; when it is reaped with Wheat the seeds are separated in the process of preparation.

The best soil to grow good crops of Mustard is a deep rich one, resting on a clay subsoil; a soil impregnated with saline substances appears to produce good crops. A new soil formed out of reclaimed marshland suits the brown Mustard well, and brings a bolder, fatter meal than does the old soil. The richest feeding bullock land, that is, land that will fatten bullocks without resorting to artificial food, will grow more seed, a crop freer from weeds, and of better quality than land frequently cultivated. A crop of Mustard may be grown on such land three and four years in succession, and it generally proves very remunerative, returning from £20 to £30 per acre. An average crop of Mustard in a favourable season is from 12 to 20 bushels per acre. Mr. A. Johnson, of Messrs. W. W. Johnson & Sons, seed merchants, Boston, who deal largely in Mustard, informs me he has known such a very exceptional crop as 40 bushels to an acre. The produce of white Mustard per acre is said to be a little larger than that of the brown: 20 bushels per acre is said to be a very good average crop.

Brown Mustard seed is generally sown in March and April, according to the weather and the nature of the season; some sow later—in May, and even in June. The balance of advantage is in favour of early sowing. Two dangers beset the Mustard plant, viz., late spring frost, and the fly in early summer. The latter is called the Mustard-fly beetle. It is akin to the Turnip-fly, but larger and most destructive to the Mustard plants. There is more danger of attack from fly through the seed being sown late, than from frost in being sown early; but the plant is tender enough to be completely destroyed from sharp late spring frosts. The seed of the white Mustard is sown late because the plant is of a more succulent nature, and therefore more keenly susceptible of frost, but it will mature the crop quicker than the brown.

In sowing the brown Mustard about 4 lb. to 6 lb. of seed per acre is used, about 4 lb. is the average sowing; if the ground is not in good condition, a larger quantity of seed is used. It is drilled in by means of an ordinary Turnip seed drill, and the distance the drills are apart is regulated by the strength and richness of the land, the better the condition of the soil the wider apart are the drills. The distance varies from 14 to 20 inches. Many growers of Mustard prefer to cross-hoe the crop; some will even go to the expense of singling out the plants, as is

done in the case of Turnips, doing this when they are from 2 to 3 inches in height. The advantage of thinning is considerable in the event of a wet season, the plants being subject to attacks of mildew, and especially when growing on good land. The mildew appears to affect the stalks of the plants especially; hence the advantage of thinning. In sowing white Mustard more seed per acre is required than in the case of the brown, because it is larger. The drills are also nearer, averaging from 6 to 10 inches or 12 inches according to the quality of the ground.

As the Mustard plant approaches maturity, and after escaping the ravages of the Mustard-fly, it is subject to the attacks of a larger fly or beetle, commonly called the Mustard-beetle, which will sometimes appear in such quantities as to completely destroy the crop. They attack the leaves and flower both. Their larvæ appears to infest the soil to such an extent that in some districts it is found impossible to grow Mustard at all, hence hundreds of acres which a few years ago produced good crops of Mustard are totally unfitted for the purpose. Perhaps this is one reason why Lincolnshire has come to take the leading position in the growth of Mustard; Cambridgeshire formerly could boast the greatest breadth of crops, now it is Lincolnshire.

The Mustard crop is gathered about the end of July, when the seed-pod—which in the case of the brown is smaller and not so fleshy as in the case of the white—turns to a light brown colour. It is a good plan to allow the plants to stand until the seeds get tolerably matured, as they become bolder in character in consequence, and the haulm can be placed in the stack much more quickly than when cut with too much sap in it. The crop is cut with an ordinary reaping-hook or sickle, and bundles of it are made and tied with its own straw in a peculiar manner, at which the workmen are great adepts, and the haulm sooner dries when tied in this way, should it become wet through rain. The bundles are put into sheaves, the stalks upwards, and the seeds near the ground; if stood upright, as in the case of Wheat, the wind would affect and burst the pods, threshing out and scattering a good portion of the seed. In fine dry weather the crop is soon ready for carting and stacking; it is of great importance that the bundles be perfectly dry before they are stacked; the least moisture from dew or rain causes the seed to coat or turn mouldy in the stack, consequently the market value of the crop is reduced. If the crop be dry, and the stalks in good condition, containing a fair quantity of sap, and judiciously stacked, a small amount of heat will be given forth which assists in improving the colour of the seed. A Mustard stack should never exceed 3 yards in width; it does not matter how long it is. By building a stack narrow the wind blows right through it and regulates any superfluous heat, so that no harm comes from it.

The seed usually remains in the stack until October, then it is threshed out by means of a Wheat threshing machine. One precaution is necessary: so to regulate the "riddles," by means of perforated zinc, when it comes from the machine, to suit the size of the seeds. The seed is then put twice through an ordinary dressing machine, and then it is ready for market. When brown Mustard seed is in good condition and of the best quality it should average something like 16 stones of 14 lb. to the sack of 4 bushels, nett; white seed in good condition gives about 15 stones to the sack. The brown Mustard is almost wholly used for manufacturing purposes, only a small quantity being sown for garden purposes. A mixture of brown and white makes the best Mustard; the brown imparts pungency, the white colour, to the flour.

The "Healtheries" Exhibition of last year afforded opportunity to many persons to become acquainted with the manufacture of Mustard for culinary purposes. The seed is put into stampers and stamped, the object being to break the shell of the seed as little as possible; then it is put through the finest wire and silk sieves. The husks of the seeds are compressed, and oil having the appearance of olive oil is extracted from them, known as oil of Mustard. It is rather heavier than water, of an exceedingly pungent odour, and has sulphur among its essential constituents. After the oil is extracted the refuse is made into a kind of cake, similar to Linseed cake, and which makes a capital fertiliser for Potato and Turnip crops.

The Mustard industry is a very extensive one, and the annual produce of seed is something enormous.

That it is a remunerative crop is undoubted, and perhaps has something to do in keeping some farmers in a state of solvency at a time when agricultural depression is being severely felt. *R. D.*

## SMALL APPLES FOR DESSERT AFTER CHRISTMAS.

SEEING your note as to the condemnation by the Apple Congress Committee of the little dessert Apples in cultivation—with which I thoroughly agree—I send you a list of many which I think growers should discard, not by ruthlessly cutting down established trees, but by grafting better kinds upon them, which in two years' time would begin to fruit, and as this present month is the time to graft now is the season to make a start. I admit that many of these small sorts possess peculiar flavour, and are dear from old association, &c., but sentiment should not stand in the way of progress, and crop and quality should be placed before a "thin sprinkle" and flavour.

### Little Apples Considered too Small for Growers.

Beachamwell	Keddleston Pippin
Court of Wick	Lamb Abbey Pearmain
Coe's Golden Drop	Pearson's Plate
Downton Pippin	Redleaf Russet
Guernsey Pippin	Sam Young
Golden Harvey	Twining's Pippin
Gogar Pippin	Wanstall
Holbert's Victoria	

I am ready to admit that many of this black list can be grown on cordons, &c., to a fair size, and that amateurs may like to grow a few historical sorts, but I venture to say that equal quality can be found in the

### List of Medium-sized Apples which I would commend to the notice of Amateurs and Market Growers.

Adam's Pearmain	Melon
Allen's Everlasting	New Rock Pippin
Brownlee's Russet	Pearmain Claygate
Caraway Russet	"Hubbard's
Court Pendu Plat	Reinette de Bordeaux
Clark's Pippin	"du Canada
Duke of Devonshire	Sturmer Pippin
D'Arcy Spice	Scarlet Nonpareil
Lord Burghley	Wyken Pippin

I purposely omit those kinds with which I am not thoroughly acquainted. Experience teaches me that small fruit is of no value for market sale, as in a cold or wet season they are little better than "scrumpings," as the fruiterers designate them. *George Bunyard, Maidstone.*

## The Rosery.

### TEA ROSE HOUSES.

As one perhaps more fortunate than "Wild Rose," being in the possession of a Tea Rose house, I would like to say that I hardly agree with his assumption that Tea Roses need such special exposure to the air and weather in the summer or autumn as he insists upon for the purpose of ripening the wood. As my house is a span-roof, some 30 feet by 20 feet, and the roof admits of no top air or ventilation of any kind being given, I have had ample experience of the effects of such closeness upon the growth for the past ten years, and have no reason to complain of the results. My Roses are all Teas, the favourite *Maréchal Niel* predominating in extent. All are worked on standard Brier stocks, and planted in outside borders. I have had no reason to complain of mildew, and if there has been evidence of this fungus I have generally found it to arise from fierce easterly or other cold winds playing upon the house and causing piercing currents of air through the laps or any other openings that the wind could find. No doubt chills promote mildew, but ventilation is rather likely to promote draughts than to alleviate them.

Gardeners are now getting wiser with regard to ventilation, and do not so largely favour the ancient notion that so much air must be given at the sides, and so much at the top, simultaneously. That method is a capital promoter of draughts, or cold currents of air, but it has little else to recommend it. "Wild Rose" would perhaps be surprised were he to visit one of our market plant growing establishments to see almost miles of long, low span-houses, without any provision for side-ventilation, and of top-ventilation only very moderate means.



The notion that plants want to live in an eternal condition of atmospheric circulation is an exploded one. In most cases the laps of the glass will give all the needful air, and if the house needs drying then a dry day with the doors open, or a sash or two, will soon put matters right. The recommendation to fumigate Rose-houses early and often is a good one, for it is peculiarly a case in which the old adage as to "A stitch in time saves nine" comes as a forcible illustration.

Just now, for instance, in unheated Rose-houses, and such an one as mine, the buds have started some two or three inches of young shoots, and these present happy hunting grounds for the devastating aphids. A little tobacco-smoke whilst they are yet weakly will tumble them over, and may check the reproduction of myriads. Mildew is a nuisance when it gets into a Rose-house, but greenfly is a horrible pest, spoiling and defiling all the leaves and flowers. Happily the worst visitant may be sooner exterminated than the lesser one, but the latter needs tackling at the outset, if possible, by checking the cold draughts which have given it birth.

As to the subject of wood ripening, I have always found that under glass, where the wood is not exposed to frost and winds, as it is outdoors, that even fresh unripe growth will, if shortened back a little, break and bloom finely. Again, it is a fact that on all the Roses the buds nearest the extremities—and, of course, where the wood is softest—always break the strongest, and produce the finest blooms. It is, of course, a common rule with gardeners to strip vioeries, Peach-houses, &c., late in the summer, and to expose the Vines and Peach trees beneath to the full effects of the weather, but this is more done to secure resting than to promote ripening, which is usually accomplished before the lights are removed. Roses less need this resting, as they are almost perpetual growers, especially under glass. *A. D.*

#### THE ROSE IN THE SOUTH OF IRELAND.

I cannot remember any date when Roses were so forward. I have a few hundreds on a southern aspect, and the shoots are from half an inch to an inch and a half long. If I prune now, the lower-buds I am to depend on will be unduly excited and get damaged by March frosts and withering winds; if I do not prune I see all the sap sucked up to form shoots that are useless, and which will be cut away by-and-bye. But I suppose this is no new dilemma. But my reference to the queen of flowers was more for the purpose of repeating what I said to a friend recently, that owing to the forward state of the growth it is now too late, except in peculiar cases, to transfer Roses this year with any prospect of success in outside beds, &c. *W. F. M.*

#### NEW WINTER GARDEN AT STANCLIFFE.

IN the last week of last year we had the pleasure to give our readers some particulars and a double-page illustration of Sir J. Whitworth's beautiful estate, Stancliffe, near Matlock. In the course of our remarks we spoke of the new winter garden then being erected by Messrs. J. Weeks & Co., of Chelsea; through the kindness of these gentlemen we are now enabled to give a view of this elegant structure (fig. 61). The existence of stone on the estate accounts for the very substantial nature of the building, which would astonish a London builder of the Jerry type.

#### LEUCOIUM VERNUM VAR. CARPATICUM.

MR. BROCKBANK sends us flowers of this variety which correspond with the plate in the *Botanical Magazine*, tab. 1993. The chief distinguishing feature from the common form resides in the yellow tips to the flower segments, the two-flowered scapes being of less consequence as distinguishing marks inasmuch as they occur in the common form figured at p. 341, and repeated from our columns, March 29, 1879, where will be found a brief monograph of the genus by Mr. Baker. The Carpathian variety is a more robust plant with larger flowers than the ordinary form and with a slightly different capsule, but the differences are, in our opinion, not sufficiently important to constitute more than a variety.

#### IRIS STYLOSA (UNGUICULARIS), VAR. ALBA.

A YEAR or more ago, M. Durando, of Algiers (to

known blue Algerian Iris. The gentleman in whose garden near Algiers the plant was growing, very kindly answered my appeal by sending me some roots. These, though doing well, have not as yet

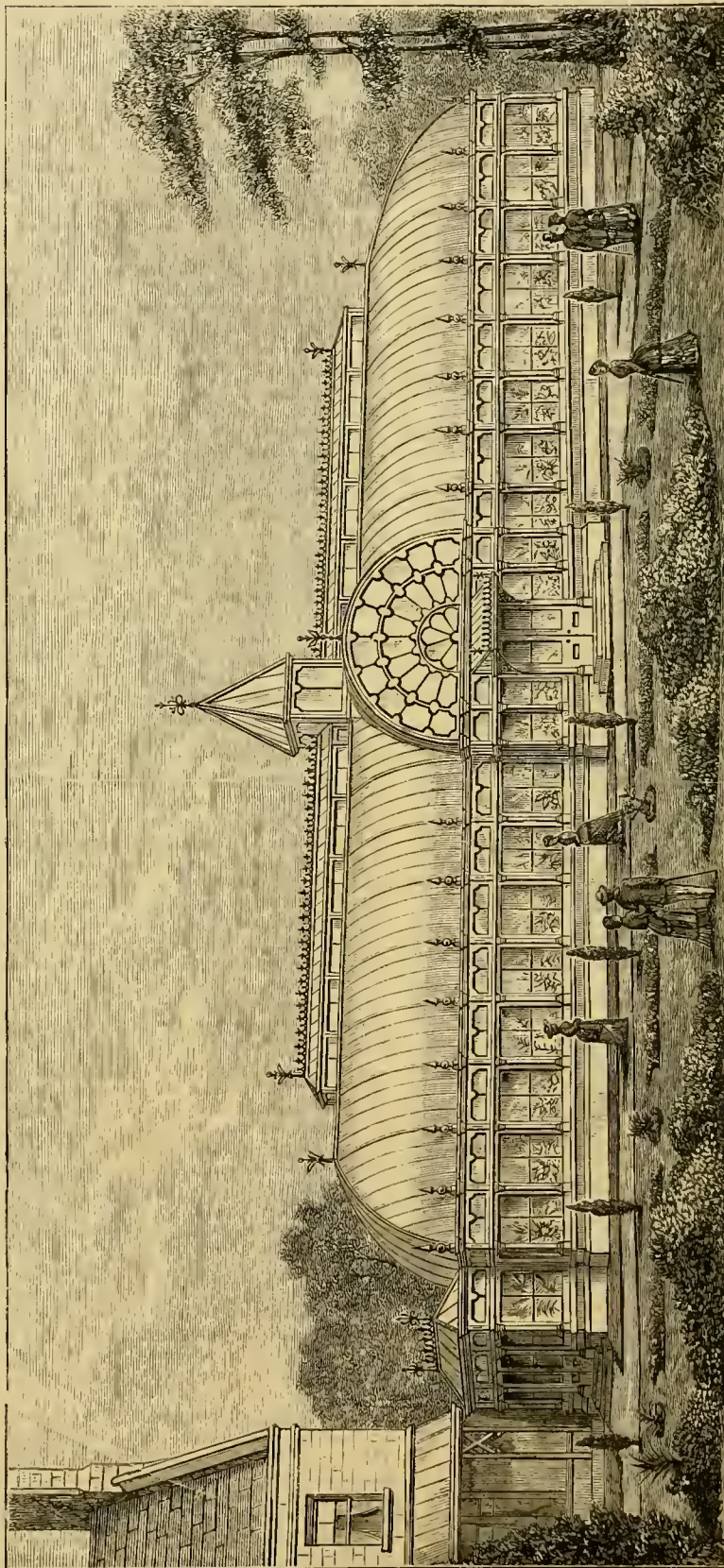


FIG. 61.—SIR J. WHITWORTH'S WINTER GARDEN, STANCLIFFE, NEAR MATLOCK.

whom so many of us are indebted for supplies of Algerian plants, and who by the way sent over the *Narcissus pachybolbos*, which has flowered this spring for the first time in this country for several years), told me of the existence of a white variety of the well

flowered. But a small piece of rhizome which Mr. Frank Miles was so good as to send me towards the end of last year, and which probably came from the source mentioned above, has, to my great surprise, thrown up a bloom, and thus enabled me to state that the



white variety is a welcome addition to our list of winter flowering Irises. The plant has been grown in a pot in a greenhouse, and, as I have just said, was a few months ago a small dry brown morsel, hence the bloom is naturally small and poor, but, except in colour, does not differ from the type. All the blue—or rather blue and red colour (for the hue of the typical plant is that kind of purple often spoken of as lavender or lilac—that is, a purple with an excess of blue over the red, largely diluted or mixed with white)

I am not one of those who think that white is the best of all colours, and, therefore, do not believe that flowers are necessarily improved by losing all their colour; but I must confess that this white Iris is charming in itself, over and above its affording a variety to the type, and one of my friends is very enthusiastic in its praise. Whiteness in this, as in the case of many other white varieties, means defect of or disturbed nutrition, *i.e.*, in a broad sense, sickness. Hence this white variety will probably not be

be put in too dry a place, and the more it is scorched by the summer's sun the more stuff will be drawn into the root, to reappear in winter as purple and fine petals. I mean this coming summer to dry my pot plants right off, as if they were Cape bulbs, and I believe that I shall thereby secure a larger bloom than I do now, though even with moderate resting one plant in a largish pot has given me more than a hundred blooms I think between November and now.

M. Foster.



FIG. 62.—LEUCOIMUM VERNUM. (SEE P. 340.)

—has disappeared, leaving the falls, standards, and styles, a pure white, save for the medium yellow bar or "signal" at the junction of the claw and blade of the fall, and a greenish-yellow tinge over the claws of both the falls and standards. This preservation of the yellow marks, in the total absence of the blue, is interesting, seeing that, in regard to the uses of colour for purposes of fertilisation, the yellow "signal" or "guide" to the insect, is of more importance than the general hue of the flower. Probably the yellow is a solid pigment, and the blue or purple merely coloured cell-fluid.

so vigorous as the type; but this does not necessarily follow, and experience will soon settle the question.

I hear many complaints about *Iris stylosa* not flowering. These arise, I believe, because many people, drawing a hasty broad, false generalisation, from the fact that our common yellow Flag (*I. pseudacorus*) is a water plant, think that all Irises should be grown in swamps. As a matter of fact about 70 or 80 per cent. of the known species of the genus thrive best in dry hot situations. *I. stylosa* is one of these, and it will not bloom as it ought unless it gets a good resting period of drought in the summer. It cannot

## The Arboretum.

### NUTTALLIA CERASIFORMIS.

THIS early spring flowering shrub is a near ally of the genus *Prunus*, but differs conspicuously by having five drupes instead of one to a flower. The flowers are also male, female, or hermaphrodite on different plants, and are also remarkable amongst Roseworts for the regularity in the number of their parts. Each



set of organs consists of five, except the stamens, which are fifteen in three series. The name *Nuttallia* has been applied to two other distinct genera, namely *Callirhoe*, belonging to the Mallow family; and *Nemopanthes*, belonging to the Holly order—all consisting of North American plants. There is only one species of *Nuttallia* as now recognised, and its great value horticulturally lies in its early blooming habit, when few or none other shrubs of the same character enliven the shrubberies. The white flowers are borne in pendulous racemes, and the leaves, being produced at the same time, give the plant a handsome appearance. It is liable to suffer from spring frosts. A large plant near the main entrance to the gardens at Kew is annually very conspicuous about this time. A figure was given in our columns for March 10, 1883, p. 309.

#### ARACARIAS.

Having read with much interest the articles on large *Araucarias* in your paper, I would like to bring to your notice some fine specimens there are at Mr. G. W. Piper's, Piltown Nurseries, Sussex (for many years carried on by Messrs. J. Mitchell & Son). In a short avenue of this noble Chili Pine there is one which in 1854 measured—height, 50 feet; circumference of branches, 80 feet; circumference of trunk, 9½ feet, and perfect in every respect. Of course there is a proportionate increase in the measurements now. There are many more splendid plants from 35 to 40 feet high now, and most beautifully feathered, in the same avenue. I believe the reason that one is a much finer plant than the rest is that some years ago there were several cartloads of soil taken from its roots and replaced with maiden loam; it was intended to do the same with all. There are a fine lot of catkins and cones on them now, some cones being about 8 inches in diameter. They have matured many cones, which have produced a good healthy stock of plants. I have never heard of any other instance of seedlings from home-grown cones, and would be pleased to learn if any of your correspondents have noticed such cases. There are a few specimens that, like "R. McK.'s," are about equal in height and diameter. A. P.

## FORESTRY.

#### GENERAL WORK.

THE weather of the past month, although favourable for the general work of the estate, has been of a very stormy character, particularly the latter part of it. Numbers of trees have been uprooted, branches twisted and torn, and recent transplants half blown over. Attention should at once be directed to the setting of matters right, trees cut up and removed, branches neatly trimmed, and stakes or other supports placed to heeled-over plants.

Hurdles and other guards round park trees will also require attention, care being taken to keep them both high enough and wide enough in order to secure their safety, more especially where young horses are allowed to roam at will. The planting of hedges, although usually left over till spring, should be finished at once, and all gaps in old fences made up without delay. Keep woodland drains clean and in good working order, also attend to those alongside drives and roads, as, during the present unsettled weather, they are apt to get choked up.

Repair roads, drives, and walks; attend to shrubberies, and push forward all work likely to interrupt "bark stripping," which, we presume, will be early in hand this season. A. D. Webster.

## Orchid Notes and Gleanings.

#### ORCHIDS AT FERNSIDE, BICKLEY.

THE collection of Orchids here, the property of H. M. Pullett, Esq., is not a large one, but very select, and for its extent the quantity of flowers to be seen is very surprising. The cream of the collection is contained in a span-roofed house in two divisions. One half of it is set apart for those requiring a Cattleya-house temperature, and the other portion is for cool Orchids. For winter and the early spring months there are few more showy subjects than

*Lycaste Skinneri*. They are grown here in the Cattleya-house, and the very rare as well as chaste white variety was in flower, besides some other well marked forms. This Orchid is usually classed as a cool-house species, but I must say that as far as my own experience goes it makes the best growth in the Cattleya-house; and also flowers earlier, which is a consideration. This species is most interesting, from the fact that it was one of the first subjected to quite cool-house treatment, and led the way for one of the greatest revolutions in plant culture ever made, and yet it is one not specially adapted for the cool-house. The flowers are easily injured by a close moist atmosphere—it causes them to spot. Here is also a handsome plant of *Ceologyne cristata alba*, with three spikes; on one of them there are five flowers. This is a very rare plant, doubtless, and consequently very valuable; but if I were to make my choice of the three varieties without any regard to their commercial value I should choose the one with a lemon blotch on the lip, although it must be admitted that the pure white variety would be more valuable for cut flowers in some instances. The *Treotham* variety, with the orange blotch on the lip, is a well-marked form of the type, not only in the greater length of its flower-spikes, but also in the form of the pseudobulbs. *Cattleya Percivaliana* is yet in flower, and in two good forms; it is never of large size, but always conspicuous in the rich crimson and gold of the labellum. *Calanthe Regnerii* was also in flower, and is very useful to flower later than the ordinary forms of *C. vestita*. It is tinged with red in the centre, and a useful companion to *C. nivalis*, flowering at the same time. In the cool-house there are many rare, beautiful, and valuable specimens. The attention is arrested by a charming little specimen in flower of the Peruvian *Oncidium Phalanopsis*; the flowers are large, white, with rich purplish spots and blotches in the centre. Here also is the finest form of *Odontoglossum blandum* I have yet seen. It had two spikes of large flowers for this variety, densely marked with maroon-crimson spots. The flowers have also a very delicate perfume. *O. Sanderianum* is also in flower, but it is not one that will ever be popular: even the best forms of it are not superior to the best of *O. constrictum*. *Oncidium dasytle* is always conspicuous by the dark bee-like form in the centre of the flower; in other respects it is allied to *O. concolor*, although the flowers are different in form and colour. There is a splendid plant of *Odontoglossum elegans*, a very rare plant, but the flowers are not likely to be seen (although it showed two strong spikes), owing to the fondness of slugs for the succulent growths. Slugs are great pests in a collection of choice Orchids, and when they are present the utmost vigilance on the part of the cultivator is required, and even then the mischief may be done in a night. There are also two good plants of *O. Hallii magnificum*, certainly the finest form of this species yet seen. They are both showing spikes. *O. Wilckeanum* is showing three spikes; the best forms of this are very expensive, because of their rarity, but they are also very handsome and distinct, with the clear yellow ground and brownish markings. *O. crispum* is showing numerous strong and good spikes. In the moderate-sized house 280 spikes of *Odontoglossums* in flower, or in course of development, could be counted. There is not much bloom in the warmest house, but a good spike of *Vanda Cathcartii* is opening its flowers; and amongst *Phalanopsis* there is a handsome branched spike of *P. Stuartiana*, and *P. speciosa* is also in full flower. F. Douglas.

#### LÆLIA ANCEPS SCHRODERIANA, n. var.

Although we shrink at the multitude of fresh varieties of *Lælia anceps*, it is a great satisfaction to see what would appear to be a quite distinct race. To begin with the plant, it has colossal dimensions, a very strong stem, rather tetraginous, deeply furrowed bulbs, 0.17 m. in length, 0.1 m. in circumference. The upper joint is half way up the stem. The leaves have the average dimensions, in length, of 0.24 to 0.06 in breadth in the middle, and are exceedingly stiff. I write this from a magnificent living plant. Further there are before me twenty-seven brilliant dried lips and a dried flower, whose column has been cut out with great cruelty. The colours are purest white; the disc between the lateral laciniae is orange, and the projecting keels running in the base of mid-lacinia are even deeper orange. There are 3—5 crimson-purple longitudinal and several forked lines

radiating outwards. So much for the colours. The complete flower would appear to surpass the dimensions of *Lælia anceps Dawsoni*. The petals seen are remarkably broad. The great merit of the plant consists in the lip, which is broad, with short, blunt, nearly rectangular, side-laciniae. The mid-lacinia is very broad, blunt, emarginate, and the lip is quite novel to me. The beauty of the remarkable white flower is admirably enhanced by that of the large square and flat lip. This very ornamental Orchid bears the name of one of our most excellent Orchidists, Baron Schroder, and it gives me great pleasure to attach the Baron's name to such a glorious *Lælia*. It is one of the most recent and most brilliant introductions of Mr. F. Sander. H. G. Rehb. f.

## The Flower Garden.

THE shrubberies should have every attention at this period of the year, and will require the utmost skill and discrimination in removing all useless and unsightly subjects, and afterwards carefully pruning into form the remaining plants. This kind of work should be undertaken at once, and should be performed only by the most careful workmen. All straight lines, unless there is an object in having them, should be avoided, and in pruning off shoots the best tools for this purpose are a strong knife or branch-pruning shears, with a sharp saw for removing the larger branches; but care should be taken to avoid the use of the shears in a way that would give the appearance of a clipped hedge to plants in a shrubbery. Where shrubberies have been long neglected it is impossible that they can be made as perfect as if they had been carefully attended to from the first, but much may be done to improve them. All permanent trees and shrubs should be planted at a distance from the walks, and this distance should be according to the size the trees or shrubs are likely to attain. As nurse plants, or to fill up the groups and borders, any common free-grown plants that could be cut away when no longer needed may be planted, avoiding the crowding of the trees and shrubs that are intended to be permanent. Attention should be paid to the proper staking and tying of all newly planted subjects. The shrubbery should be thoroughly cleaned of weeds and rubbish, and afterwards the ground should be carefully forked between.

The grass lawns and tennis-ground should be carefully looked to. Where moss exists in any bulk in the turf find the best treatment is to give a mixture of equal parts of lime and wood-ashes, with 10 lb. of phospho-guano to the bushel, well mixed and sown over the lawn, and if used with a good mixture of grass seed will greatly improve it; this should be done at once, and the turf well rolled every week previous to mowing, and at other times if found requisite. Wm. Smythe, *The Gardens, Basing Park, Alton*.

## Plants and their Culture.

#### FERNS IN HANGING BASKETS.

THIS is an excellent way in which to grow many kinds both in the stove and warm greenhouse. The appearance of plant-houses that are lofty is greatly enhanced by the use of Ferns grown in baskets. Medium-sized baskets of about 1 foot in diameter will be found very useful, and the planter these are made, so much the better for their future occupants. A narrow margin, turned over at the top, is an improvement, but no ornamental work is needed at the bottom part. The latter will be found more of an impediment than otherwise, especially so when the Fern in question is turned out of one basket to be placed into another. Ferns under this mode of culture will continue in good health for several years if a little fresh soil is added at intervals, and by careful attention to watering. Several of the *Adiantums* are well adapted for basket culture, particularly those whose rhizomes ramble through the soil and cover the sides of the basket. *A. amabile* is one of the best of



this type, it will quickly cover the sides, producing a dense mass of pale green fronds. When it is necessary to renovate such as these, the central portion of the soil, with that part of the plant on the top of the basket can be removed entirely, scooping it out, as it were, and filling in with fresh soil, and afterwards replanting a sufficient amount of Fern to cover the surface fairly well. That part of the Fern which was left at the sides will soon take to the new soil that is placed within its reach. A. cuneatum also makes an excellent basket Fern, developing fronds of more than usual size and beauty. These, too, are excellent for using in a cut state by reason of their greater durability, owing, no doubt, to the extra amount of air in circulation around them. The smaller growing forms of Davallias are most useful for basket culture, such, for instance, as D. bullata, D. dissecta, D. elegans, and D. Mariessii, D. canariensis is also an excellent species both in this way and for culture in rustic pottery, or on pieces of virgin cork in the way of a raft. Cheilanthes elegans is also very tractable when suspended in a basket, and grown in a moderately dry atmosphere. Platycerium alcicorne is also strongly to be recommended for use in this way, being most accommodating to its surroundings. P. grande had, however, better not be tried in this fashion, but rather give it a position against a wall in a warm house. Of the Ferns with long fronds preference should be given to the Goniophlebiums, particularly G. subauriculatum, which is one of the handsomest Ferns in its way that can be grown. It will succeed very well in a house that is kept at about 50° by night, or even occasionally dropping as low as 45° will not injure it. Under these conditions the fronds will not be of such a deep green colour, neither will they extend themselves to such a length as when grown in a warmer house, but nevertheless it makes a beautiful object in a lofty structure. For a large basket in a suitable position Woodwardia radicans is a noble Fern, whilst on the other hand for a small basket, with sufficient suspending room whereby its long narrow fronds with a young plant generally to be found at the extremity of each is Asplenium longissimum, which is not easily surpassed. All Ferns in baskets should receive attention without delay, renovating the soil in each case even if but a little. The Davallias will require their rhizomes to be regulated and pegged to the sides of the baskets; this will be a capital opportunity to work in a little fibrous peat and sphagnum moss, to which they will quickly root when brought in contact. As growth proceeds the supply of water must be increased in each case, having due regard to the genera that is being treated upon. The Adiantums and also the Cheilanthes will require a greater quantity than the Davallias. Ferns in baskets last in good condition for a greater length of time than when in pots, caused, no doubt, by the larger amount of plant food within their reach, and their perfect drainage. *J. Hudson, Gunnersbury House.*

## FRUITS UNDER GLASS.

### STRAWBERRIES.

At this season it is not possible to provide more suitable places for forcing Strawberry plants in pots than can be had on shelves which are placed near the roof and ventilators of vineries or peacheries and similar houses now at work, but, alas! at many places unfortunately, prudence forbids the practice, by reason of the imminent peril of introducing with the plants that terrible pest the red-spider. Nevertheless, wherever it can safely be done, it is an immense advantage to be able to utilise places which for the purpose required cannot be surpassed.

### SUCCESSIONAL PLANTS

will at this period be coming into flower almost every day, and will, with a moderate supply of fresh air, set very freely. As soon as the process is complete the fruit should be thinned, and here it may not be amiss to remark how universally fine fruit is esteemed to that of medium character, therefore in this matter quality should be considered as being preferable to quantity. Early varieties, as Vicomtesse Héricart de Thury, Keens' Seedling, or Black Prince, will carry a dozen each well; President, Sir Joseph Paxton, or Sir Charles Napier about eight or nine on each plant; and for larger and later kinds, including James Veitch

and others, six fruits will be enough for every plant. If necessary the ripening of the fruit can be accelerated considerably by putting the plants after the fruit is set into Pine pits or others having a high temperature, where they should be placed in close proximity to the ventilators, which should be kept open a little way constantly, otherwise the lack of air will make the fruit very insipid and worthless in point of quality. From the flowering period until the fruit is ripe is a time when of all others the plants demand more attention. Any lack of water occurring now is more or less detrimental to excellence.

To provide against contingencies in this way it is a good plan to have sides 2 inches high fixed on the shelves, so as to form troughs to be filled with rich materials, which will induce root-action and sustain the plants if they should ever become at all dry. Gross feeding plants like these, especially when grown with such a restricted quantity of nutriment, will want stimulating by manures, which should be regularly applied in a much diluted form. It generally happens that these plants are not provided with a house to themselves, consequently they have to be accommodated where there is room and the conditions most suited to their requirements for the time being, and treated as favourably as the circumstances will admit of. In any case the plants must be well syrioged overhead twice daily, and be put where they can get all the air possible. Where a Strawberry-house exists the treatment most suitable to the subject only should be enforced which consists in keeping up a night temperature of 55° and 65° in the daytime, allowing 10° or 15° higher under sunshine, and at all times a genial and invigorating atmospheric state. *G. T. Miles, Wycombe Abbey.*

## The Hardy Fruit Garden.

### DWARF APPLE TREES

MAY be planted any time during the present month with every prospect of success. Last March I planted a number of trees on the Paradise stock, and many of them bore from ten to twelve fruit the same season, of good average size. I think the most profitable way of growing Apple trees is to plant small bush trees grafted on the Paradise stock two or three years grafted. These may be planted 6 feet apart each way. This would allow 1210 trees per acre, which is ample space for them to grow; and while the trees are young salads and other small growing vegetables might be grown between the rows. I should strongly advise every one who has the means to grow a few hundreds of these pretty bush trees; they occupy no more space than an ordinary Currant or Gooseberry bush, and the produce will be most satisfactory with only ordinary care and attention. In planting these bush trees my practice is to keep the roots as near the surface as possible, and the first season to heavily mulch with rotten manure; if this is attended to very little watering will be required even should the season prove dry. Our trees, although planted the end of March, were never watered, and yet last season was remarkably dry. Every tree planted is now full of blossom-buds, and should the season prove favourable we may hope for a grand crop. The best situation for forming a plantation is an open exposure, facing south if possible, and sheltered from the north and east winds. Our largest and best coloured fruit was grown on trees of this description for some years. I would strongly advise those who have not tried this style of growing Apples to begin at once, and others who have already got quarters of this description of trees I am sure will endorse my recommendation. I am fully convinced that when the soil and situation are suitable this plan of growing Apple trees could be adopted with a fair margin of profit. For private gardens they make a fine feature when planted altogether in one quarter, the same as Currants and Gooseberries. One great advantage of this style of growing Apples is that the high winds are not so liable to blow the best and finest fruit down before it is ripe, as is often the case with large orchard trees. Another great benefit is their coming into bearing immediately they are planted. Such varieties as Blenheim Pippin, which as a rule takes years to come into bearing, will, when grafted on the Paradise stock, fruit the first year after planting, and produce fine bright handsome fruit of good size.

### SORTS TO PLANT.

I have planted a great number of varieties of Apples on the Paradise stock, but the following are the freest bearing here, and they are again covered with bloom-buds:—Irish Peach, Cobham, Oslin, Jefferson's Ringer, Worcester Pearmain, Mr. Gladstone, Court of Wick, Kerry Pippin, Emperor Napoleon, Stamford Pippin, Besspool, Lord Burghley, Hoary Morning, Thorne Pippin, Summer Golden Pippin, Rymer, Ribston Pippin, Washington, Margaret, Lemon Pippin, Annie Elizabeth, Scarlet Nonpareil, Yellow Ingestre, Cellini, Blenheim Pippin, Cockle Pippin, Dumelow's Seedling, Rhode Island Greening, Lady Henniker, Early Harvest, Cox's Orange Pippin, Lane's Prince Albert, Paradise Pippin, Galloway Pippin, Old Nonpareil, Lamb Abbey Pearmain, Peasgood's Nonsuch. We grow many more varieties, but the above are all on the Paradise stock, and are showing abundance of fruit-buds this season. Were I confined to a limited space of ground I should only grow a very few varieties, and of them I should grow a number of trees of each. The following I consider the best six:—Dessert: Cox's Orange Pippin, Ribston Pippin, and Mr. Gladstone; very early—cooking: Dumelow's Seedling, Lane's Prince Albert, and Blenheim Orange.

### STRAWBERRY BEDS.

Beds of Strawberries may still be planted, although I much prefer early autumn planting. The first batch of early forced plants should be saved for planting out for autumn fruiting. They should be placed in a cold frame as soon as the fruit has been gathered, and gradually hardened off, then planted out on a warm south border. Very early varieties are the best for this purpose, such as the old Black Prince, Keens' Seedling, and Vicomtesse Héricart de Thury, which is perhaps the best of all for this purpose. If planted in a warm position and well watered in dry weather they will produce an excellent crop of fruit, after the regular beds are finished. Permanent beds should now be mulched with long manure, by doing so early the rains will wash it clean for the fruit and so save using straw. It also saves time in the busy season by giving attention to such work thus early. *J. Smith, Mentmore, Bucks.*

## The Kitchen Garden.

### PEAS, ARTICHOKEs, RHUBARB, ONIONS.

A STOCK of pea-sticks should be held in readiness to plant to tall-growing varieties. Draw ridges of soil to any Peas well above-ground; they afford a little shelter from biting cold winds, which injure Peas much more than frost. In some places it will be found difficult to keep small birds, mice, rats, &c., from doing much mischief. Guards made of fine wire-netting are most useful preventives against small birds, which attack the Peas the moment they are above-ground. The guards can be moved from crop to crop as required. Protecting material may now be removed from Globe Artichokes; also remove any weeds growing between them, and prick over the ground, but not deeper than a few inches. Any manure to spare may be usefully employed as a mulching between the plants. Keep a succession of Rhubarb and Seakale covered, so that a break in the regular supply does not occur. Any transplanting of autumn-sown Onions should be done this month. Before planting make the soil thoroughly firm with the roller; loose soil produces ill-shaped bulbs.

### GENERAL WORK.

Use the hoe occasionally between all growing crops when the soil works freely, and during sunny weather. The importance of a free use of the hoe during spring months cannot be over-estimated; numbers of weeds soon spring up, and should be prevented from shedding seed if possible. Through other pressing matters this work is often neglected until later on in the early summer it almost becomes unmanageable, especially if showery weather should be frequent, and ultimately resulting in the kitchen garden presenting an unsightly appearance throughout the whole of the summer, while the crops suffer in consequence. [Any Parsnip roots still remaining in the soil should be lifted, shoots removed, and stored in a cellar or cool shed. Beet-root will require looking over frequently to remove any growths, which, if allowed to remain, will render the roots deficient in colour when cooked. Proceed with the planting of second early Potatoes. There are various methods of doing this. For small garden plots we take out a separate hole for each set with a small spade, and consider it as expeditious as drawing drills. The system which is most to be avoided is dibble planting. *G. W. Richards, Somerley Gardens Ringwood, Hants.*



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Mar. 16	Sale of the Collection of Orchids and other Plants formed by J. Coleman, Esq., Stoke Park, Slough, by Mr. Stevens (two days).
TUESDAY,	Mar. 17	Royal Botanic Society of Manchester Horticultural Show (two days). Sale of Imported Orchids, at Protheroe & Morris' Rooms. Sale of Flowering Orchids, at Stevens' Rooms; also of Hardy Plants and Bulbs.
WEDNESDAY,	Mar. 18	Sale of <i>Lilium auratum</i> , Plants, and Shrubs, at Protheroe & Morris' Rooms. Clearance Sale of Orchids, Plants, and Utensils, at the Woodlands, Clapham, by Protheroe & Morris.
THURSDAY,	Mar. 19	Linnean Society meeting. Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY,	Mar. 20	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	Mar. 21	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

THE outburst of interest in all that concerns the DAFFODIL and its allies, which formed so remarkable a feature of the horticultural proceedings of last year, has not subsided, as some thought it would do—on the contrary, the interest seems to intensify. There is an earnestness of purpose about the worshippers of the new cult, and a desire to get to the bottom of things, which are gratifying to those who know how much intellectual enjoyment is lost by those who content themselves simply with the sensuous delights which these lovely flowers furnish so abundantly. Well meaning people are sometimes apt to quote WORDSWORTH'S disparaging remarks on those who peep and botanise on hallowed spots, quite forgetting that no objection could be raised, even if it were conducted in a proper spirit. Such people quote as much or as little as they like—wrench it from the context to serve their shallow purpose for the moment, and hug themselves complacently at the notion of their superior sensibility. Let them! Other people have read WORDSWORTH too, and remember a certain PETER BELL, whose understanding was not of a high order. At any rate, that the interest in the Daffodil did not evaporate in last year's Congress was shown by the large representative gathering that took place on Tuesday last in the Lindley Library of the Royal Horticultural Society. Members appeared from Somersetshire, Lancashire, and Cornwall; Holland sent its representative, the Home Counties contributed their quota; the monographer of the Daffodils, Mr. BAKER, skilful cultivators, travellers familiar with Mexican highlands and Arabian deserts, met to discuss the humble Daffodil. A lady graced the room by her presence. All this is gratifying, as showing the spread of an intelligent love of plants for their own sakes, and not merely for their beauty, which in this case is particularly skin-deep. It is satisfactory also as bringing around the Horticultural Society a class of amateurs who have too long kept aloof from the Society, fearful perhaps that their own special hobby would not be looked on indulgently by the parent Society. Again, it is gratifying to find the Society showing a disposition to become more catholic and cosmopolitan, inclined to advance the interests of all branches of horticulture, and all classes of horticulturists. The Apple Congress and the Daffodil Congress were both great successes, and we have no doubt have done more to win favourable opinions from the amateurs than any number of "fashionable flower shows." This year, we doubt not, the Orchid Conference will appeal forcibly to a large constituency of whom only a few at present take interest in the work of the Society. If some people look upon Orchids and their cultivators as aristocrats, beyond the pale of humbler folk, we doubt not the Conference will undeceive them; and even if their fears were well founded, which they are not, Daffodils and Primroses (which latter we believe are to be taken in hand next year) are surely flowers that the humblest cottager may grow. As to any aristocracy in flowers, we protest against the

assumption. We may have our preferences for this or for that, but the flowers are perfect after their kind, as marvellously adapted to the conditions under which they live as any other of GOD'S creatures.

To revert to the Daffodil meeting, what could there be found to do? Well, the Conference of last year settled that question—this year's work is but the continuation of the last. Our readers are familiar with the controversy that has arisen as to the alleged mutation under cultivation of single into double Daffodils. Some say Yes—others No: like the rest of the Narcissophiles we have our own opinion. But opinions are not facts, and the object of the meeting in question was to appoint a sub-committee to collect evidence and sift it—the latter perhaps the more important matter, as evidence of a kind is already plentiful. A certain number of bulbs carefully verified and attested as having borne single flowers, are to be planted at Chiswick and at Kew under various conditions and varying circumstances, and the results are to be noted. Similar experiments will be made by growers in various parts of the country, but the impossibility of supervising these latter, and of eliminating all occasion for cavil, will render these experiments less decisive than those which can be supervised by the sub-committee.

The object is not only to test the correctness of the assertion, about which there is little reason for doubt, but to ascertain the why and wherefore of the process. If the committee can come to any definite result on this point a very important question will, in so far, be solved—the cause of the production of double flowers generally—a matter of no little moment from the point of view of science and of practice.

Meanwhile, as was pointed out at the meeting, there are half a dozen or more modes of doubling in the case of Daffodils, which it is necessary to distinguish, because the causes likely to produce some of them are likely to be antagonistic to others, while hereditary tendencies may be stronger than either. To simplify matters from this point of view, and to arrive at some conclusion as to what we really mean when we talk of double Daffodils, Dr. MASTERS was requested to draw up a brief account of the various ways in which Daffodil flowers become double, and this will shortly be done. Gentlemen having a specially ugly Daffodil are requested to send a specimen to the Editor at this office for *post mortem* examination and report, for, strange to say, the interest of these flowers is sometimes inversely proportionate to their beauty. But here personal opinion creeps in. Some people prefer the doubles to the singles—the true botanist, for different reasons, enjoys both.

— PINUS THUNBERGII.—The specimen we figure was obtained from the Royal Gardens, Kew, through the courtesy of Sir JOSEPH HOOKER. It is the *P. Massoniana* of some collections, but not of LAMBERT. It is one of the commonest of all the Japanese Pines, and is used by that ingenious people in a variety of ways. Usually the cones are solitary, or in pairs; but occasionally, as in the instance before us (fig. 63), they are in clusters. The tree is sufficiently known botanically, and its description (under the name *Massoniana*) is given in the ordinary text-books, or under its proper name, by PARLATORE, in *DE CANDOLLES' Prodromus*, xvi., fasc. 2, p. 388. All that we need add are a few notes taken from the living trees at Pampisford and Kew. The bark of the old trunk is cinnamon-brown, the young shoots thick, cylindrical, grayish-green, devoid of foliage for some distance above the base. The buds are oblong, conic, covered with silky white lacerated scales. The male catkins are clustered, oblong, cylindric, orange in colour, about half-an-inch long, and with the anther-crests sub-orbicular, nearly entire. The cross-section of the leaf reveals a boat-shaped outline with a layer of hypoderm cells, and two or more resin canals immersed in the cellular tissue of the leaf, each surrounded by strengthening

cells. An interesting account of this Pine is given in VEITCH'S *Manual of the Conifera*, p. 149, wherein are contained numerous details as to the tricks of cultivation practised by the Japanese. The wood is largely used for constructional purposes. In this country no observations, so far as we know, have been made as to the quality of the timber, but the tree has one advantage in not expanding its buds till late in the spring—at least it is so at Kew.

— GLASGOW.—The Chair of Botany in the University of Glasgow is at last declared vacant by the resignation of Dr. BAYLEY-BALFOUR. The circumstances which have caused the delay in this announcement are well known in the scientific world, and we express the hope that, now the vacancy is officially intimated, there will be no lack of candidates and that a really good appointment will be made.

— PROFESSOR RODIGAS OF GHENT.—The French Government have recently recognised the merits of Prof. RODIGAS, in consideration of the services he has rendered, not alone to Belgian horticulture, but to horticulture generally. We understand that a public *fête* will be given in his honour in May next, at which time he will have completed the twenty-fifth year of his career as Professor in the School of Horticulture and Botany. We are happy to offer our congratulations, not only for being thus honoured in France, but also on his being made a Chevalier de l'Ordre de Leopold.

— LINNEAN SOCIETY OF LONDON.—At the meeting on March 19, at 8 P.M., papers will be read on the following subjects:—1. "New Genera and Species of Hydroids from H. GATTY'S collection;" Professor ALLMAN (postponed from March 5). 2. "Plants of Moresby, Basilisk, O'Neill, and Margaret Islands, South-east New Guinea;" by WM. E. ARMIT.

— THE LANGUAGE OF ROSES.—M. A. MYARD proposes, in the *Journal des Roses*, to make the garden varieties of Rose the symbols of various sentiments and attributes. Aimée Vibert is a symbol of Virginity; Alphonse Karr, of Sympathy; Captain Christy, of Triumph; Géant des Batailles, of Glory; Gloire de Dijon, of Pleasure; Maréchal Niel, of Patriotism, and so on. We think we have said enough. Sentiment is very nice sometimes, but—

— THE "BOTANICAL MAGAZINE."—The number for the present month contains coloured figures of:—

*Vitis pterophora*, t. 6803, the singular and very handsome tropical Vine better known as *V. gonyolodes*, and figured as such in our columns, vol. xix., p. 52, fig. 8.

*Dioscorea crinita*, t. 6804, is a very elegant climber, with delicate pale green translucent foliage, and copious snow-white pendulous racemes. The leaves are stalked palmately, five-foliolate; the leaflets oblanceolate, stalked, softly pubescent. Sir JOSEPH HOOKER, who describes it, speaks of it as one of the most elegant conceivable pot-plants. It is a native of Natal.

*Solidago Drummondii*, t. 6805, is a rather weedy-looking herbaceous perennial, which has the advantage of flowering late in the autumn.

*Neviusia alabamensis*, t. 6806.—A handsome deciduous shrub, with ovate-stalked puberulous leaves, and panicles of snow-white feathery blossoms, allied to those of *Rubus*, but differing in several particulars, especially in the absence of petals, the feathery look before mentioned being due to the numerous white stamens. It flowered at Kew against a wall in 1883, but Sir JOSEPH HOOKER doubts its being hardy.

*Citrus medica* var. *Riversi*, t. 6807.—This is the pretty little fruit figured in our columns, vol. v., p. 690, f. 123, under the name of *Rivers' Bijou Lemon*, but which Sir JOSEPH HOOKER considers to be a Lime—a variety of *C. medica*. Those interested in this question should consult the very interesting notice of the Limes given in a former volume of the *Magazine*, t. 6745.

— ROYAL METEOROLOGICAL SOCIETY.—At the ordinary meeting of this Society, to be held by kind permission of the Council of the Institution of Civil Engineers at 25, Great George Street, Westminster, on Wednesday, the 18th inst., at 7 P.M., the following papers will be read:—"Notes on Sunshine Records," by ROBERT H. SCOTT, M.A., F.R.S.,





FIG. 63.—*PINUS THUNBERGII*: FORM WITH NUMEROUS CONES. (SEE P. 344.)



President. "Results of Meteorological Observations made at San Paulo, Brazil, 1879-1883," by the late HENRY B. JOYNER, M. Inst. C.E., F.R. Met. Soc. After the reading of these papers the meeting will be adjourned, in order to afford the Fellows and their friends an opportunity of inspecting the exhibition of sunshine recorders and radiation instruments, and of such new instruments as have been invented and first constructed since the last exhibition. The exhibition will remain open till Thursday evening the 19th inst.

— *BIGNONIA VENUSTA*.—With few exceptions this is the most beautiful climber grown, and should always find a place in every warm greenhouse. The flowers are trumpet-shaped, and deep crimson in colour, the leaflets being oblong-ovate and acuminate. It is an extremely abundant bloomer, lasting many weeks in perfection.

— *BEHNIA RETICULATA*.—There is a figure of this plant in the *Botanical Magazine*, t. 5638, under the name of *Dictyopsis Thunbergii*, of HARVEY. It is quite distinct from and by no means to be confounded with *Myrsiphyllum asparagoides* of gardens, a slender climber frequently grown for the beauty of its long graceful sprays. It is encumbered with a perplexing synonymy, and is moreover a true species of *Asparagus* with flattened leaf-like branches. *Behnia*, on the other hand, has large ovate deep green shining leaves, beautifully veined and reticulated, forcibly reminding one of the cladodes of *Ruscus androgynus* on a reduced scale. The stems are very much ramified upwards, bearing numerous oblong or shortly cylindrical flowers in somewhat cymose racemes. These flowers are small, greenish-yellow, and not particularly attractive, but taking into consideration their agreeable fragrance and the beautiful background of shining foliage, the plant becomes a desirable addition to a well kept garden. It is a native of S. Africa, and may be seen trained to the rafters in the Succulent-house at Kew.

— "FAIR DAFFODILS."—We refrain from quoting the rest for fear so delicate verse should become too hackneyed. Few people seem to realise how often HERRICK mentions Daffodils, and how fond he was of them. He laments in one place that they did not form part of the cradle of the "Kingly Stranger" that appeared on earth on Christmas Day.

"Fragrant posies  
Of Daffodils and Roses,"

would, he intimates, have formed a better resting-place than the "homely manger." In another place he takes it as the emblem of his own career:—

"When a Daffodil I see  
Hanging down his head t'wards me  
Guess I may what I must be:  
First, I shall decline my head;  
Secondly, I shall be dead;  
Lastly, safely buried."

— THE PHYLLOXERA LAWS.—For the guidance of nurserymen and seedsmen we append the following paragraphs of these regulations, kindly forwarded to us by Messrs. PUTZ & ROES, of Erfurt. They are those which are specially directed against plants imported from those countries that have not signed the Phylloxera Convention—England, the United States of America, and Australia. Rooted plants only are mentioned—dry roots are not interfered with.

(Extract Copy.)—"BERLIN, June 26, 1884.—In reply to your letter of the 2d inst. concerning the import of rooted plants from territories not included in the International Phylloxera Treaty of November 3, 1881, I beg to say that I am not competent to effect an alteration of section 2 of the imperial decree of July 4, 1883, nor do I recognise the necessity for any such alteration, as section 5 of the same decree authorises the Imperial Chancellor to allow exceptions from the said section 2.

"In the majority of the numerous cases of applications for permission of the import of plants from the territories in question, and especially from the Tropics, the exception has been granted, observing particular care, and after examination of the plants on the imperial frontier. This course will be followed as far as possible also in future. The exception, however, cannot be granted with reference to plants from countries where the Phylloxera is known to exist, but where measures have not been instituted to prevent the insect spreading in the interior of the respective countries, or by international traffic. This holds good particularly for the

United States of America—the home of the Phylloxera, for England, and for Australia."

The paragraphs which are applicable are:—

"Section 2.—The import of rooted plants from territories not included in the International Phylloxera Treaty over the imperial frontier is prohibited."

"Section 5(a).—The Reichskanzler is authorised to allow exceptions to the contents of section 2."

— *LIVISTONA CHINENSIS*.—This, one of the most commonly grown Palms, is popularly known as *Latania borbonica*, and is figured as such in JACQUIN'S *Fragmenta Botanica*, t. 11, f. 1. Although not attaining the stately dimensions of its congener, *L. australis*, it is a bolder and even more handsome tree than the latter when both are of equal size. A noble specimen, that bids fair in a few years to outgrow the space at command, is now ripening an enormous crop of fruit in the Palm-house at Kew. It is taller than *Sabal umbraculifera*, so frequently mentioned as being in fruit there, but has proportionately smaller leaves and diameter of stem. The fruit-bearing spadices are erect during the flowering period, and for some time afterwards, but as the fruit swells and progresses towards maturity they become pendulous, and, being long, slender, and much branched, they present an imposing appearance, while the black berry-like fruits are very tempting. Very little of their tissue, however, is succulent, the greater part consisting of a seed of bony hardness.

— COMMON RIGHTS IN EPPING FOREST.—Complaints have been made to the Corporation in consequence of instructions issued to the reeves of Epping Forest not to mark the cattle of persons not entitled to common of pasture. The Epping Forest Committee have now given instruction to the superintendent, as a temporary measure, to inquire into the circumstances of each case, and to authorise the reeves to continue to mark for those persons whose cattle have been marked for some years although not legally commoners. They have also given instructions to the City Solicitor to afford every facility for determining the question by a legal decision.

— *CINERARIAS*.—We have received from J. P. KENDALL, gardener to H. L. HOLLAND, Esq., Templeton Gardens, Roehampton, a box of *Cineraria* blooms which were very fine, some of the blooms being over 3 inches across, of fine form and substance. The colours were very vivid and distinct, and consisted of the following:—puce, magenta, crimson, violet, mauve, rose, pink, cerise, &c. From the specimens Mr. KENDALL'S strain must be a very fine one.

— THE "ORCHID ALBUM."—The March number of this periodical contains figures of—

*Cypripedium Godefroye*, t. 177, lately figured by us.  
*Cattleya Mendelii* var. *Jamesiana*, t. 178.—A grand variety, with very broad rosy-lilac petals, and a frilled lip, with a bright magenta blotch, and a yellow throat, with radiating streaks of magenta.

*Angrecum Kotschyi*, t. 179, has racemes of numerous white flowers, each about 1½ inch across, and with very long pink spurs.

*Vanda suavis*, t. 180.—A good figure of a noble species.

— *PRIMULA POCULIFORMIS*.—The most important character of this *Primula*, leaving its botanical distinctness out of the question, is its perpetual flowering habit. When first described it was regarded as an autumn-flowering species; but, unlike its near allies, *P. cortusoides* and *P. Sieboldii*, whose flowering time is distinctly confined to a certain season of the year, this species, with ordinary greenhouse temperature and abundance of light, will flower continuously, as might be seen from a specimen in the Cape-house at Kew. The temperature there is kept as uniformly cool as possible without creating a draught, which seems perfectly to the liking of the plant in question. A number of scapes carry open flowers, while many more keep up a succession in all stages of development. It will keep perfectly well in a cold frame, and although not quite deciduous, like its allies, it does not flower in winter with this treatment. The plant is figured in the *Botanical Magazine*, t. 6582, and in these pages, January 27, 1883, and comes from the interior of China.

— GARDENING APPOINTMENTS.—Mr. C. SMITH, as Gardener to T. G. MASON, Esq., Ufford

Hall, Stamford.—Mr. W. KENDALL as Head Gardener to C. M. PALMER, Esq., M.P., Grinkle Park, Saltburn-by-the Sea, Yorkshire.—Mr. R. HENDERSON, late Foreman in the gardens, Alowick Castle, as Head Gardener to the Earl of TANKERVILLE, Chillingham Castle, Northumberland.

## NARCISSI FROM THE SCILLY ISLES.

WITH this I send you a collection of varieties from the Scilly Islands, which, with particulars enclosed, were intended for the inspection of the Floral Committee at the Royal Horticultural Society's meeting on March 10. Public interest will, I hope, be a sufficient apology for my troubling you on the subject.

Thanks for this collection is due to Mr. W. Trevelthick, Rocky Hill, St. Mary's, who is the largest grower on the islands, excepting only A. DORIEN-SMITH, Esq., Tresco Abbey, who writes:—"I have close on 300 varieties, all of which, with very few exceptions, seem thoroughly at home here. The soil is mostly light. I find the *Polyanthus* varieties do best in the lighter, the *Ajax* and *Poeticus* in the heavier. The only manure used is seaweed, of which, when the beds are made, I dig in a considerable quantity, well decomposed. The bulbs are covered with seaweed in the growing time: this keeps the ground moist and keeps down the weeds.

"The best beds are only a few feet above the level of the sea. I never noticed any peculiarity as to doubling or otherwise. The bulk of the varieties have been imported within the last eight years, but these have been longer than any of us can recollect *Narcissi* (I suppose) naturalised here—the principal varieties being *Scilly White* (*N. Polyanthus* named by Baker), *Grand Soleil d'Or*, a small variety of the *Grand Monarque*, *Biflorus*, &c. The blooming of imported bulbs is always earlier the second year than the first."

Mr. Trevelthick writes, "I send you a collection as per list of all the *Narcissus* varieties now in bloom (nearly forty) on St. Mary's Island. *Soleil d'Or* takes the lead here in cultivation, followed by two kinds of native, *White* and the *Grand Monarque*. All these kinds are supposed to have been on the island 200 or 300 years, and not very long since, before the rage set in for collecting these bulbs, could be found all over the island in hedges and ditches from the sea level to 150 feet above it. The soil is light and sandy; manure I never use, seaweed is used by many growers principally on the higher ground. In addition to the very high value set on our early naturalised sorts for market purposes in bloom, we anticipate a higher commercial value for our native bulbs, as no kind yet imported, including the *Pallidus precox*, blooms so early by more than a month. I may add that the market trade for the 'natives' commenced before Christmas, and the weekly supply to Covent Garden gradually increased to about 35,000 bunches of twelve blooms, which represent about half of the island's export, showing a total export of nearly one million blooms.

Account of Various Kinds of *Narcissus* sent herewith, and Grown in St. Mary's, Islands of Scilly.

Name.	When Imported, or how long known on Island.	Blooming.
<i>Soleil d'Or</i> .. ..	Probably 200 or 300 years ago, found growing about hedges, and thriving well.	From November onwards.
<i>Scilly Whites</i> ..		
<i>Early Scilly Whites</i>		

Imported Recently.—Blooming from January Onwards.

<i>Glorious</i>	Queen of the Netherlands
" minor	Paper-White
<i>Pallidus precox</i>	Silver <i>Soleil d'Or</i>
<i>Triquet</i>	<i>Narcissus Jonquilla</i>
<i>Orange Phoenix</i>	Staten-General
<i>Odorus</i>	<i>Flora onatus</i>
<i>Bazelman major</i>	<i>Incomparabilis sulphureus</i> ,
" minor	if opened out-of-
<i>Gladstone</i>	doors?
<i>Mozart</i>	( <i>Poly.</i> ) italicus, perhaps,
<i>Prince of Wales</i>	of <i>Bot. Mag.</i> , or
<i>Themistocles</i>	sub-albidus of
<i>Thomas Beccles</i>	Dutch catalogues
<i>La Belle de Normandie</i>	" <i>Laura</i> ? (in the way
<i>Marquis de Westrode</i>	of, not sure)
<i>Incomparabilis</i>	" <i>Laura</i>
<i>Daffodils</i> (various)	" <i>Mecurius</i>
<i>Grand Monarque</i>	" <i>Gloriosa</i>
<i>Imperator</i>	" <i>Newton</i>
<i>Isabel</i>	<i>Tweeta papiacius</i>
<i>Silver Phoenix</i>	<i>precox</i>
<i>Jaune Suprême</i>	<i>Pseudo-Narcissus</i> .

J. B. Thomas, Covent Garden.



## ORCHIDS FOR AMATEURS.

(Continued from p. 271.)

**VENTILATION.**—The necessity for ventilation has already been insisted upon, but the manner of ventilating an Orchid-house is of the first importance. The two objects to be effected should be kept in mind—the circulation and renewal of the air in the house and the regulation of its temperature.

Stagnant air is fatal to the well-being and, indeed, to the life of the plants, but the admission of cold air in winter would be equally fatal. Ventilators should be supplied close to the pipes, so that the air is well warmed in passing into the house. An abundance of warm vapour should be also supplied close to the entrance; the cold air condenses this vapour and is warmed thoroughly by the heat given off during the condensation. A tank of warm water, heated by the pipes, is by far the best means of warming the air as it passes into the house.

The admission of fresh air to the lower part of the house drives the warm air out between the laps of the glass, so that in cold weather ventilation from above may be well dispensed with; this is not the case, however, in warm weather—then overhead, and good overhead, ventilation is indispensable. One principal ingredient in the food of plants is the carbonic acid gas in the atmosphere; this exists in normal air to the extent of two parts in 10,000 of air, so that a house containing 2500 cubic feet contains just half a cubic foot of carbonic acid gas. Half a cubic foot of carbonic acid gas contains in round numbers 120 grains of carbon, and would make twice or three times that weight of wood, or about 240 grains of starch; but 400 or 500 plants would soon extract this from the air, if in healthy growth, so that the air must be renewed, or the plants will be underfed. In point of fact, fresh air is the only means of supplying the plant with its proper food.

I have already insisted on the necessity of air to enable the plants to give off moisture, so that it is clear that a proper circulation of air must be maintained both night and day. As plants only absorb carbon in the daylight, they need it then to supply them with food, and it is equally necessary at night to carry off surplus moisture.

In a hot moist stove in cold weather the cooling due to the glass maintains a circulation, but, as I have already observed, this is not the case in warm, close weather. For the purpose of lowering the temperature if the house becomes too warm, air must be admitted freely, but in cold weather this air must be warmed and rendered moist before it reaches the plants, or irretrievable harm will be done.

## NOVEL METHOD OF VENTILATING.

One of the most successful growers of Orchids in France, the Count du Buysson, has invented a specially ingenious method of admitting air in large quantities for the purpose of lowering the temperature of his houses, by means of which, he states in his work, *L'Orchidophile*, he is enabled to dispense entirely with watering his plants for months in the winter. I have not tried the plan, but it appears to be founded on sound scientific principles. The air from his ventilators is admitted through an enclosed tank kept three-parts full of water, which is warmed by the pipes. Under ordinary circumstances, when the external and internal ventilators in these tanks are open, only a moderate current of air, warm and moist, enters the house, but when he wishes to lower the temperature he attaches a short pipe about 18 inches long, bent at a right angle to the internal ventilator; the moist air rises in this tube as it would in a chimney, and so strong a draught is created that by opening a small ventilator in the roof the steam escapes, "as if a steam engine were at work within." Of course the steam is not hot—only warm, and it appears as vapour owing to the condensation due to the cold air outside. The plan seems so excellent that it is worthy of a fair trial in this country; as he observes, the plants are moistened with fine dew, and the air is set into rapid circulation and entirely renewed. This very afternoon my houses rose in temperature nearly 10° above the proper heat. I soon reduced the temperature by opening the ventilators, but could not help regretting that I could not apply the Count's method of ventilation, which would have rendered the air moist and refreshed the plants after their unexpected subjection to an atmosphere which was certainly far too warm, although, as it was not dry, I do not expect any harm, especially as the excessive temperature was due to the sun, and not to artificial heat. B. T. L.

(To be continued.)

## HOME CORRESPONDENCE.

**Melon Culture in Pots: Canker.**—I should advise Mr. Miles to discard his funnel-shaped zinc collars from the neck of his Melon plants, and pack good fibrous loam round instead, into which he will find the plants will root freely. I have fruited all our Melons in No. 2-sized pots for the past nine years, and never had the slightest trace of canker on a plant yet. I practise the earthing-up system from the first by sowing the seeds singly in 5-inch pots rather less than half filled with light loam, and as the plants progress add soil until the pots are quite full, packing lumps of loam well up round the stem of the plant. When they have filled these pots with roots, which they usually do by the time they are from 12 to 15 inches high, I plant them into their fruiting-pots, the latter two-thirds full of soil, and make it thoroughly firm. As soon as fairly rooted, and the roots show freely on the surface, I commence earthing-up, and add in small quantities until the pots are quite full and the fruits have finished swelling. The soil I use is a moderately heavy turfy loam without any admixture. In the earthing-up soil I sprinkle a little Clay's Fertiliser, which I find admirably suited for Melons, and never water with liquid-manure, but use warm clear water. I am always careful to keep the fibre of the loam packed well round the stems of the plants, and find roots are emitted almost as freely as is the case with the Cucumber plant. For bottom-heat we use fermenting leaves and dung, the pots standing firmly on low brick piers, which allows the heating material to be turned and renewed as the heat declines, or as often as necessary. We grow them equally well standing on shelves without bottom-heat, but the fruits are longer in coming to maturity. Through having a limited quantity of hot-water piping we are unable to keep up the high temperature usually considered necessary for Melons—60° to 65° at night being the highest we can command through the early stages, but make the most of sun-heat, especially when the fruits have commenced swelling, by shutting up early, raising the temperature to 70° or higher, with abundance of atmospheric moisture. We admit air only in small quantity, sufficient to prevent scorching until the fruits commence to ripen. We usually cut our first Melon not later than May 20 from seed sown the last week in January. C. H.

**Tritoma Flowers in Spring.**—From many parts of the country, and from Ireland, I hear of Tritoma having at present (in March) many spikes of flower. This seems due not only to the mild winter, but to the fact that Tritomas last summer flowered too early to be satisfied to go to rest, and at once started for a second crop of flowers. The mild winter has allowed these to come to a kind of morbid maturity, for they are poor and colourless, as well as unseasonable; still, there they are in abundance, many clumps here having as many as ten or twelve heads of flower. C. Wolley Dod, Edge Hall, March 3.

**Protecting the Blossoms of Fruit Trees on Walls.**—I do not wish to gainsay anything which your correspondent Mr. Douglas has advanced regarding this, at this season, interesting subject. I have had a system of protecting wall trees in practice, which I nevertheless consider has no equal for simplicity—certainly none for safety—and by the constant use of which I for many years never failed to secure large crops. The material I employed was Frigi Domo. This is a well known material, made of hair and wool, is blanket-like as a protector, yet comparatively light, not too pervious, and very durable. The system I followed in putting it into use was to fasten up iron rods as near under the existing copings of the walls as was possible—such rods being placed in strong eyed supports let into the wall, the rods being removable after danger was past. To the Frigi Domo, which is purchasable of any reasonable width, rings were attached and the pieces were then hung upon the rods, precisely as curtains are hung upon poles. For the larger trees I found two curtains necessary, as the trees averaged 12 to 15 feet wide, and the rods would not admit of the whole weight for the drawing of the rings. Thus, each morning the curtains were drawn-to, twisted together and tied to posts inserted upright in the borders, about 3 feet

from the base of each tree. Each evening they were replaced over the trees: the work was done in a few moments, light and air only being intercepted by a roll at every 12 or 15 feet, and the most severe wind or other frosts could not possibly enter to chill, without saying anything about freezing flowers or leaves. William Earley.

**Effect of Pruning: Pruned and Unpruned Vines.**—The facts announced by MM. Cassocia and Savastano, and reported at p. 314, are absolutely contrary to those observed in the south of France. There experience extends over an immense district, grafted Vines being there grown by the million. Long ago the produce of the grafted, as compared with that of the ungrafted Vine, was ascertained. No difference was perceptible. This is now received in France as an incontestable fact. The quantity of alcohol in the juice is in proportion to the sugar in the Grapes, and very often the wine is sold according to the alcoholic strength; that is to say, that a hectolitre of wine is sold for 2.50 or 3 fr. and more (according to circumstances), according to the alcoholic strength; wine having 10 per cent. alcohol selling, for example, at 30 fr., while if it contains 12 per cent. it brings 36 fr., and so on. Considering that the great merchants sell often 1000, 2000, or 3000 hectolitres, it is seen that the question of alcoholic strength (that is to say, the amount of sugar) is one of the greatest importance for them. The strength is estimated with care by well-known practical methods. In many southern Departments the French Vines are now grafted on to divers American Vines, to protect them against the Phylloxera. The American Vines are varieties of *Vitis aestivalis*, *V. cordifolia*, and *V. riparia*, or of hybrids between them. The grafts succeed well; there are even schools of grafting, with hundreds of students, and grafting competitions are established in many Departments. No doubt if the stock is badly chosen the graft does not develop well, and the produce is bad; but it is a fact that, in the South of France, grafted plants give quite as good results as those growing on their own roots. The results obtained on fruit trees, which immemorial practice indicates and recommends, are in fact of the same nature. Maxime Cornu, *Jardin des Plantes, Paris*.

**Gas-Lime for Gardens.**—Mr. Divers' communication (p. 249) shows that he is only partially acquainted with the nature of gas-lime, or with the fact that its effects are dependent on the way it is applied. Mr. Divers seems to think that because this lime spread on a road (the surface of which is not afterwards disturbed) kills weeds that are present and prevents others from growing, that the dressing I named will have a like effect on plants to be grown in land that has been so treated, but with this difference, that the lime and the surface with which it has been in contact have been mixed by digging with the body of the soil underneath. It appears strange that Mr. Divers could not see that the two cases are as far different as they well can be. Some who have used gas-lime in gardens have made mistakes through not being acquainted with the chemical change that takes place in it when spread out thinly, so as to be fully exposed to the air for a time—the necessity for which I was careful to mention. If in place of letting it lie thus the material is at once dug in it will injure any plant or seed that comes in contact with it. I have seen this mistake made by both farmers and gardeners, who, in some cases, were afterwards deterred from using it; whereas if treated in the way I described it will do all I said, and a good deal more, as it is one of the best materials that can be applied to the soil, especially where there is much humus present. In his first communication Mr. Divers cautioned amateurs against using it, saying that practical gardeners will know how to deal with it; yet it appears that all do not, or Mr. Divers would not have committed himself to an opinion that will provoke a smile from some of the many amateurs who I know use it, and know by experience the benefit their gardens derive from it. T. B.

**Narcissus calathinus.**—One name less in the terrible crowd of Narcissus names will be a crumb of comfort, however small, to bewildered gardeners, and perhaps we might do without this name "calathinus." Its use has been very vague and confusing. In the first index of the *Botanical Magazine* we are referred to three plates for it. Two of these belong undoubt-



edly to *N. odoratus*, which is said to have been the *N. calathinus* of Linnaeus; but the third, which is t. 1262, represents the short-cupped variety of *N. triandrus*. The description of it says that this is the *N. calathinus* of Redouté. I do not know Redouté's original figure, but it is reproduced in Burbidge's *Monograph of the Genus Narcissus* (p. 34), and corresponds, not with t. 1262 of the *Botanical Magazine*, but with t. 48, which is named *N. triandrus*. I have recently had some flowers sent to me which were gathered wild in Portugal; they are of a pale sulphur colour, and have the cup nearly as long as the reflexed segments of the perianth, as in t. 48 above mentioned. The forms of *N. triandrus* more common in cultivation have the cup shorter; but I observe that Mr. Baker, in his "Review of the Genus *Narcissus*," does not think this distinction important, so we may safely follow him in dropping the name *calathinus* altogether and using only *triandrus*. In fact the length of the cup in this species seems to be variable, being greatest in a form said to be found exclusively in the Isle of Drénec, not far from Brest. This form is rare in cultivation. Mr. W. Thomson, of Ipswich, some years ago, received seed of it from Brest, and has succeeded in rearing a few bulbs of it to flowering size; one of these he has presented to me, and it is soon going to flower in my greenhouse. It will be interesting to compare it with the flowers received from Portugal. Still, we must remember that the length of the crown or cup is the characteristic from which the different sections of the genus *Narcissus* receive their distinctive names, and it therefore may seem inconsistent to hold that any variations in length are in this species of but little importance. *C. Wolley Dod, Edge Hall, Malpas.*

**Early Flowering Alpine Plants.**—A good sized tuft of that charming and rare little alpine, *Ranunculus anemonoides*, is now in full blow, and well does it deserve the Windflower appellation, for the flowers both in size and form forcibly remind one of *Anemone palmata*. It is a plant of the easiest culture, succeeding well here in gritty loam, with a small admixture of peat. The flowers, which are borne in rich profusion, are white, suffused with violet internally, while externally they are rosy-pink. *Soldanella montana* is a little beauty. The deep almost sky-blue, bell-shaped flowers, surmounted on stems 3 or 4 inches long, are now very attractive, and from the finely divided petals they have a remarkably light feathery appearance, which still further adds to their beauty. No collection of alpine is complete without this gem, which is readily enough managed in a somewhat shady situation, amongst gritty leaf-mould. *Ethionema cordifolium* is flowering freely on the rockwork, and is one of the most attractive plants there at the present time. It evidently prefers a rather light, free soil, and good drainage—at any rate, these are the conditions under which it luxuriates here. It is a rare but pretty rock-plant from Mount Lebanon, with bunches of flowers resembling those of a small rose-coloured *Iberis*. Amongst the Saxifrages *S. Burseriana* was the first to open its pretty creamy-white flowers, these appearing ere the bleak dull weather of mid-winter had passed away. Some prefer the plant in the bud state, when the little pink rosettes borne on their ruddy flower-stems are certainly very attractive. The continuity of bloom in this plant is something remarkable, the flowers, which open slowly, remaining in good character for nearly a couple of months. The purple mountain Saxifrage (*S. oppositifolia*), a plant dear to all lovers of our native flora, is now becoming studded with its large and conspicuous pinky-purple flowers, these being shown off to the best advantage by the dark green, mossy-like foliage. Gritty rock and large stones amongst which the tender rootlets can roam at will is the secret, if there be any, of its successful cultivation. Another Saxifrage under the name of *S. orbicularis* is both showy and attractive the rosy or rosy-purple flowers, borne on stems of half a foot in height, being now in their glory. It belongs to the Megasea section, much resembling in foliage *S. purpurascens* and *S. cordifolia*. Three or four dozen clumps of the common Snow-drop, irregular in size, rising from amongst the now half-withered Fern fronds on a piece of undulating rockwork, are a treat not soon to be forgotten. The Daffodil season promises to be unusually early and of long duration, the Italian variety of *Polyanthus Narcissus* as well as our native *N. Telamonius plenius* being already in flower. Between *N. Pseudo-Narcissus* and

its near relative, the Tenby Daffodil, there is quite a race, both of which will be in flower in a week, the former probably first, soon to be followed by their pigmy brethren, *N. minor* and *N. nanus*. Hellebores of various kinds, notably *Antiquorum*, *Albin Otto*, *Olympicus*, *Willie Schmidt*, *guttatus sub-punctatus*, and the great Christmas Rose, *niger maximus*, have been very attractive. The latter especially has few equals, both for quantity and quality of flowers. Other plants worthy of notice at present are *Erica carnea*, *Arabis* of sorts, *Aubrietia Eyrei*, and *A. Campbellæ*, the latter from its procumbent habit and neat close growth being most desirable; *Scillas* of sorts, *Crocuses*, and the Winter Aconite. *Emergo.*

**Starting Imported *Lilium auratum*.**—Notwithstanding the large quantities of bulbs of *Lilium auratum* which find their way to this country, it still remains uncertain which is the best method of starting newly imported bulbs into growth. That it has been a puzzle to many in the past there is no doubt, and

only a dangerous practice, but is quite contrary to Nature; even though they may be placed in frames the fact cannot be overlooked that they are subjected to a variety of changes atmospherically, which may be beneficial to them, especially when we consider that few plants have a briefer resting period. In some cases they may be regarded as evergreen, for no sooner has the old flower-stems shown signs of decay than new roots are being formed below. But presuming everything to be in readiness when the bulbs arrive the safest means will be to place them in the soil without delay; before potting them, however, a careful examination of the bulbs is of the utmost importance, removing any bruised portions of scales, for if these are allowed to remain the bulb itself is in danger of decaying entirely. The bulbs are like Apples—they do not at once exhibit the injury inflicted in harvesting, sorting, and packing. Those whose experience extends over a few years will call to mind their aptness to rot at the base of the bulbs, and for which there is probably no cure. All that can be done is to cut away the bruised por-

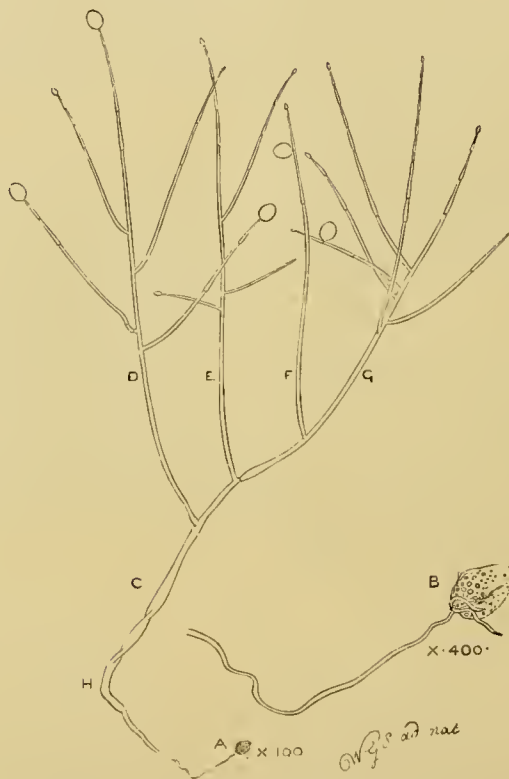


FIG. 64.—SPAWN-THREADS OF THE POTATO FUNGUS ARISING (*ut videtur*) FROM A SCLEROTOID. (SEE F. 350.)

the many enquiries which have been made to myself personally on the subject of late leave no doubt but that that difficulty still exists. In my present note, I do not lay down any hard and fast rules as to how they should be started into growth, nor do I wish those who have been successful hitherto to depart from what they have found to suit their own case, but I wish to draw attention to some of the means which are employed and to which I am sure many of the losses and failures in the starting of imported bulbs of this Lily may be traced. Of the means employed the following are some which have come under my notice. After the bulbs are received some prefer to stand them on damp peat, and covered with leaves, others to cover them with damp moss, others I have seen in a mixture of silver sand and sphagnum moss, others place them in pots half-filled with soil, with the bulbs fully exposed, while others prefer to place them in boxes of cocoa-nut fibre till the new roots have made their appearance. For all ordinary purposes consistent with the safety of the bulbs the latter will be found not only the most simple but the most economical. To place a *Lilium* of any description on the surface of the soil with the bulb exposed seems to me not

tions, and dust with powdered charcoal. I do not recommend their being left in the boxes of cocoa-fibre till many new roots are formed, as these are so brittle as to get mostly broken in the potting. Perhaps one of the greatest difficulties to be met in starting this Lily into growth is that of watering. I have no hesitation in saying that water should never be given them till they have made from 4 to 5 inches of new growth, and this is the system I have found to give every satisfaction. In potting the most suitable soil to use is sandy peat, placing a little dry sand about the base of each bulb, the size of which will regulate that of the pots. Pot in the ordinary way, *i.e.*, to within half an inch or so of the rim of the pot. When completed they may be placed in cold frames in any cool quarters away from drip; they should then be covered with at least 4 inches of either coal-ashes, tan, cocoa-nut fibre refuse, or failing these short straw litter will answer the same purpose. Water in no case should be given them till the new growth is well above this covering, by which time all danger will be at an end, and the pots will invariably be found to contain a goodly number of roots, and the stem roots will at this stage be just protruding. *E. Jenkins.*



## Reports of Societies.

ROYAL HORTICULTURAL: March 10.

THE advancing springtide was manifested in the abundance of flowering plants furnished by horticulturists at this meeting, for besides some choice cut blooms and plants of Orchids, alpine plants, Narcissi, Cyclamen, and Camellias were in considerable numbers to be seen on the tables.

Scientific Committee.

Hon. and Rev. J. T. Boscawen in the chair. Present: Messrs. Grote, Michael, McLachlan, Pascoe,

Canestrini and Fanzago, of Padua, in 1876, under the generic name of *Chizonemus* (*Atti. Soc. Veneto-Trentina di Sci. Nat.*, vol. v., fasc. 1). The authors subsequently discovered that the name had been used by Cuvier for a genus of fishes, and accordingly changed the name to *Tarsonemus* (*ibid.*). Dr. Kramer, of Schlensingen, subsequently found the same creature, and described it independently under the name of *Dendroptus* (*Archiv. für Naturgesch.*, 1876, p. 197).

"The species appears to be identical with *Tarsonemus buxi*, which Professor Canestrini found in 1884 in great quantities on the Box trees at Venice and Padua, and which he says nearly destroyed the foliage of the trees of *Buxus sempervirens* in the Botanic Gardens at Padua. Professor Canestrini states that the mite burrows in between the upper and lower cuticles of the leaf, and eats out the whole of the parenchyma.

"In the instances of the *Mormodes* leaves the injury appears to have been chiefly affected from the exterior,

is printed in another column. Mr. Pim says that he has seen nothing to confirm Mr. Murray's contention that the protoplasm is outside the bodies. The "plasm" seems to correspond exactly with the original body in size and shape. Mr. Pim, however, doubts whether the bodies have any connection with the disease.

Professor Trail writes:—

"It is satisfactory to find that Mr. Murray no longer adheres, as in the report published in the *Journal of Botany* in December, 1883, to the view that no trace of a plasmodium was left after the action of nitric acid; but that, on the contrary, the protoplasmic substance found by others to remain after isolated 'sclerotets' were treated with nitric acid was found by him without difficulty and stained easily. But he continues:—'I failed entirely and absolutely to find the smallest evidence that the substance was contained in the body. The statement that it is so contained is the merest assertion. Obviously, if it were the case, it would suit Mr. Wilson's theory. If the protoplasm were outside it is equally obvious it would bear out my interpretation. I can prove that this is so.'

"As I had no theory either to defend or to combat, I sought simply to determine the nature of the bodies by independent and reliable tests, and these have led me to the conclusion formerly stated by me, that the protoplasm forms a mass within the oxalate of lime, though probably the latter is partially embedded in, and not merely adherent to, the surface of the protoplasm. This conclusion is based upon the following reasons:—The protoplasmic residuum is so considerable after removal of the oxalate, that if it formed a coat outside the latter, as Mr. Murray supposes it does, it would be visible along the edges of the body without requiring the use of iodine. Again, were it merely part of the contents of the Potato-leaf cell, accidentally adhering to the mineral mass, we could scarcely suppose that the outline of such protoplasm would continue so definite, not showing any tendency to dissolve in the surrounding fluid; and, were the protoplasm such a mere coat, it would surely be possible, after solution of the oxalate, to detect the cavity in which the latter lay; but in the numerous bodies that I have examined carefully under varied conditions no such appearance has ever presented itself. The changes produced by nitric acid, and the appearance of the body after it has ceased to act, are admirably exhibited in Mr. W. G. Smith's figures published last year in the *Gardeners' Chronicle*, Dec. 13, 1884.

"In reference to Mr. Murray's experiment of using iodine to demonstrate the external protoplasm on a 'sclerotet' which has been isolated merely, without solution of the oxalate, it is only what might be expected, that a 'delicate colouring' should be observed, due in part probably to the protoplasm imbedding the inner ends of the particles of the oxalate, and in part, it may be, to a little of the contents of leaf-cells (of which many are necessarily torn in dissecting out the bodies) adhering to the surface.

"As to the internal structure of the uninjured 'sclerotet' and its behaviour with iodine internally I am ignorant, simply because the bodies are absolutely opaque while uninjured, except along the extremely narrow margin. I cannot see that Mr. Murray's test in any way throws light in the direction indicated by him. There seems no cause for regret that the nature of the 'sclerotets' is being fully discussed, even were it the case that 'a deal of trouble might have been saved, but for the assertion that the oxalate of lime contained a central mass of protoplasm.' In regard to what may be called the historical side of Mr. Murray's report it is undoubtedly of interest to those even who do not find themselves able to accept it as decisive. Before it could be held that 'sclerotets' are 'intrinsic products of the Potato plant' it must surely be proved that they are of still greater constancy than any evidence yet warrants us to assume. Systematic and extended inquiries by Mr. Murray and others, so situated as to be able like him to pursue them, cannot fail to be of much value. Another line of investigation worth working, would be the examination of Tomatoes and any other plants attacked by *Phytophthora infestans*, to learn whether 'sclerotets' are found in them also, and the conditions under which they occur."

Mr. Stephen Wilson writes:—

"I have critically examined nearly a hundred of these bodies, and have seen nothing to suggest the inference that the lime is in the interior of the ball. I have run in iodine, as Mr. Murray has done, and its contact with the body reveals nothing whatever which is not equally well seen without it. But the lime being in the condition of crystals, necessarily presents a rugged outline. Where the crystals are not seen superposed, they are partly translucent, and this translucency, along with the rugged outlines, presents a border which is optically clearer than the more opaque interior of the field, and this clearer border has somewhat the appearance of plasm. But when the process of solution is watched closely, the points of the crystals and the outer crystals themselves, are seen dissolving, before the 'clear definite outline' of the plasmodial body emerges from the eclipse. The lime is seen beyond the 'clear definite outline,' but the 'clear definite outline' is not seen beyond the lime. The definite outline is seen without any reagent after solution of the lime; and if it is outside the lime it should be equally seen before solution, without iodine or any other reagent, which it certainly is not.

"The measures given in my first paper show that the lime ball is larger than the plasmodial ball.

"By focussing with a high power, while the crystals are dissolving, it is seen that the vanishing fragments in the centre of the field are nearer to the eye than the



FIG. 65.—GNAUR IN TAXODIUM SEMPERVIRENS.

Smee, Murray, Ridley, Beddome, Lowe, Wilson, and Masters.

### DISEASED LEAVES OF MORMODES.

Mr. Michael reported as follows on the leaves of *Mormodes* submitted by Mr. Smee at the previous meeting:—

"I have to report that I have examined the injured leaves of *Mormodes* received from Mr. Smee. I was not able to detect any creature within the gall-like swellings, but I found on the under-surface of each affected leaf a number of extremely minute Acari, in all stages of development, except adult males. The Acari were usually in the affected parts; they all belonged to the same species, and are very difficult to discover, being minute, colourless creatures, about  $\frac{1}{100}$  inch long, and narrow in proportion to their length. In spite of their small size, I believe them to be the cause of the injury. They belong to the genus *Tarsonemus*, which was originally described by Professors

and the leaf to have swollen after the wound, so as to form a gall-like body. The Italian Professor states that the Acari most readily attack leaves which have already been injured by insects. I did not find any trace of this with the *Mormodes* leaves. It appears to me that the original injury to these plants had probably been effected while the leaves were quite young, but showed more as they grew older.

"I found a species of the same genus in the Midland Counties of England last year, in considerable numbers, burrowing under the cuticle of the common Burdock."

### SCLEROTICIDS OF POTATO DISEASE.

Communications on this subject were read from Mr. Greenwood-Pim, Prof. Trail, and Mr. Wilson. A further communication, with sketch, was sent by Mr. Worthington Smith, but by some mishap did not arrive till after the close of the meeting; but to make the record complete, Mr. Smith's communication, of which a copy was also forwarded to us with the woodcut,



optical edges of the definite outline, and therefore upon the outside of the ball. Mr. Smith and I have given independent drawings exactly corresponding (*Gardeners' Chronicle*, December 13, 1884, p. 757). Has Mr. Murray given any?

"Mr. Murray makes the inference that the plasmodial ball is 'the remains of the original cell-contents of the Potato leaf in which the oxalate of lime body was formed, adhering to it over the surface.'

"These bodies are not formed in the cells of the Potato leaf, but lie in the intercellular passages, through which their mycelium runs on germination. Others have called these bodies protoplasm, but my own observations seem to me to justify the inference that they consist of fungoid plasma and short lines of mycelium. I have seen some of these lines extending nearly a fourth part across the ball. Then Mr. Murray wants to take the conceit out of me as to priority of discovery. He quotes Dean Buckland, as asking Robert Brown regarding certain Potato leaves, whether the 'affection' they showed was that of the Potato disease. I have always contended that these parasitic balls were to be found in the undiseased tissues, where they lie in a state of incubation. Along with the host plant they furnish a good example of symbiosis. Now, if Robert Brown referred to these bodies at all, he suspected that they were foreign to the real tissues of the plant, and in some way connected with the Potato disease. And if he did not refer to them, where is the relevancy of this reference? That Mr. Murray has found these bodies in ancient Potato plants from the herbarium of Sir Haos Sloane was what I should have predicted. Mr. Thielton Dyer is of opinion that the disease has always been 'hanging about' the Potato. Mr. Baker, a member of this Committee, is of opinion that 'Any plant brought to the tuber-bearing state is in a diseased unhealthy condition.' But perhaps it may be found that this is simply putting the cart before the horse; and that in the case of the Potato plant we should have no tubers at all except for the inroad into its tissues of the *Peronospora infestans*. I annex illustrations."

Mr. Worthington Smith's communication (which was not read at the meeting, for reasons before stated), is as follows:—

"When Mr. A. S. Wilson published his paper in the *Gardener's Chronicle* for October 7, 1872, I wrote at once (October 28) to say that the bodies he had described 'had been familiar to me for many years.' At that time I thought I had myself seen *Peronospora infestans* arising from bodies similar to Mr. Wilson's in autumn.

"The chief point of interest does not centre in the presence of oxalate of lime, which is not invariably present. The question is, 'Does the Potato fungus ever really and truly arise from the bodies described by Mr. Wilson?' Mr. Wilson has stated in the most detailed and emphatic manner that it does, and I acknowledge that Mr. Wilson's view has support from what I have myself seen.

"The accompanying drawing (fig. 64) is from a mounted microscopic preparation given to me in 1882 by Mr. Wilson. It shows, enlarged 100 diameters, one of the plasmodium-like bodies, A, naturally divested of its oxalate of lime. Springing from this body is an excessively attenuated mycelial thread, which rapidly increases in diameter at H to ten times its first diameter as seen near the ball of protoplasm. This basal part of the preparation is further enlarged to 400 diameters at B, to show the extreme tenuity of the mycelial thread and a fold in the feeble cell wall of the ball of protoplasm. The nature of this first mycelial growth, A, H, C, may be compared with the familiar pro-mycelium, and from it at D, E, F, G, numerous conidiophores of *Peronospora infestans* arise.

"The example is in fluid, and the whole basal part moves freely too and fro from the elbow at H, but constant movement has had no effect in detaching the ball.

"The explanation of this growth may be that in the autumn the tubers belonging to diseased Potato plants contain the plasma of *Peronospora infestans* in a free state, or in the state so familiar to us in zoospores. It is there resting, and in this resting condition it is carried up into the stems and leaves of the Potato plant in the process of the Potato plant's growth. The presence of the fungus plasma excites the production of oxalate of lime in the cells of the Potato plant. When the next autumn arrives the plasma, which till then had been resting, renews its vitality, bursts through the coating of oxalate of lime (when there is one) and reproduces the *Peronospora*.

"Martius in his *Die Kartoffel Epidemie*, 1842, pl. iii., figs. 19, 23, and 24, has illustrated a peculiar growth in Potatoes similar as I think with Mr. Wilson's so-called encrusted plasmodia. Martius has shown these bodies in a germinating state. I have said in the *Gardeners' Chronicle* that Martius' spurious Protomyces may be similar with Mr. Wilson's bodies. Mr. Plowright has expressed the same opinion. I regret therefore to notice that Mr. Murray has stated in the current number of the *Journal of Botany*, that I originally determined Mr. Wilson's bodies to belong to Protomyces. I did nothing of the sort.

"As *Peronospora infestans* is known to be a South American fungus which preys upon the Potato plant in Chili, the home of the Potato, no one need feel surprised in finding evidence of its presence in old herbarium examples of Potato foliage."

Mr. Murray expressed his gratification that Prof. Traill accepted his observations. Prof. Traill tenders no direct evidence, however, as to the existence of a protoplasmic body within the oxalate of lime. Mr. Murray respectfully pointed out that the onus of proving this lies with him as the author of the statement, and

that satisfactory evidence can readily be obtained by cutting through the so-called "sclerotet" and demonstrating the contents, if any.

#### MISCELLANEOUS EXHIBITS.

Mr. G. F. Wilson showed a cut spike of the lovely *Phaius tuberosus* which he had grown in a close house, kept at a temperature of 65°–70°. Mr. Webster, The Gardens, Gordon Castle, sent a fine example of a gnar in *Taxodium sempervirens*, like that figured at fig. 65, being the largest example of the kind we have seen. It is impossible to state the cause with certainty, but probably it arises from injury to the radicle at a very early stage of growth. Mr. Vaaner showed two Orchids with supplementary lips, showing that the flowers were on the way to become double. Mr. Greenwood-Pim sent a branch of Privet with short stout spiny branches (see fig. 66). Mr. Boscawen showed flowers of the true *Anemone fulgens*, and flowers of *Rhododendron fulgens* and *Iris stylosa*. Mr. G. F. Wilson showed flowers of *Tulipa biflora* with numerous flowers on the scape. Dr. Masters showed drawings of a double flower of *Dianella coerules*, in which the ovules were petaloid—the first instance, it is believed, of a similar malformation occurring in Monocotyledons. The plant is the *Dianella congesta* of Robert Brown, and was forwarded by Baron Sir Ferdinand von Mueller.

#### Floral Committee.

Present:—Shirley Hibberd, Esq., in the chair; and Messrs. G. F. Wilson, J. Walker, H. Bennett, J. Douglas, J. Fraser, H. Herbst, J. Hudson, T. Hill, J. Child, W. Wilks, J. Laing, H. Turner, W. Bealby, J. Dominy, H. M. Pollett, T. Baines, W. Kellock, H. Cannell, J. Smith, J. O'Brien, J. James, H. Ballantine.

Mr. Ballantyne, gr. The Dell, Egham, showed a fine form of *Clivia* named *Schroderia*, in which the petals were of much substance, nicely rounded, and of sufficient breadth to make a regular close bloom; the colour a fine brilliant scarlet, and base of flower yellow, with anthers of the same colour. Two other seedling forms were shown by him of inferior merit, but that would have been thought good flowers a short time ago. From the same gardens came *Odontoglossum gloriosum*, an exceptionally fine massive spike, with closely set blossoms; an *Odontoglossum* apparently identical with *O. multus*, having an orange ground dotted over with brown spots of a great size, and a labellum of which the lower half was yellow, and the upper of a brown colour. In the same group was noticed *O. Wilkeanum* Godefroye, a handsome flower of yellow ground colour densely spotted irregularly with crimson-brown.

Messrs. J. Veitch & Sons, Chelsea, showed a fine panful of the sweet-scented *Boronia megastigma*, *Rhododendron delicatum*, a beautiful rose-coloured greenhouse variety; *R. cardinale*, of the same section, of a bright crimson colour, with a good quantity of bloom; *Azalea* Paul Schryver, a single purplish-rose; *Cypripedium Sedeni* candidum, a fine variation on *C. Sedeni*, one of its parents, the colours being paler and purer, and the caudal wings much longer; *Carnation* Sir C. Wilson, a dark crimson, full bloom, with acutely serrate petals; *Cydonia japonica nivea*, and *Crocus* King of Blues, a regularly formed flower of robust habit and fine new hue. C. John Bright, that was also shown, was very similar in colour and general aspect.

Mr. W. Bull, The New Plant Nursery, King's Road, Chelsea, had a rather extensive collection of plants, including several Palms, &c., several *Odontoglossums*, as *triumphans*, *O. crispum* Lehmanni, of good form and substance, with two brown spots on the labellum; *O. Wilkeanum*, *O. decorum*, *O. sceptrum*, in which the intense and thickly placed brown blotches almost hid the yellow ground colour; a good plant of *Cypripedium Warneri*, a beautiful panful of the seldom seen *Griffinia hyacinthina* of coerulean-blue in largish corymbs, a great pan of the gorgeous *Hæmanthus Kalbreyeri*, a specimen of *Clematis indivisa lobata*, nicely bloomed; a large and a small plant of *Dendrochilum glumaceum*, receiving a Vote of Thanks for these two last-named; and several *Calanthes*, a *Camellia*, *Madame Cachet*, a prettily formed white flower, occasionally striped with rose; and *Dendrobium nobilissimum*, or *nobilium*, a handsome flower, with much purple colour in the sepals and petals; a small plant of *D. crassinode alba* and *Saccolabium ciliolare*. A Silver-gilt Banksian Medal was awarded Mr. Bull for this group.

Mr. H. Adams, gr. to R. B. Lemon, Esq., Moatbridge, Beckenham, showed *Oncidium Brunleesianum*, a plant bearing primrose-coloured blooms, having a velvety-chocolate lip, the sepals and petals semi-translucent, and projecting forwards into a tube instead of spreading, as in most *Oncidia*—both curious and striking. H. M. Pollett, Esq., Farnside, Bickley, showed two forms of *Miltonia cuneata*, one having much larger flowers than the other, and a trifle more pale purple in the tube; *Odontoglossum Sanderianum* and *blandum*; and the curious *Epidendrum xanthinum*, so rarely seen, and, at first glance, more like a Composite than an Orchid.

From Messrs. Shuttleworth, Carder & Co., 191, Park Road, Clapham, came *Odontoglossum asperum* and *O. Humeanum*, a variety evidently of *O. Rossi* major. M. Godefroy-Lebeuf, Argenteuil, France, showed *Cypripedium Salieri* x *C. insignis*, and *C. villosum*, and was awarded a Vote of Thanks for the same; *Dendrobium*

*endocharis* x *D. japonicum*, and *D. heterocarpum*, white, with rose-coloured throat, the specimens being well bloomed and dwarf in habit. He likewise sent *Pleurothallis Roezlii*, and the minute white-flowering *Epidendrum macranthum*. Mr. G. Gaiger, gr. to T. Whitehead, Esq., Burton Close, Bakewell, showed a fine *Lycaste Skinneri* of good size and colour, and bearing a score of blooms fully open, for which he was awarded a Cultural Commendation and a Vote of Thanks. D. B. Crawshaw, Esq., Rose field, Sevenoaks, had several fine-bloomed *Cattleyas*, a *Warszewiczii* carrying four flowers, another with three of a paler colour, and a pretty *C. Trianae* rosea with a labellum of medium size, and a deep yellow throat, for which he obtained a Vote of Thanks. From the nursery of Mr. H. James, Lower Norwood, came *Cattleya Trianae*, var. *Jamesiana*, very large lilac sepals and petals, the rich purple lip having a thin line of white on its much crimped edge; it was well perfumed, and had been bought for C. Gaskelliana. He had also an *Odontoglossum cirrosum*, in which the spottings were brown instead of black.

Messrs. Barr & Sons, Covent Garden, exhibited a fine collection of *Narcissus* and other spring-flowering bulbs, and was awarded a Bronze Banksian Medal. Messrs. T. S. Ware, Tottenham, and W. Paul & Sons, of Waltham Cross, each staged a choice collection of hardy herbaceous and alpine flowers, and were respectively awarded Bronze Banksian Medals, the latter nurserymen putting up twelve boxes of cut blooms of *Camellias*, among which were a few new ones and the best of our old varieties. They contributed a group of nicely flowered *Camellias* in pots, ranging from 2 feet to 5 feet in height. For the *Camellia* blooms a Silver Banksian Medal, and a Silver-gilt Medal for the group of *Camellias*, were awarded.

Two groups of *Cyclamens* were staged by H. B. Smith, Hanwell and Ealing, and B. S. Williams, Holloway, respectively. Mr. Smith's collection consisted of between 300 and 400 plants, and had a telling effect; some of the colours were very brilliant, and the size and quality of the blooms all that could be desired. Mr. Smith was awarded a Silver-gilt Banksian Medal by the Society. Mr. Williams' collection was hardly so large, but the strain was equally good, and, if anything, more floriferous. He was awarded the Bronze Banksian Medal. A splendid group of *Cinerarias*, consisting of between seventy and eighty fine dwarf grown plants, was staged by J. James, Farnham Royal, Slough; the colours were rich and vivid, while the form of the flower and the habit of the plants left nothing to be desired. He was awarded the Silver-gilt Banksian Medal and a Commendation for the strain.

Messrs. Carter & Son, High Holborn, staged a showy basket of *Amaryllis* (*Valotta*) *purpurea*, and a *Chrysanthemum*, *Ceres*. J. King, Rousham, Aylesbury, showed a box of seedling *Primulas*, and was awarded a Vote of Thanks. B. Clark, Esq., F.L.S., &c., showed one-year old roots of Gobo plants, a Japanese form of the common Burdock, with a sheet of remarks about them. The roots, when cooked, proved to be not unlike Salsify, but require further improvement.

From the Society's Garden, Chiswick, Mr. Barron brought a few early-flowering rock plants, as *Saxifraga sancta* and *oppositifolia pyrenica*, *Soldanella alpina*, *Cyclamen Atkinsii*, and the useful greenhouse plant *Hebecladium laetianum*. Mr. Charles Turner, Slough, showed a quantity of *Violet Welliana*, strong, finely-flowered plants. Dr. Acton, Kilmacurragh, Co. Wicklow, had some single and double *Camellias*, grown in the open air, wonderfully full of buds and bloom. Mr. J. Crawford, gr. to Colonel Thorpe, Coddington Hall, Newark, sent *Comte de Brazza* and the old Neapolitan *Violets* for comparison, the latter carrying off the palm for scent. Messrs. Cannell & Sons, Swanley, received a Vote of Thanks for some capital heads of zonal *Pelargonium* blooms; showing also well done home-grown *Spirea japonica*, and fine *Cineraria* blooms.

#### FIRST-CLASS CERTIFICATES.

To Mr. Pollett, for *Miltonia cuneata*.

To Messrs. J. Veitch & Son, for *Cypripedium Sedeni* candidum.

To Messrs. J. Veitch & Son, for *Rhododendron cardinale*.

To Messrs. J. Veitch & Son, for *Crocus*, King of the Blues.

To Mr. Ballantyne, for *Odontoglossum Wilkeanum*.

To Mr. Ballantyne, for *Clivia Schroderi*.

To Messrs. Barr & Son, for *Lachenalia*, Aldborough Beauty.

To Mr. Adams, for *Oncidium Brunleesianum*.

#### Fruit Committee.

Present:—Harry Veitch, Esq., in the chair; and Messrs. J. Lee, Harrison Weir, J. Woodbridge, W. Deany, S. Ford, T. F. Rivers, G. T. Myles, J. Willard, W. Paul, J. Burnett, A. Sutton, J. Roberts, Dr. Hogg, G. Goldsmith, G. Paul, T. B. Haywood, J. Ellam, G. Bunyard, C. Silverlock, R. D. Blackmore.

#### APPLES.

There were three collections of Apples staged, viz., from Mr. S. Ford, gr., Leonardale, Horsham, which was decidedly superior to the others, and contained some superb examples, many of them as plump and firm as the day they were gathered; prominent in this collection were several varieties that one seldom can keep in good condition after Christmas, such as *Mère de Ménéage*, *Hoary Morning*, *Wadhurst Pippin*, *Cox's Orange Pippin*, and several others. Bess Pool, Alfriston, Emperor Alexander, Golden Noble were also very fine.



Mr. Ford contributed between forty and fifty dishes, and received a Silver Banksian Medal. T. Rivers & Sons, Sawbridgeworth, staged between eighty and ninety dishes of fine fruits, but they had not kept so well as those in the Leonardslee collection; King of Tomkins County, Lord Burghley, Blenheim Orange, Dumelow's Seedling, Kentish Gilliflower, Baxter's Pearmain, Sutton's Beauty, Wagener, Bailey's Sweet, and others were amongst the finest. Mr. P. Middleton, gr., Wynstay, Ruabon, staged a small collection, but the fruits were for the most part in rather a shrivelled condition. Mr. Thrower, High Canons, Burnet, exhibited a dish of Apple High Canons. Single dishes were also exhibited by A. Outram, 7, Moor Park Road, Fulham, and S. Ford. A good dish of Catillac Pears was exhibited by G. Lambert, Oakwood Gardens, Chichester.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, MARCH 11, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLE 6th Edition.		WIND.		RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 18 years.	Dew Point.	Degree of Humidity.	Average Direction.	
Mar. 5	In. 29.34	—0.57	52	34.5	17.5	43.7	+3.3	40.9	83	S.W.	0.00
6	29.20	—0.73	49.5	34.5	15.0	38.0	—2.5	36.8	95	N.W.	0.21
7	29.83	—0.10	41.3	27.9	13.4	33.6	—6.9	29.1	84	S.E.	0.00
8	29.69	—0.24	38.2	26.5	11.7	32.0	—8.5	28.7	87	N.W.	0.00
9	29.87	—0.07	43.0	33.5	9.5	36.9	—3.6	32.1	85	N.E.	0.00
10	30.18	+0.25	42.5	28.8	13.7	35.2	—5.4	28.8	76	E.	0.00
11	32.33	+0.41	42.9	30.0	12.9	36.7	—4.0	38.9	83	E.N.E.	0.00
Mean	29.78	—0.15	41.3	30.8	13.5	36.6	—4.0	33.6	85	Variab.	0.21

- March 5.—Dull day; very fine night.  
6.—Dull day; rain falling from 3.30 P.M.  
7.—Dull morning; very fine afternoon and night.  
8.—Fine day; darkness from 11 A.M. to noon; brighter afterwards.  
9.—Very fine day; dull night.  
10.—Fine dull day and night.  
11.—Fine dull morning; fine bright afternoon.

LONDON: Atmospheric Pressure.—During the week ending March 7, the reading of the barometer at the level of the sea increased from 30.04 inches at the beginning of the week to 30.18 inches by 9 A.M. on the 1st, decreased to 29.44 inches by 9 A.M. on the 4th, increased to 29.57 inches by 9 A.M. on the 5th, decreased to 29.27 inches by 9 A.M. on the 6th, increased to 30.04 inches by 9 A.M. on the 7th, decreased to 29.97 inches by 1 P.M. on the same day, and was 30.04 inches by the end of the week.

The mean reading of the barometer for the week was 29.74 inches, being 0.18 inch lower than last week, and 0.33 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 53° 2, on the 4th; the highest on the 7th was 41° 3. The mean of the seven high day temperatures was 48° 3.

The lowest temperature was 27° 9, on the 7th; on the 4th the lowest temperature was 39°. The mean of the seven low night temperatures was 33° 3.

The greatest range of temperature in one day was 19° 5, on the 2d; the smallest was 10° 3, on the 3d. The mean of the seven daily ranges was 15°.

The mean temperatures were—on the 1st, 39°; on the 2d, 38° 1; on the 3d, 39° 5; on the 4th, 45° 4; on the 5th, 43° 7; on the 6th, 38°; on the 7th, 33° 6; of these the 4th and 5th were above their averages by 4° 9 and 3° 2; the rest were below by 1° 3, 2° 3, 1°, 2° 5, and 6° 9 respectively.

The mean temperature of the week was 39° 6, being 5° 8 lower than last week, and 0° 8 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 113°, on the 1st. The mean of the seven readings was 94° 8.

The lowest reading of a minimum thermometer with its bulb placed on grass was 22° 6, on the 7th. The mean of the seven readings was 29° 6.

Rain.—Rain fell on three days, to the amount of 0.67 inch, of which 0.40 inch fell on the 3d, 0.21 inch on the 6th, and 0.06 inch on the 1st.

ENGLAND: Temperature.—During the week ending March 7, the highest temperatures were 56° at Truro, 55° at Cambridge, 53° 5 at Plymouth; the highest at Sunderland was 46°, at Preston 48°, and at Bradford 48° 6. The general mean was 51° 2.

The lowest temperatures were 23°, at Cambridge, 26° at Hull, and 26° 2 at Wolverhampton; the lowest at Plymouth was 35° 5, at Truro and Brighton 33°. The general mean was 29° 6.

The greatest ranges were 32° at Cambridge, 26° 9 at Wolverhampton, 25° 3 at Blackheath; the smallest ranges were 16° at Sunderland, 17° 3 at Liverpool, and 18° at Plymouth, Leeds, and Preston. The general mean was 21° 6.

The mean of the seven high day temperatures was highest at Truro, 51° 8, at Plymouth 49° 8, at Blackheath 48° 3; and was lowest at Bolton and Sunderland, 42° 8, at Bradford 43° 3. The general mean was 45° 6.

The mean of the seven low night temperatures was highest at Plymouth, 40° 5, at Truro 38° 1, at Brighton 37° 2; and was lowest at Hull, 31°, at Wolverhampton 31° 4, at Cambridge 31° 5. The general mean was 34° 1.

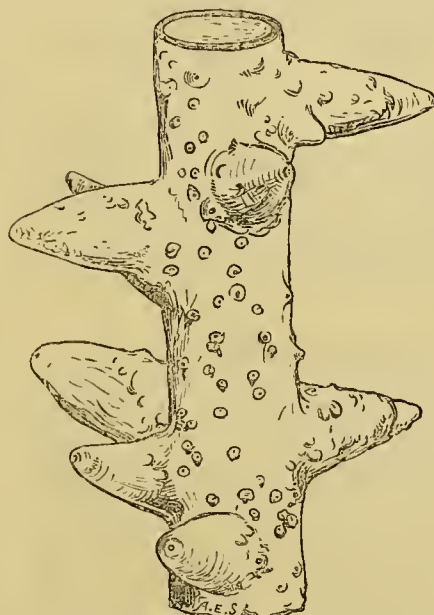


FIG. 66.—SPINY BRANCHES OF PRIVET.

The mean daily range was greatest at Cambridge, 16° 1, at Blackheath 15°, at Truro 13° 7; and was lowest at Liverpool, 8° 7, at Preston 9° 2, at Plymouth 9° 3. The general mean was 11° 5.

The mean temperature was highest at Plymouth, 44° 4, at Truro 44° 3, at Brighton 41° 4; and was lowest at Hull, 36° 5, at Bolton 36° 7, at Sunderland 36° 8. The general mean was 39° 1.

Rain.—The largest falls were 1.18 inch at Hull, 1.04 inch at Bolton, 1.02 inch at Brighton; the smallest falls were 0.24 inch at Wolverhampton, 0.30 inch at Nottingham, 0.51 inch at Bristol. The general mean fall was 0.71 inch. Rain fell on every day in the week at Nottingham.

SCOTLAND: Temperature.—During the week ending March 7, the highest temperature was 47° 9, at Paisley; at Greenock the highest was 44° 5. The general mean was 46° 6.

The lowest temperature in the week was 26°, at Glasgow; at Aberdeen the lowest temperature was 31°. The general mean was 29° 2.

The mean temperature was highest at Glasgow, 38° 2; and lowest at Greenock, 37° 1. The general mean was 37° 7.

Rain.—The largest fall was 0.69 inch, at Perth; the smallest fall was 0.04 inch, at Glasgow and Paisley. The general mean fall was 0.34 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, March 9, 1885; issued by the Meteorological Office, 116, Victoria Street, London, S.W.:—The weather has varied considerably in different parts of the kingdom. Over northern England a good deal of rain has fallen, and at many of the Scotch stations some snow showers, while over Ireland, the south-west of England, and the west of Scotland it has been comparatively dry.

Temperature has been equal to its normal value in the "Channel Islands," but from 1° to 3° below elsewhere. The maxima, which were registered in most places on the 4th, varied from 48° in the north and east of Scotland and the north-east of England, to 57° in the Midland Counties. The minima were generally recorded on the 7th or 8th, and ranged from 23° in the Midland Counties to 29° in "Scotland, E.," "England, N.E.," and to 37° in the "Channel Islands." On the grass the minima were, of course, much lower, that in London during the early morning of the 8th being 15°.

The rainfall has been about equal to, or rather less than the mean over Scotland, Ireland, the south-west of England, and the "Channel Islands," but more elsewhere. In "England, N.E.," and "England, N.W.," the excess was large.

Bright sunshine has been rather more prevalent than it was last week in most districts, the percentages varying from 14 in "England, N.E.," to 36 in "England, S.W.," and 41 in "Ireland, S."

Depressions observed.—The changes in the distribution of pressure have been frequent and irregular. At the commencement of the period readings were highest on the Continent, while a depression was approaching Ireland from the Atlantic. On the 4th this disturbance, in conjunction with a small subsidiary depression which had formed over the Channel, resolved itself into a band, or trough, of low pressure stretching from Ireland to North Germany. By the 6th these conditions had disappeared, and an area of low pressure, having two distinct minima, was moving eastwards over the North of France. As this disturbance travelled away the barometer rose quickly and an area of comparatively high readings lay over Ireland, England, and the north of France, while a depression was moving eastwards over the north of Scandinavia. As the week drew towards its close the highest pressure was becoming established off our north-west coasts, while depressions had begun to appear over the Bay of Biscay and France. Under these conditions the winds have varied considerably. At first they were fresh or strong between south-east and south, and on the 4th easterly in the North and south-westerly in the South, while during the remainder of the period they were generally from points between north-west and north-east.

## Answers to Correspondents.

\*\*\* Numerous communications are unavoidably postponed.

DOUBLE-SPATHED CALLA ÆTHIOPICA: S. Grassing. It is not at all uncommon in these plants, and so far the doubling has not been fixed by seed, and only occasionally by dividing the plants throwing double spathes.

GRAPES: W. T. The sorts you name will succeed in the same house; all late keepers are profitable kinds to keep the longest. Black Hamburg will sometimes keep good till the New Year with care, but it is not to be relied on as a long keeping variety.

INSECT: Camjee. Dytiscus marginalis, common English water-beetle; the larva is destructive to plant roots.

MUSHROOMS FAILING TO GROW: J. W. M. Your shed ought to grow any quantity of Mushrooms, and there has been improper treatment somewhere, or the spawn was untrustworthy. Get Wright's Mushrooms for the Million, and adhere to the plain directions there given, and you will succeed. The book is to be had at the Journal of Horticulture Office, 171, Fleet Street, London.

MUSHROOMS: W. H. The kind is quite right, and the produce you forwarded is very heavy and well grown. From a check at a particular stage of growth, the gills are distorted into wavy lines.

NAMES OF PLANTS: G. Slater. Lycaste Skinnerii, pale coloured, large-sized var.—R. S. Newell. Acacia cultriformis; Poinciana regia.—Wexham. Myrsiphyllum asparagoides.

ODONTOGLOSSUM CRISPUM: J. Bayliss. It is a very fine flower, of unusual size, with handsome markings, giving it a distinct character as a variety of crispum.



**PAY IN MARKET GARDENS, &c.:** *Adscriptus gleba.*  
The pay will depend on knowledge of the business and capability, a beginner not getting more than 8s. or 9s. per week, unless he be strong and a good spadesman, when he might at piecework earn from 30s. to 40s. per week. To get a situation, make a personal application to a market gardener doing a good business, or advertise in a gardening paper—or, still better, in the local paper that has a circulation in a gardening district. Book, *London Market Gardens*, by C. W. Shaw, published at 37, Southampton Street, Strand.

**PRIMULA BLOOMS:** *D. C. P.* The blooms are very unusual as to form, and with regard to the eye very distinct. The crimped form of petal, and its serrated margin, convey the idea at first sight of the blooms being double. It is worthy of perpetuation should the habit prove a good one.

**PRUNING DENDROBIUMS.**—"J. S. W." protests against "T. B.'s" misrepresentations, and states that it is "a safe and proper practice to remove three, four, or five year old back bulbs of certain species." "J. S. W." also says that from experiment he has found that plants continue to grow for several years in succession with the whole of the back bulbs removed, but he does not make it a general practice to do so, nor advise others to do it without experiment. A correspondent, whose address we are at liberty to give on application, writes to say that he will be unable to exhibit at South Kensington, but that he has some three dozen plants of *Dendrobium nobile*, some of which have as many as four dozen growths, some 3 feet long, blooming at from twelve to fourteen nodes at the base of as many green leaves. Our correspondent does not assert that the system suits all *Dendrobiums*, but judging from his own statement he had great success with *D. nobile*.

**SULPHIDE OF POTASSIUM.**—In reference to Mr. Tonks' letter (p. 276), advocating the use of this chemical as an extirpator of mildew and other hurtful fungoid growths, red-spider, &c., we find some of our correspondents have tried to obtain this chemical and have been unable to get it. We, therefore, direct attention to the advertisement in another column, giving the address of the makers of the sample of sulphide of potassium which Mr. Tonks found so effectual. It will be seen that a supply of the chemical sufficient to make 32 gallons of solution of the proper strength for use on plants can be obtained, post-free, for 1s. Should an extended use of this inexpensive substance prove it to be as effectual as Mr. Tonks has found it, its value to gardeners cannot be over-estimated. A chemical friend informs us that its value in all probability depends on the extreme solubility of the sulphur in it; if this be so, it is important to know that the common form of sulphide of potassium, mostly of foreign manufacture, is much less soluble than the specially prepared form used by Mr. Tonks.

### CATALOGUES RECEIVED.

J. DICKSON & SONS, Chester.—Select Farm Seeds.  
R. VEITCH & SON, Exeter.—Choice Agricultural Seeds.  
H. CANNELL & SONS, Swanley, Kent.—Chrysanthemum Catalogue, with Cultural Directions.  
JAMES DICKSON & SONS, Hanover Street, Edinburgh.—Agricultural Seeds.

**COMMUNICATIONS RECEIVED.**—H. Watney (next week).—Diss.—R. D.—J. Backhouse & Son.—E. Bergman.—Wild Rose.—J. O'B.—H. H. R.—C. V. R.—Baron von Mueller.—P. J.—J. R. J.—J. D.—F. J. E.—Sir J. L.—B. C.—G. F.—J. W.—W. H. F.—G. H. E.—C. D.—J. T. R.—J. M.—M. G.—A. Bleu.—Auguste Comte.—G. M.—B. T. L.—W. B. F. Sander.—J. S.—J. S. W.—W. T.—W. E. G.

**DIED,** on the 1st inst., Mr. WILLIAM B. BRIDGFORD, of Spa Field Nursery, Dublin.

## Markets.

### COVENT GARDEN, March 12.

**BUSINESS** keeps very quiet. No advance in prices, with the exception of Grapes, good samples being few. *James Webber, Wholesale Apple Market.*

#### FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 6-50	Lemons, per case	12 0-18 0
— Nova Scotia and		Pine-apples, Eng., lb.	1 0-2 0
Canadian, barrel	12 0-21 0	— St. Michael, each	2 6-8 0
Cobs, per 100 lb.	50 0-55 0	Strawberries, per oz.	0 6-1 0
Grapes, per lb.	5 0-8 0		

#### VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Horse Radish, bun.	3 0-4 0
per doz.	4 0-6 0	Lettuces, Cab., doz.	1 6-2 0
Asparagus, English,		— French Cos, each	0 9-1 0
per bundle	3 6-10 0	Mint, green, bunch.	0 9-2 0
— French, bundle	15 0-20 0	Mushrooms, p. basket.	1 0-1 6
— Perpignan, nat.,		Onions, per bushel.	4 0-5 0
per bundle	4 6-5 0	— Spring, per bun.	0 6-1 0
Beans, Eng., per 100	2 0-2 0	Parsley, per bunch.	0 4-5 0
Beet, per doz.	1 0-1 0	Peas, per lb.	2 0-2 0
Cabbages, per doz.	1 6-2 0	Potatoes, new, per lb.	0 9-1 0
Carrots, per bun.	0 6-1 0	Radishes, per doz.	1 0-1 0
Cauliflowers, Eng.		Rhubarb, bundle	0 6-1 0
ish, doz.	2 0-4 0	Salsify, per bun.	1 0-1 0
Celeriac, per root	0 4-5 0	Seakale, per punnet	2 0-2 6
Celery, per bundle.	1 6-2 6	Small salad, per	
Cucumbers, each	0 9-1 6	punnet	0 4-5 0
Endive, per dozen	2 0-2 0	Spinach, per bushel	4 0-5 0
Garlic, per lb.	0 6-1 0	Tomatoes, per lb.	2 0-2 6
Herbs, per bunch	0 2-0 4	Turnips, bun.	0 5-1 0

#### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0-4 0	Marguerites, 12 bun.	3 0-6 0
Acacia, Fr., basket.	4 0-5 0	Mignonne, 12 bun.	3 0-9 0
Anemone, 12 bunch.	3 0-9 0	Narcissus, Paper-	
Arum Lilies, 12 blms.	3 0-6 0	white, 12 sprays..	2 0-2 6
Azalea, 12 sprays	0 6-1 0	— French, 12 bun.	2 0-6 0
Bouvardias, per bun.	1 0-1 6	Pelargoniums, per 12	
Camellias, per doz.	1 0-4 0	sprays	1 0-1 6
Caranths, 12 blms.	1 0-3 0	— scarlet, 12 sprays	0 6-1 0
Cinerarias, per bun.	0 9-1 0	Primroses, 12 bunch.	0 9-1 0
Cyclamen, 12 blooms	0 3-0 6	Primula, double, bun.	0 9-1 0
Epiphyllum, 12 blms.	0 4-0 6	— sinensis, 12 bun.	0 4-0 6
Eucharis, per doz.	4 0-6 0	Roses (indoor), doz.	2 0-6 0
Euphorbia jacquie-		— French, per doz.	1 0-2 0
flora, 12 sprays	3 0-6 0	Spirea, 12 bunches.	6 0-9 0
Gardenias, 12 blms.	4 0-8 0	Tropaeolum, 12 bun.	2 0-4 0
Heliotropes, 12 sp.	0 6-1 0	Tulips, 12 blooms	0 9-1 0
Hyacinths, Roman,		Violets, 12 bun.	0 4-0 9
12 bunches	3 0-9 0	— French, bunch.	0 3-1 0
Lapageria, white, 12		— Parme, French,	
blooms	2 0-3 0	per bunch	3 0-5 0
— red, 12		Wallflower, 12 bun.	4 0-6 0
blooms	1 0-2 0	White Jasmine, bun.	0 6-2 0
Lily-of-Val, 12 sprays	2 0-2 0		

#### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, per		Ferns, in var., dozen	4 0-18 0
dozen	6 0-24 0	Ficus elastica, each	2 6-7 0
Arbor-vitæ (golden),		Foliage Plants, vari-	
per dozen	6 0-18 0	ous, each	2 0-10 0
— (common), dozen	6 0-12 0	Gerania, 12 pots	9 0-18 0
Arum Lilies, dozen	9 0-15 0	Hyacinths, per doz.	6 0-9 0
Azaleas, per dozen	18 0-42 0	Lily-of-the-Valley, 12	
Begonias, per doz.	6 0-12 0	pots	15 0-24 0
Bouvardia, dozen	9 0-18 0	Marguerite Daisy,	
Cinerarias, per doz.	9 0-12 0	per dozen	8 0-15 0
Cyclamen, per doz.	9 0-24 0	Myrtles, per doz.	6 0-12 0
Cyperus, per dozen	4 0-12 0	Narcissus, 12 pots	12 0-18 0
Dracaena terminalis,		Palms in variety,	
per dozen	30 0-60 0	each	2 6-21 0
— winds, per doz.	12 0-24 0	Pelargoniums, scar-	
Epiphyllum, doz.	18 0-24 0	let, per dozen	4 0-9 0
Erica, various, doz.	9 0-18 0	Primula sinensis, per	
Eucytmus, various,		dozen	4 0-6 0
per dozen	6 0-18 0	Solanoons, dozen	9 0-12 0
Evergreens, in var.,		Spirea, per dozen	12 0-18 0
per dozen	6 0-24 0	Tulips, dozen pots	8 0-10 0

### SEEDS.

**LONDON:** March 11.—The inquiry for Clover and other farm seeds now increases daily. The late weather, however, has not been favourable for sowing operations. Alsike has advanced 2s. per cwt. White Clovers remain steady. The duller article is still red Clover seed, the supply of which continues most abundant. There is an improved sale for Italian Rye-grass. French Sainfoin is this season rather scarce. Bird seeds are slow. Feeding Linseed shows no change. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

### CORN.

At Mark Lane on Monday trade was very quiet. As compared with the previous Monday, English and foreign Wheats were unaltered, except, perhaps, that Australian and old Russian were rather firmer. Flour was dull; Maize was quiet, and flat corn quoted 22s. 3d. to 22s. 6d.; Barley continued steady in value, but without much doing; Beans and Peas met a very slow sale at unaltered rates, and Oats were firm, at 3d. to 6d. advance for the week.—On Wednesday holders of Wheat required extreme rates, but there was very little done to establish quotations, buyers being slow to operate on political contingencies in the face of statistical facts. Flour was steadier, in sympathy with Wheat, and on diminished shipments from America. There was no change in the value of Barley, Beans, or Peas; Maize was steady in value, without much doing; and Oats were again rather dearer.—Average prices of corn for the week ending March 7:—Wheat, 31s. 8d.; Barley, 31s. 3d.; Oats, 20s. 8d. For the corresponding period last year:—Wheat, 37s. 7d.; Barley, 31s. 5d.; Oats, 19s. 11d.

### HAY.

Tuesday's Whitechapel report states that there was a dull trade, with considerable supplies of inferior stuffs, which were difficult to sell. A better inquiry prevailed for very prime qualities of Clover, hay, and straw, with an advance of 2s. on the top price of Clover and hay, and 1s. on straw. Quotations:—Clover, prime, 85s. to 104s.; prime second cut, 85s. to 100s.; inferior, 48s. to 73s.; hay, prime, 76s. to 92s.; inferior, 25s. to 60s.; and straw, 22s. to 35s. per load.—Cumberland Market quotations:—Clover, best, 90s. to 105s.; interior, 60s. to 84s.; meadow hay, best, 80s. to 90s.; inferior, 60s. to 75s.; and straw, 29s. to 34s. per load.

### POTATOS.

The Borough and Spitalfields Market report states that the trade continues slow, but prices remain without further alteration. Quotations:—Scotch Regents, 85s. to 95s.; Kent ditto, 65s. to 85s.; Champions, 40s. to 60s.; Magnum Bonums, 60s. to 80s.; Victorias, 70s. to 90s. per ton.—The imports into London last week consisted of 256 bags from Boulogne, 1718 Harlingen, 283 Hamburg, 269 sacks Rouen, 9 packages St. Michael's, 4 baskets Amsterdam, 14 bags, 112 cases, 188 boxes, and 14 packages from Malta.

### COALS.

The prices current at market during the week were as follows:—East Wylam, 15s. 6d.; Walls End—Hetton, 16s.; Hetton Lyons, 14s.; Lambton, 15s. 6d.; Wear, 14s.; Caradoc, 16s.; Tees, 16s.; Tync (unscreened), 11s. 3d.; East Hartlepool, 15s. 3d.; Eldon West Hartley, 14s. 9d.

## CONIFERS—CONIFERS.

**ABIES DOUGLASII**, 2-yr. seedling, 15s. per 1000; 2-yr., 1-yr. transplanted, 25s. per 1000; 12 to 18 inches, 8s. per 1000.

„ „ **GLAUCOA**, 2 to 3 feet, 12s. per dozen; 3 to 4 feet, 18s. per dozen.

The glauca variety is a grand ornamental tree, of dense compact habit, with different shades of colour.

„ **ENGELMANNI**, 6 to 9 inches, 4s. per dozen.

„ **MENZIESII**, 9 to 12 inches, 8s. per 100; 2 to 3 feet, 16s. per 100.

„ **ORIENTALIS**, 2 to 3 feet, 16s. per 100; 3 to 4 feet, 25s. per 100.

„ **PARRVANA**, 9 to 12 inches, 9s. per dozen; 12 to 18 inches, 22s. per dozen.

„ „ **GLAUCOA**, 12 to 18 inches, 60s. per dozen.

**ARAUCARIA IMBRICATA**, 1-yr., 1-yr. transplanted, 20s. per 100.

**CEDRUS ATLANTICA**, 2-yr. seedling, 2s. per 100.

„ **DEODARA**, 9 to 12 inches, 22s. per 100; 18 to 24 inches, 50s. per 100.

**CUPRESSUS LAWSONII**, 2-yr. seedling, 10s. per 1000; 2-yr., 1-yr. transplanted, 20s. per 1000; 3 to 4 feet, 40s. per 100.

„ „ **ERECTA VIRIDIS**, 12 to 18 inches, 20s. per 100; 18 to 24 inches, 40s. per 100.

„ „ **LUTEA**, 9 to 12 inches, 50s. per 100; 12 to 18 inches, 75s. per 100.

„ **MACROCARPA**, 2-yr. seedling, 8s. per 100; 12 to 18 inches, 20s. per 100.

„ **NUTKANENSIS**, 1-yr., 1-yr. transplanted, 10s. per 100.

**LIBODRUS DECURRENS**, 2-yr. seedling, 8s. per 100; 2 to 3 feet, 40s. per 100.

**PICEA CONCOLOR**, 2-year seedling, 20s. per 100; 9 to 12 inches, 12s. per dozen; 12 to 18 inches, 18s. per dozen; 18 to 24 inches, 24s. per dozen.

Veitch, in his *Manual of Conifers*, makes concolor synonymous with lasiocarpa. Our concolor are 2s. distinct from lasiocarpa as magifica is from nobilis.

„ **GRANDIS**, 6 to 9 inches, 35s. per 100; 9 to 12 inches, 40s. per 100.

„ **LASIOCARPA**, 22 to 18 inches, 18s. per dozen; 2 to 3 feet, 24s. per dozen.

„ **MAGNIFICA**, 9 to 12 inches, 18s. per dozen; 12 to 18 inches, 24s. per dozen.

„ **NOBILIS**, 2-yr., 1-yr. transplanted, 6s. per 100; 9 to 12 inches, 6s. per dozen; 12 to 18 inches, 9s. per dozen; 18 to 24 inches, 12s. per dozen.

„ **NORDMANNIANA**, 6 to 9 inches, 2s. per dozen; 9 to 12 inches, 3s. per dozen.

„ **PINSAPO**, 2-yr. seedling, 6s. per 100.

„ **VEITCHII**, 4 to 6 inches, 22s. per dozen.

„ **WEBBIANA**, 12 to 18 inches, 12s. per dozen.

**PINUS ARISTATA**, 4 to 6 inches, 6s. per dozen; 6 to 9 inches, 9s. per dozen; 9 to 12 inches, 12s. per dozen.

„ **BOLANDERII**, 12 to 18 inches, 4s. per dozen; 2 to 3 feet, 12s. per dozen.

„ **CEMBRA**, 18 to 24 inches, 3s. per dozen.

„ **INSIGNIS**, 2-yr. seedling, 6s. per 100.

„ **JEFFREYII**, 2-yr., 1-yr. transplanted, 10s. per 100; 12 to 18 inches, 5s. per 100.

„ **MURICATA**, 2-yr., 1-yr. transplanted, 12s. per 100.

„ **PARVIFLORA**, 4 to 6 inches, 6s. per dozen; 9 to 12 inches, 12s. per dozen.

„ **PEUCE**, 2 to 3 feet, 18s. per dozen.

„ **PINEA**, 2-yr. seedling, 5s. per 100.

**TAXUS**, in 12 distinct varieties, 12 to 18 inches, 6s. per dozen; 18 to 24 inches, 9s. per dozen.

**THUJA LOBBII**, 2-yr. seedling, 3s. per 100.

„ **OCCIDENTALIS**, 2-yr., 1-yr. transplanted, 2s. per 100.

„ **STANDISHII**, 12 to 18 inches, 12s. per dozen; 18 to 24 inches, 18s. per dozen.

**THUIOPSIS DOLABRATA VARIEGATA**, 9 to 12 inches, 3s. per dozen; 12 to 18 inches, 6s. per dozen.

## FOREST TREES.

**BEECH**, Common, 2-yr. seedling, 5s. per 1000; 18 to 24 inches, 15s. per 1000.

**BIRCH**, 1-yr. seedling, 3s. 6d. per 1000.

**CHESTNUT**, Horse, 1-yr. seedling, 8s. per 1000.

**HAZEL**, 2-yr. seedling, 8s. per 1000.

**HOLLY**, 1-yr. seedling, 4s. per 1000.

**LARCH**, 2-yr. seedling, 5s. per 1000.

**OAK**, English, 1-yr. seedling, 4s. per 1000.

„ Turkey, 1-yr. seedling, 10s. per 1000.

**SCOTCH FIR**, Native, 2-yr. seedling, 1s. 6d. per 1000.

**SILVER FIR**, 2-yr. seedling, 5s. per 1000; 9 to 15 inches, 25s. per 1000.

**SPRUCE FIR**, Norway, 2-yr. seedling, 1s. 6d. per 1000; 9 to 12 inches, 6s. per 1000.

„ Black American, 2-yr., 1-yr. transplanted, 20s. per 1000.

„ White American, 2-yr., 1-yr. transplanted, 7s. 6d. per 1000; 9 to 12 inches, 20s. per 1000.

**SVCAMORE**, 1-yr. seedling, 3s. per 1000; transplanted, 12 to 18 inches, 10s. per 1000; do., 18 to 24 inches, 15s. per 1000.

## ROSES.

**DWARF**, budded low on Manetti, 25s. per 100.

**GLOIRE DE DIJON**, TEAS, and NOISSETTES, worked on the Seedling Brier in the open ground, 40s. per 100.

### GENERAL PRICE LIST

sent Free on application.

**MORRISON BROTHERS,**  
NURSERIES, ABERDEEN.



**HERBACEOUS AND ALPINE PLANTS.**—Now is the season to plant and insure success. Write for R. H. VERTEGANS' Pocket CATALOGUE, and make your choice from his unrivalled Collection. Chad Field Nurseries, Edgbaston, Birmingham.

**Hyacinthus candidans.**  
**BUDDENBORG BROS., BULB GROWERS,**  
Hillegom, near Haarlem, Holland,  
offer the above, splendid white flowering bulb, at 50s. per 1000.

**GRAPES THIS YEAR.**  
FRUITING CANES, 7s. 6d. and 10s. 6d. each.  
PLANTING CANES, 2s. 6d. to 7s. 6d. each.  
Leading kinds, perfectly ripened without bottom-heat.  
**JAMES DICKSON & SONS,** "Newton" Nurseries, Chester.

## PRIZE COB FILBERT TREES.

Gentlemen desirous of obtaining the true  
**WEBB'S PRIZE COB FILBERT TREES**  
for Autumn and Winter Planting, should send their  
Orders as early as convenient to  
**Mr. COOPER, F.R.H.S.,**  
CALCOT GARDENS, READING, BERKS.,  
of whom alone the various sorts can be obtained.  
Price *LISTS* on application.

## GARDEN REQUISITES.

**COCOA-NUT FIBRE REFUSE.**  
4d. per bushel; 100 for 25s.; truck (loose, about 2 tons),  
40s.; 4-bushel bags, 4d. each.  
**LIGHT BROWN FIBROUS PEAT,** 5s. 6d. per sack;  
5 sacks, 25s.; sacks, 4d. each.  
**BLACK FIBROUS PEAT,** 5s. per sack; 5 sacks 22s.; sacks,  
4d. each.  
**COARSE SILVER SAND,** 1s. 6d. per bushel; 15s. per half  
ton, 26s. per ton, in 2-bushel bags, 4d. each.  
**YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-**  
**MOULD,** 1s. per bushel.  
**SPHAGNUM MOSS,** 8s. 6d. per sack.  
**MANURES, GARDEN STICKS, VIRGIN CORK, TO-**  
**BACCO CLOTH, RUSSIA MATS, &c.** Write for Free  
Price *LIST*.—**H. G. SMYTH,** 21, Goldsmith's Street,  
Drury Lane (late called 174, Coal Yard), W.C.

**GENUINE GARDEN REQUISITES,** as  
supplied to the Royal Gardens.—Fresh Cocoa-Nut Fibre  
Refuse, 4 bushel bags, 1s. each; 30 for 25s.—bags included.  
Two Ton Truck, free on Rail, 25s. Best Brown Fibrous Kent  
Peat, 5s. per sack; 4s. 6d. per sack; 5 for 20s.; 10 for 30s.  
Best Black Fibrous Peat, 4s. 6d. per sack; 14s. per ½-ton; 25s.  
Coarse Bedford Sand, 1s. 6d. per bushel; 15s. per half  
ton. **SPECIALITE TOBACCO PAPER,** 10d. per lb.;  
28 lb., 21s.; cwt., 70s. Second quality, 7d. per lb.; 28 lb., 16s.  
Finest Tobacco Cloth, 3d. per lb.; 28 lb. for 12s. Leaf-Mould,  
5s. per sack. Peat-Mould, 4s. per sack. Yellow Fibrous Loam,  
3s. per sack. Charcoal, 2s. 6d. per bushel. Bones, Guano,  
Sphagnum, &c. *LIST* free. Special prices to the Trade for  
cash. **W. HERBERT AND CO.,**  
HOP EXCHANGE WAREHOUSES, SOUTHWARK STREET, S.E.  
(near London Bridge).

12-oz. Sample Packets, free by post, 12 stamps.  
**FIBROUS PEAT FOR ORCHIDS, &c.**—  
**BROWN FIBROUS PEAT,** best quality for Orchids,  
Stove Plants, &c., 4s. 6d. per Truck. **BLACK FIBROUS PEAT,**  
for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s.  
per ton per Truck. Sample Bag, 5s.; 5 Bags, 22s. 6d.; 10 Bags,  
45s. Bags included. Fresh **SPHAGNUM,** 10s. 6d. per Bag.  
**SILVER SAND,** Coarse or Fine, 5s. per Truck of 4 tons.  
**WALKER AND CO.,** Farnborough Station, Hants.

## BEESEON'S MANURE

Is the best for all Horticultural Purposes.  
Sold in Tins at 1s., 2s. 6d., and 10s. 6d. each; also in  
Sealed Air-tight Bags, containing 1 cwt., 13s.  
The 10s. 6d. Tins serve as a strong substantial receipt to  
refill from the 1 cwt. bags.

Supplies can be obtained through all respectable Nurserymen,  
Seedsmen, and Florists in the Kingdom; or, in districts where  
no Agents reside—Carriage Paid for Cash with Order—direct  
from the MANUFACTURER.

**W. H. Beeson, Carbrook Bone Mills, Sheffield.**

Testimonials from the Rev. Canon Hole, and most of the  
leading Gardeners, free on application.  
Pure Crumbed Unboiled BONES, any size, for Vine Borders,  
&c. **WHOLESALE AGENTS IN LONDON,**  
**CORRY, SOPER, FOWLER & CO (Limited).**

## GARDEN REQUISITES.

**TWO PRIZE MEDALS.**  
Quality, THE BEST in the Market. (All sacks included.)  
**PEAT,** best brown fibrous .. 4s. 6d. per sack; 5 sacks for 20s.  
**PEAT,** best black fibrous .. 3s. 6d. " 5 sacks for 15s.  
**PEAT,** extra selected Orchard 5s. 6d. " "  
**LOAM,** best yellow fibrous .. 1s. per bush. (sacks included).  
**PREPARED COMPOST,** best .. 1s. per bush. (sacks included).  
**LEAF MOULD,** best only .. 1s. per bush. (sacks included).  
**PEAT MOULD** .. 1s. per bush. (sacks included).  
**SILVER SAND,** coarse, 1s. 3d. per bush., 12s. half ton, 22s. ton  
**RAFFIA FIBRE,** best only .. 1s. per lb.  
**TOBACCO CLOTH,** finest imported .. 8d. lb., 28 lb. 18s.  
**TOBACCO PAPER** (Specialite) 6d. lb., 28 lb. 18s.  
**MUSHROOM SPAWN,** finest Milktrawl .. 5s. per bushel.  
**SPHAGNUM MOSS,** all selected 2s. per bush., 6s. per sack.  
**COCOA-NUT FIBRE REFUSE** (by Chubb's special process),  
sacks, 1s. each; 10 sacks, 9s.; 15 sacks, 12s.; 20 sacks, 17s.;  
30 sacks, 25s.; 40 sacks, 30s. Truck-load, loose, free on rail,  
25s. Limited quantities of G., special quality, granulated, in  
sacks only, 2s. each. Terms, strictly Cash with order.

**CHUBB, ROUND & CO.,**  
WEST FERRY ROAD, MILWALL, LONDON E.

## STANDEN'S MANURE.

ESTABLISHED 20 YEARS.

This old-established Manure is acknowledged by most of the  
leading practical Gardeners in the United Kingdom and the  
Colonies to exceed all others in general fertilising properties and  
staying powers. It promotes a rapid, healthy, and robust  
growth in plants generally. It is a clean and dry powder,  
with very little smell, which renders it particularly adaptable  
for ladies interested in plant culture.

The highly fertilising properties of this Manure render its  
money value, in comparison with other manures, at least double,  
as users will find that very small quantities will produce  
favourable results.

Sold in TINS, 1s., 2s. 6d., 5s. 6d., and 10s. 6d. each;  
and in BAGS or KEGS. at reduced prices, 28 lb., 12s. 6d.;  
56 lb., 23s.; 112 lb., 42s. each.

May be obtained from all Nurserymen and Seedsmen in the  
United Kingdom and the Colonies.

SOLE MANUFACTURERS,

**CORRY, SOPER, FOWLER & CO.**  
(LIMITED),  
18, FINSBURY STREET, LONDON, E.C.

Notice.

**COCOA-NUT FIBRE REFUSE.**—  
Reduced price. The same as supplied to the Royal Horti-  
cultural Society of England. Truck-load, loose, of 2 tons, 25s.  
Large quantities contracted for. In sacks:—Ten, 8s.; twenty,  
15s.; forty, 25s., bags included. Free on Rail. Cash with all  
orders.—**J. STEVENS AND CO.,** Cocoa-nut Fibre Merchants,  
"Greyhound Yard," and 153, High Street, Battersea, S.W.

**PEAT**—Superior Black or Brown Fibrous  
PEAT, for Rhododendrons, Azaleas, &c., as supplied to  
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**EPPS'S SELECTED PEAT**—Forty sacks,  
2s. 6d. per sack; 30 ditto, 2s. 9d.; 20 ditto, 3s. 6d.;  
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**LOAM, SAND, LEAF-MOULD, SPHAGNUM, &c.**  
See Special List, also for the Trade. Kingwood, Hants.

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Soluble in water. The cheapest, safest, and most  
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instant death to Mealy Bug, Scale, Thrips, Red Spider, Green  
and Black Fly, American Blight, Mildew, Aunts, &c. As a  
winter dressing unequalled. See circulars, with testimonials,  
from many of the leading Gardeners on its behalf.

Sold by most of the leading Nurserymen, Seedsmen, and Garden  
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**ROLL TOBACCO PAPER, CLOTH, and**  
**FIBRE** for Fumigating.—The best and cheapest it  
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**OLD TOBACCO ROPE,** very strong, for fumigating, 14 lb.,  
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**MANURE.**—We are daily getting letters asking us how  
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though advertised as the same.  
**WM. THOMSON AND SONS, Clovenfords.**

## EUREKA!! INSECTICIDE.

Prepared by  
**WILLIAM SMITH, Chemist, Stockbridge, Edinburgh.**

Highest Award, Forestry Exhibition, Edinburgh.

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"Mr. SMITH,—Dear Sir,—We have now tried your Insecti-  
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"WILLIAM THOMSON AND SONS."

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Manufactured by  
**THE LIVERPOOL HORTICULTURAL CO.**  
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And sold by them and all Nurserymen and Seedsmen.

Having made and sold this Manure under the Name of  
**THOMSON'S VINE and PLANT MANURE,**  
for the past three years, we are now making and selling it under  
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**COWAN'S VINE and PLANT MANURE,**  
and we guarantee that the high character which this Manure  
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present one. Every ingredient in it is of the best quality, as  
experience will continue to prove.

See that all Bags and Tins bear our Registered Trade Mark.

Bags containing:— Tins containing:—  
1 cwt. ¼ cwt. ¼ cwt. ¼ cwt. 7 lb. 2½ lb.  
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Quantities of 1 ton and upwards sent carriage free.  
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Prices to the Trade on application to  
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**THE VINEYARD and NURSERIES,**  
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Effectually clears all Insects and Parasites from the Roots or  
Foliage of Trees and Plants. Kills all Vegetable Grubs,  
Turnip Fly, &c. Cures Mildew and Blight. Clears Grapes  
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Of all Seedsmen and Chemists, 1/6, 2/6, 4/6 a bottle. Per gal-  
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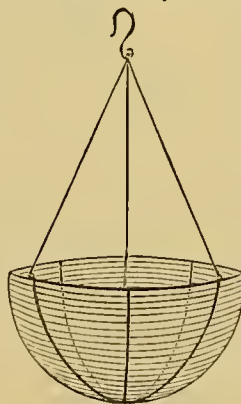
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MANUFACTURER OF HEXACON AND  
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Fishermen always buy new Netting, wear it very hard  
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ARCHANGEL and PETERSBURG MATS of every de-  
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ROPE, LINES, and TWINES, SEED BAGS all sizes,  
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Special Quotations to large buyers.

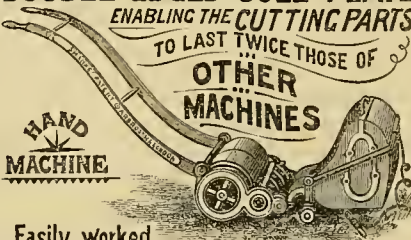
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have done so for the last three  
years, and every one who  
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2 yards,  
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of all Nursery-  
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that it is stamped "Frigi Domo,"  
Registered Trade Mark.GARDEN REQUISITES.—Sticks, Labels,  
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THE ONLY LAWN MOWER FITTED WITH  
**DOUBLE EDGED SOLE PLATE**  
ENABLING THE CUTTING PARTS  
TO LAST TWICE THOSE OF  
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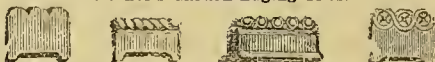


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**Making the Lawn like Velvet**  
**Does not get out of order**

PRICES.	
TO CUT 10 INCHES WIDE, £3 10 0	TO CUT 19 INCHES WIDE, £8 0 0
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**SMALL LAWN MOWERS**  
6 INCH 25/- 7 INCH 35/- 8 INCH 45/-

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THE ABOVE and many other PATTERNS  
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GARDEN VASES, FOUNTAINS, &c., in Artificial Stone,  
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B. & Son have always a large stock in London of 20 in. by  
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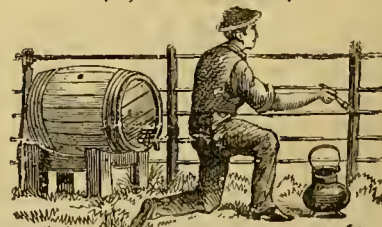
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EYES, 7d. per doz. HOLDBASTS, with  
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HILL AND SMITH'S BLACK VARNISH,  
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(Registered Trade Mark.)This VARNISH is an excellent substitute for oil paint on  
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HOT-WATER PIPES	... 1s. 0d.	... 1s. 4d.	... 1s. 9d.	per yard.
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Boilers in great variety in stock.

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**THE MOST SUITABLE FOR SHADING ORCHIDS, FERNS, Palms and Stove and GREENHOUSE PLANTS.**

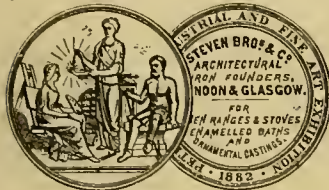
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It withstands the weather better than any other class of shading, and may be beneficially used on account of the thickness of its texture, during cold weather, to keep the frost out. R. WARNER, Esq., Broomfield, Chelmsford, has employed this material for some years, and speaks very highly of it, pronouncing it to be the very best material for Orchids he has ever used.

*Blinds made up and fixed complete.*  
Sold in pieces, 30 yards long by 1½ yard wide.  
Price 45s. each. Sample submitted.

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**WILLIAMS' NEW HOTHOUSE SHADING**



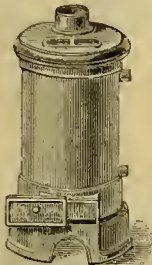
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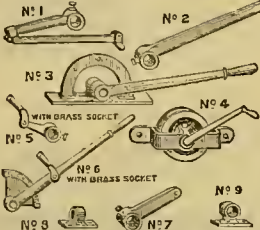
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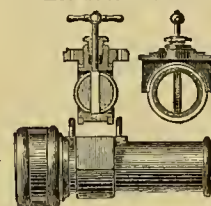


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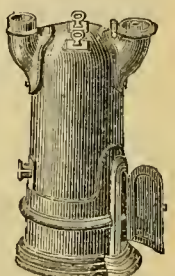
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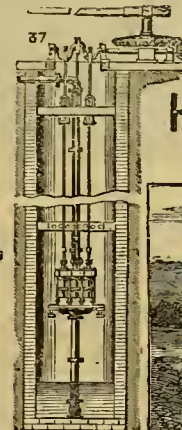
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No. 43.—Dome-top Boiler.



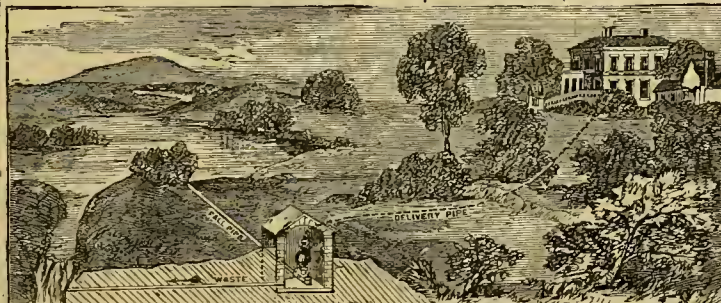
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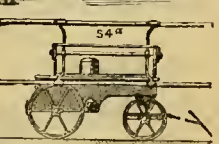
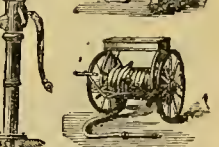
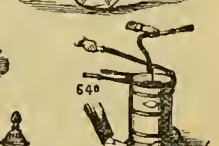
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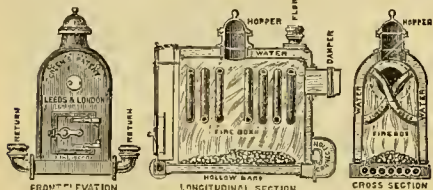
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"HEATING APPARATUS—A great number of boilers, valves,  
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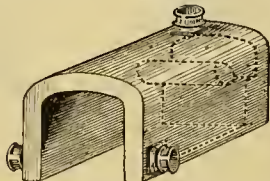
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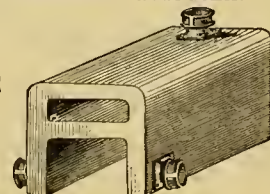
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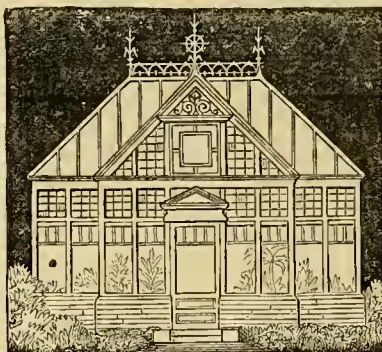
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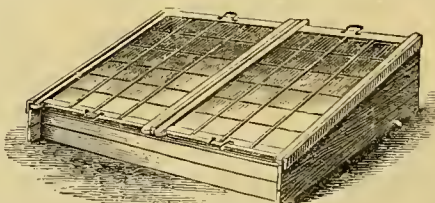
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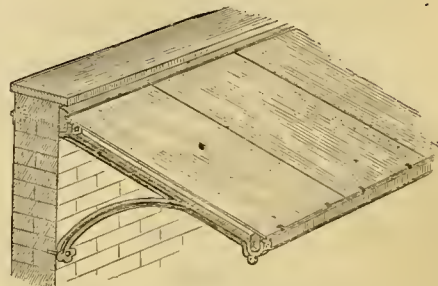
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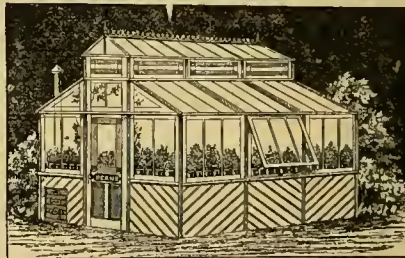


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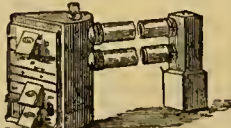
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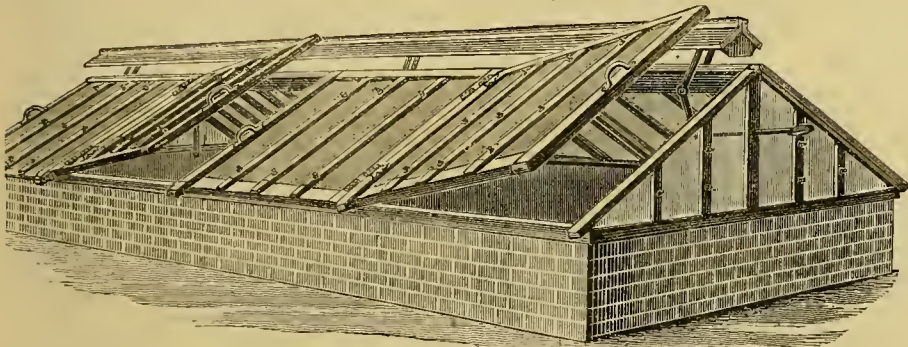
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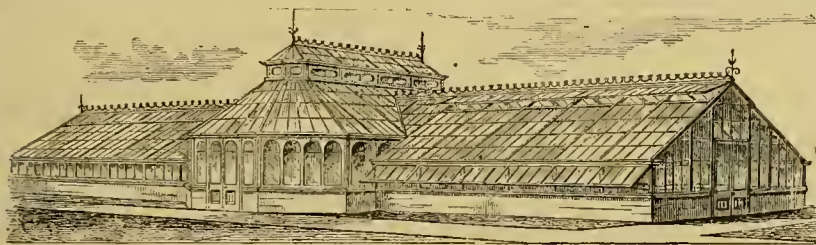
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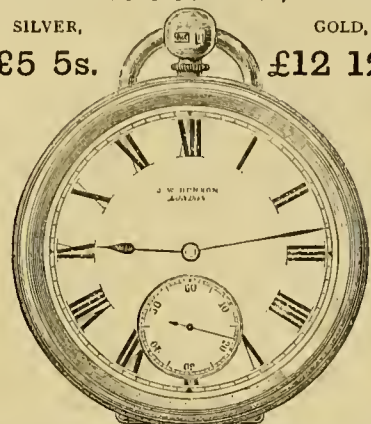
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—JOHN DOWNIE, Seedsman, 144, Princes Street, Edin-  
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Fourteen years' character from late employer.—L. TANSON,  
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branches, having been under him four and a half years.—Address  
as above.

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Wolverhampton, can with confidence recommend his General  
Foreman, W. Holdcroft, to any Lady, Nobleman, or Gentleman,  
as a competent, trustworthy man in the general routine of gar-  
dening. Three years in present situation.

**GARDENER (HEAD).—Age 35, married;**  
thoroughly practical in all branches of the profession.  
Fifteen years Head Gardener in large establishments; six and  
a half years in present situation. Highly recommended by  
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begs to offer his services in the above capacity. Six years in  
present situation; leaving through the displeasure of the  
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married, no family; thoroughly practical in every  
branch. Leaving through death. Excellent character.—GEO.  
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where trust and confidence are required. Good character.—  
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Excellent Fruit Grower. Good character and recommended.—  
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married; upwards of twenty years' sound practical  
experience in some of the leading establishments of the country.  
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Head Gardener to any Lady or Gentleman requiring the services  
of a competent man. Six years in present situation.—H.  
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married, one girl (aged seven); sixteen years' practical  
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Seven years' character from present employer.—W. PIGGOTT-  
The Gardens, Corner Hall, Hemel Hempstead.

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Greenhouse Plants, choice Fruit, Vegetables, &c. Well  
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man's establishment. Fourteen years' experience.—W. H.  
STEPHENS, Ham Manor Gardens, near Worthing, Sussex.

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Age 35; honest, sober, industrious man. Highly re-  
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practical.—T. T., Mr. Potten, Sissinghurst, Staplehurst, Kent.

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33, married; five years' good character from last em-  
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**GARDENER (HEAD WORKING, or good**  
SINGLE-HANDED).—Age 27, single; thoroughly ex-  
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**GARDENER (HEAD, or SINGLE-HANDED,**  
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single; total abstainer. Eleven years' experience.  
Two years' good character; leaving to better himself.—  
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**GARDENER (SINGLE-HANDED).—Age 29,**  
single; thoroughly practical. Can milk. Four years'  
excellent character.—J. FALKNER, Mrs. Hill, Mickleham  
Post-office, Mickleham.



**GARDENER (SINGLE-HANDED, or otherwise).**—Married, one child (age 5 years). Four years in last situation. Good reference. State wages.—C. CORDEKY, Freefolk, Micheldever, Hants.

**GARDENER (SINGLE-HANDED, or otherwise).**—Age 29, married, one in family. Fifteen years' good experience in all branches of the profession. Three and a four years' good character from last and previous situation.—A. P. W., Cole Grove Vineyard, Feltham, Middlesex.

**GARDENER (good SINGLE-HANDED, or where more are kept).**—Age 27, married, no family; understands Stove and Greenhouse, Vines, Fruit, Flowers, and Kitchen Gardes. Wife good Laundress. Good references from previous and present employers.—F. G., 17, Holly Terrace, Whitstone, Middlesex.

**GARDENER (SINGLE-HANDED or SECOND).**—Age 28, married, no family; has had fourteen years' practical experience both indoors and out. Good reference.—W. J. A., 17, Dalby Street, Kentish Town, N.W.

**GARDENER (SECOND, or SINGLE-HANDED).**—Age 25, single; nine years' experience, inside and out. One year in last place. Highly recommended.—J. SLADE, 72, South Street, Isleworth, Middlesex.

**GARDENER (SECOND), where three or more are kept.**—Age 22; over two years in present situation. Good character from present and previous situations.—F. SANSOME, Rauceby Hall, Bedford.

**GARDENER (SECOND), where three or more are kept.**—Age 23.—Advertiser is open to engage with any Gentleman or Gardener as above. Highly recommended. Experienced in all branches.—T. S., Wicken's Cottages, West Malling.

**GARDENER (SECOND, or under the Foreman in House).**—Age 21; abstainer. Good character from present situation. Both not objected to.—J. FLEICHER, The Gardens, Aldershot Park, Hants.

**GARDENER (UNDER).**—Situation wanted by a young man used to Glass. Good character.—W. SCOTT, Kelvedon, Essex.

**GARDENER (UNDER), to assist in the Houses.**—Age 22; good character.—J. H., 6, Goodyear Place, Addington Square, Camberwell, S.E.

**GARDENER (UNDER).**—Age 18; Houses preferred. Can be well recommended by present and previous employers.—J. W. EVERITT, Kendall Road, Colchester, Essex.

**GARDENER (UNDER), where three or more are kept.**—Age 20; has been seven years in his present place, and will be very highly recommended.—A. HEMMINGS, Piccott's End, Hemel Hempstead.

**GARDENER (UNDER).**—Age 21; understands both Flower and Kitchen Garden, with a knowledge of the Houses.—J. H. COLEMAN, Poulton Priory, Fairford, Gloucestershire.

**GARDENER (UNDER), to Assist Inside and Out.**—Seven years' experience. Good character. Both preferred.—State full particulars to A. B., 2, West Street, Ewell, Epsom, Surrey.

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**COWMAN and GARDENER.**—Middle-aged, married, no family. Wife can undertake Dairy and Poultry. Good character.—G. LEAMAN, Richardson's Cottages, Bandon Hill, Croydon, Surrey.

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**FOREMAN; married, age 27.**—Mr. RANN, Handcross Park, Crawley, can highly recommend a thorough practical energetic man (as above) who has lived with him four and a half years. All inquiries will be duly answered.

**FOREMAN, in a Nobleman's or Gentleman's establishment.**—Age 26; eleven years' practical experience. Excellent character.—G. HAIGH, The Gardens, Oakham Park, Ripley, Surrey.

**FOREMAN, in the Houses.**—Eight years' experience; good characters from present and previous employers as to ability, &c.—C. BRINKLOW, The Gardens, Tempieton, Roehampton, Surrey.

**FOREMAN, in the Houses.**—Good practical experience in all branches. Two years' good character from present place.—D. F., Sir H. Bessemer's, Denmark Hill, Camberwell, S.E.

**FOREMAN.**—Age 26; eleven years' experience in all branches of the profession. Good character. Both preferred.—T. BURGESS, Temple Gardens, Great Marlow, Bucks.

**FOREMAN, in the Houses.**—Age 25; eleven years' experience. Well recommended from previous situations.—FOREMAN, Mrs. Speed, 25, New Crane Street, Chester.

**FOREMAN, in the Houses.**—Age 24, single; two years in last place as Foreman. Can have good references.—A. W., 11, Bell Street, Henley-on-Thames.

**FOREMAN; age 27.**—Mr. STAGG, Gardener to P. Rawson, Esq., Woodhurst, Crawley, Sussex, will be pleased to recommend his Foreman, who has lived with him six years, to any one requiring a thoroughly trustworthy, energetic man. Eleven years' experience.

**FOREMAN; age 27.**—J. WIGGINS, Gardener to O. Von der Meden, Esq., Coventry Hall, Streatham, Surrey, will be pleased to recommend G. Hawke, who has been with him five years, to any one requiring a steady persevering man. Ten years' experience.

**FOREMAN; age 25, single.**—Mr. BOWLER, Caldecote Gardens, Nuneaton, can with confidence recommend his Second Man as Foreman in a good private establishment. Thoroughly understands the Management of Plant and Fruit-houses. Ten years' practice in good places; four years in present situation.

**FOREMAN, in a good establishment; age 26.**—W. SUTTON, Gardener to J. S. Sassoon, Esq., Ashley Park, Walton-on-Thames, wishes to recommend his Foreman, G. Harris, as a thorough good practical man. Twelve years' practical experience in good establishments. Two years in present place.

**FOREMAN, in a good establishment; age 27.**—The Advertiser would be pleased to meet with a situation as above. For the past year Foreman to Mr. Baillie, Heaton Park, to whom reference may be made. Twelve years' experience in all branches of the profession.—A. PENHORWOOD, Heaton Park, Manchester.

**FOREMAN, in a Gentleman's establishment.**—Age 28, single; sixteen years' experience in Vines, Peaches, Pines, Cucumbers, Melons, Stove, and Greenhouse Plants, Table Decoration, and the general routine of Gardening. Good character from past and last situations. Late of Nostell Priory.—W. GREASLEY, 14, Graham Street, Radford Boulevard, Nottingham.

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**FOREMAN, or good SECOND, in a large establishment.**—Age 24; has had ten years' experience in Plants, Fruit, Orchids, &c. Steady, persevering. Nearly three years' good character from present employer.—G. WALLER, 66, Lowden Road, Herne Hill, S.E.

**FOREMAN, or SECOND, in a Private establishment.**—Age 24, single; good experience in all branches. Good character.—W. R., The Gardens, Hookfield Park, Epsom, Surrey.

**FOREMAN PROPAGATOR and GROWER.**—Sixteen years' practical experience in the Nursery and Florist Trade, Propagating and Growing of Hard and Soft-wooded Plants, making Wreaths, Crosses, Bouquets, &c. Good references.—H. J., 4, Armoury Terrace, Shrewsbury.

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**JOURNEYMAN, in the Houses.**—Age 22; seven years' experience. Good character from previous and present places.—J. J., 56, Eastgate Street, Winchester.

**JOURNEYMAN, in the Houses, under a good Foreman.**—Age 22; four and a half years in the Houses; highly recommended.—F. LOW, The Gardens, Eastbury Manor, Compton, Guildford.

**JOURNEYMAN, in the Houses, in a good establishment.**—Age 19; two years' good character from present place. Both preferred.—E. GLOVER, The Gardens, Wood Hall, Dulwich, S.E.

**JOURNEYMAN, in a Gentleman's establishment.**—Age 22; nine years' experience. Good character. Please state wages, &c.—JOSEPH HORNER, Hamby, near Bedale, Yorkshire.

**JOURNEYMAN, in Houses, in good establishment.**—Seven years' experience. Well recommended from present and previous places.—E. P., 2, Park Cottages, Willoughby Park Road, Tottenham, Middlesex.

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**JOURNEYMAN, in the Houses.**—Age 19; understands Vines and Forcing Houses. Five years' experience. Good reference.—Mr. W. WOOLFE, The Vineries, Milton, Cambridgeshire.

**JOURNEYMAN, in the Houses; age 20.**—J. TRIGGER, Milton Gardens, Peterborough, can highly recommend a strong, active, and willing young man as above. Bothy preferred.

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They have been submitted to numerous practical tests in Public Competition, and in all cases have carried off every prize that has been given.

The following are their advantages over all others:—

- 1st. Simplicity of Construction—every part being easily accessible. 2d. They are worked with much greater ease than any other. 3d. They are the least liable to get out of order. 4th. They make little or no noise in working. 5th. They will cut either short or long Grass, wet or dry.

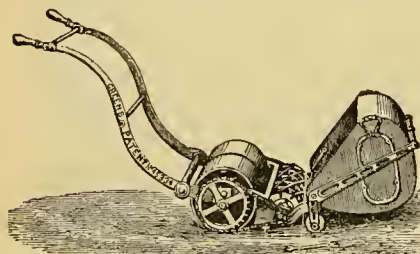
## SINGLE-HANDED LAWN MOWER.

To cut 6 inches, can be worked by a Lady	Price	£1 15 0
To cut 8 inches, do. do.		2 10 0
To cut 10 inches, do. by a strong youth		3 10 0
To cut 12 inches, do. by a man		4 10 0
To cut 14 inches, do. do.		5 10 0

## DOUBLE-HANDED LAWN MOWER.

To cut 16 inches, do. one man on even lawn	£6 10 0
To cut 18 inches, do. man and boy	7 10 0
To cut 20 inches, do. do.	8 0 0
To cut 22 inches, do. two men	8 10 0
To cut 24 inches, do. do.	9 0 0

\* If made stronger, suitable for Donkey, 30s. extra.



Prices of Donkey, Pony, and Horse Machines, including Patent Self Delivery Box, or Side Delivery, with Cross-stay complete, suitable for attaching to Ordinary Chaise Traces or Gig Harness:—

### DONKEY and PONY MACHINES.

To cut 26 inches	£14 0 0
To cut 28 inches	16 0 0
To cut 30 inches	18 0 0
Leather Boots for Donkey	1 0 0
Leather Boots for Pony	1 4 0

The 26 and 28 inches can easily be worked by a Donkey, the 30 inches by a Pony, and the larger sizes by a Horse; and as the Machine makes little noise in working, the most spirited animal can be employed without fear of it running away, or in any way damaging the machine.

Packing Cases as per List.

### HORSE MACHINES.

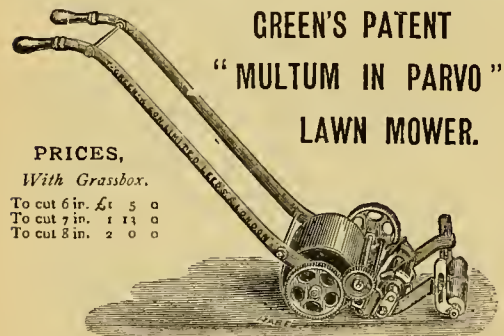
To cut 30 inches	£22 0 0
To cut 36 inches	26 0 0
To cut 42 inches	30 0 0
To cut 48 inches	34 0 0
Leather Boots for Horse	1 9 0

## GREEN'S PATENT "MULTUM IN PARVO" LAWN MOWER.

### PRICES.

With Grassbox.

To cut 6 in.	£1 5 0
To cut 7 in.	1 11 0
To cut 8 in.	2 0 0



## GREEN'S PATENT LAWN TENNIS COURT MARKER.

No. 2412.

Price .. .. 20s.

Small Bags of Marking Composition, Mat, and Packing, 1s 6d.



## GREEN'S PATENT GRASS EDGE CLIPPER.

### SIZE and PRICE.

Wide.	Diam.
8 inch	7 inch
£1 16s.	

Packing Case, 3s.



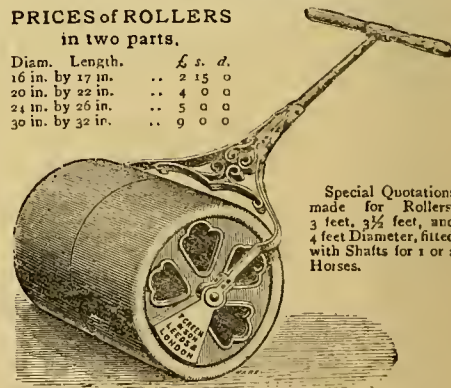
Specially designed to meet a want that has long been felt in cutting the overhanging grass on the edges of walks, borders, flower-beds, &c., and do away with the tedious operation of cutting with shears.

## GREEN'S Patent ROLLERS, For Lawns, Drives, Bowling Greens, Cricket Fields and Gravel Paths, &c.

SUITABLE FOR HAND OR HORSE POWER.

### PRICES of ROLLERS in two parts.

Diam.	Length.	£	s.	d.
16 in.	by 17 in.	2	15	0
20 in.	by 22 in.	4	0	0
24 in.	by 26 in.	5	0	0
30 in.	by 32 in.	9	0	0



Special Quotations made for Rollers, 3 feet, 3½ feet, and 4 feet Diameter, fitted with Shafts for 1 or 2 Horses.

## Green's Patent Steam Road Rollers and Traction Engines combined.

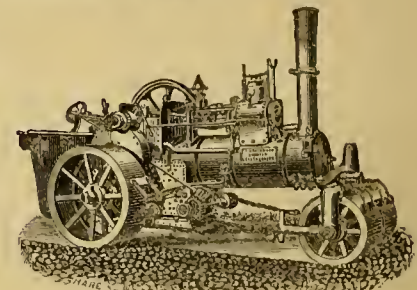
Which are made in sizes of 6, 10, 12½, 15, and 20 Tons weight, and both the Driving and Steering of them are under the easy control of ONE MAN.

Made specially for the Queen, for the Royal Grounds, Windsor.

They are suitable for Rolling Carriage Drives, Park Roads, Walks, Streets, Highways, and for General Road Making; Rolling Lawns, Cricket Fields, Parks, &c. They can also be used as Stationary Engines for Stone Breaking, Wood Sawing, Pumping, Farm Purposes, and other various work.

They are specially recommended to Noblemen, Gentlemen, Borough and Road Surveyors, Corporations, Local Boards, Highway Trustees, Contractors, Road Makers, and others.

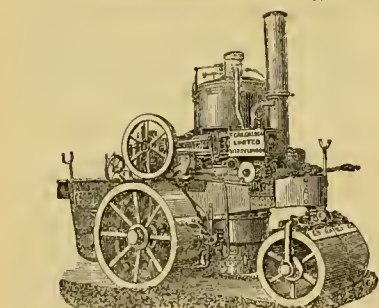
Specifications, with Prices and Testimonials, furnished on application.



### Weight Empty:—

10 TONS. 12½ TONS. 15 TONS.

Weight in Working Trim with Water and Fuel:—  
12½ TONS. 15 TONS. 18 TONS.



### Weight Empty:—

6 TONS. 7 TONS.

Weight in Working Trim with Water and Fuel:—  
7 TONS. 8 TONS.

Delivered Carriage Free at all the principal Railway Stations and Shipping Ports in England, Scotland and Ireland.

No other Lawn Mower Manufacturers keep so large a stock of Mowers as is to be found at our London Establishment, Surrey Works, Blackfriars Road, where Purchasers can select out of several hundred Machines, of Hand, Pony, and Horse Power, and have their Orders supplied the same day as received.

The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, free of cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

Garden Seats and Chairs, and Horticultural Implements of every Description, Wire Netting, &c., &c.

Descriptive Illustrated Price Lists free on application to

THOMAS GREEN & SON, Limited, Smithfield Ironworks, Leeds; and Surrey Works, Blackfriars Road, London.

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Agents for Scotland—Messrs. J. MENZIES & CO., Edinburgh and Glasgow.



# GARDENERS' CHRONICLE.

Established 1841.

No. 586.—VOL. XXIII. { NEW SERIES }

SATURDAY, MARCH 21, 1885.

{ Registered at the General } Price 5d.  
{ Post-office as a Newspaper. } POST-FREE, 5½d.

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Now Ready, in cloth, 16s.  
**THE GARDENERS' CHRONICLE,**  
Volume XXII., JULY to DECEMBER, 1884.  
W. RICHARDS, 41, Wellington Street, Strand, W.C.

**ROYAL HORTICULTURAL SOCIETY,**  
South Kensington, S.W.  
NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M., in the Conservatory; Scientific at 2 P.M., in the Library.

GENERAL MEETING for the Election of Fellows, &c., at 3 P.M., on TUESDAY NEXT, March 21.  
Promenade and Small Band of the Royal Horse Guards from half-past 3 P.M. Admission 2s. 6d.  
N.B.—Entrances, N.E. Orchard House, Exhibition Road; and Exhibitors' Entrance west side of Royal Albert Hall.

**ROYAL BOTANIC SOCIETY.**  
Gardens, Regent's Park, N.W.  
THE FIRST EXHIBITION OF SPRING FLOWERS will take place on WEDNESDAY, March 25. Gates open at 2 o'clock. Band from 2.30 to 5.30. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 2s. 6d. each.

**CRYSTAL PALACE.**  
SPRING SHOW OF FLOWERS and PLANTS, FRIDAY and SATURDAY, MARCH 27 and 28.  
For Schedules address Mr. W. G. HEAD, Garden Superintendent, Crystal Palace, S.E.

**THE GRAND INTERNATIONAL POTATO EXHIBITION** will be held at the Crystal Palace, Sydenham, S.E., on OCTOBER 7, 8 and 9. For Schedules apply to  
P. MCKINLAY,  
Hedley Lodge, Croydon Road, Annerley, S.E.

**E. H. KRELAGE and SON, Haarlem,**  
Holland, have at present a fine stock for sale of IMANTOPHYLLUM MINIATUM, the genuine species, as well as of the best and newest hybrids and varieties. These splendid Decorative Plants become more and more general favourites, and cannot be recommended too much. Special offers will be sent on application.

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—100,000 well-rooted Runners for Sale, of the following varieties:—President, Sir Joseph Paxton, Elton Pine, Princess Alice Maud. Price on application to  
JAMES GUVION, Strawberry Grower, Belton, Great Yarmouth.

**ASPARAGUS.**—Strong 2-yr. and 3-yr. Conover's Colossal, 2s. and 2s. 6d. per 100, 15s. and 20s. per 1000. Bags included. Special quotations for large quantities.  
E. QUINCKY, Fulney, Spalding.

**ASPARAGUS.**—A large quantity of strong plants, 2, 3, and 4-yr. old. Prices on application to  
J. CHEAL and SONS, Lowfield Nurseries, Crawley.

**ASPARAGUS.**—Extra strong three and four years stuff. Samples and prices on application to  
THOMAS S. WARE, Hale Farm Nurseries, Tottenham, Middlesex.

## Choice Alpine and Herbaceous Plants.

**PAUL and SON'S** Broxbourne Nursery is devoted to Hardy Choice Plants, and now contains one of the largest collections in England. Priced CATALOGUES post-free.

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**CALADIUM ARGYRITES.**—Sound Dry Bulbs, 5s. per 100; Smaller Bulbs, 25s. per 100, for Cash only from unknown correspondents.

TURNER BROS., Green Hill Nursery, Allerton, Liverpool.

**NEW CHRYSANTHEMUMS, 1884-5.**—Our Descriptive Priced LIST is now ready, and can be had free on application to  
T. JACKSON and SON, Nurseries, Kingston-on-Thames.

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JOHN LETHERINGTON DIXON, Seed Grower, Gainsborough.

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**SURPLUS STOCK.**—Beautiful Specimens of ORNAMENTAL and EVERGREEN TREES, in perfect condition for removal, at extraordinarily low prices. Special LIST, just published, on application.  
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

**ROSES.—ROSES.—ROSES.**—Fifty choice Perpetuals sent on receipt of remittance for 21s.: purchaser's selection from 400 best varieties. List of names on application. Twenty-four choice Standards, or Half-standards, 21s.  
JAS. WALTERS, Mount Radford Nursery, Exeter, Devon.

**PAUL'S, WALTHAM CROSS.**—ROSES, TREES, EVERGREENS, SHRUBS, CLIMBING PLANTS, FRUIT TREES, GRAPE VINES, CAMELIAS, BULBS, SEEDS, of every description, of the best quality, and low in price. See Priced Descriptive CATALOGUES, free by post.  
WM. PAUL and SON, Paul's Nurseries, Waltham Cross.

**HUGH LOW and CO. offer VINES,** Fruiting Canes—Black Alicante, Bowood Muscat, Gros Colmar, Muscat of Alexandria, and a few other varieties.  
Clapton Nursery, London, E.

**GRAPES THIS YEAR.**—FRUITING CANES, PLANTING CANES.  
Leading kinds, perfectly ripened without bottom-heat.  
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S. BIDE, Alma Nursery, Farnham, Surrey.

**WISE and RIDES, Covent Garden, W.C.,** are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS, CUCUMBERS, TOMATOES, FRENCH BEANS, Gros Colmar and Alicante GRAPES.

**SQUELCH and BARNHAM,** Long Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatoes, Cucumbers, choice Flowers, &c.

**SQUELCH and BARNHAM,** giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

**SQUELCH and BARNHAM.**—ACCOUNT SALES sent daily, and CHEQUES forwarded weekly.  
BANKERS and TRADE REFERENCES.  
BASKETS and LABELS supplied.

**WANTED, regular supplies of CHOICE CUT FLOWERS.**  
ROBT. DASHWOOD, Commission Salesman, Covent Garden, W.C. Address, Queen's Road Nursery, Peckham, S.E. Terms and References on application.

**WANTED, CALCEOLARIA ANPLEXICAULIS.** State price per 100, to  
W. BOWMAN, Hylodas, Chelmsford.

**WANTED, TURF, 3 feet by 1 foot, per 100.** Also following Trees, 2 to 3 inches through:—ELMS, POPLARS, PLANES, SYCAMORES, ACACIAS. Seed price delivered free at West Brighton Station.  
W. WILLET'S Estate Offices, 61, The Drive, Hove.

**LAING'S BEGONIA SEED.**—GOLD MEDAL STRAIN, from our Prize Plants. Sealed packets CHOICE MIXED, from single varieties, 1s. and 2s. 6d. per packet; 5s. extra large packets. We regret to say we are Sold out of Seed of Double varieties. COLLECTIONS, 12 named varieties, separate, 7s. 6d.; ditto, 6 named varieties, separate, 4s.  
LAING and CO., Seedsmen, Forest Hill, S.E.

**DAHLIAS, Double and Single.**—The largest collection in Europe. See CATALOGUE.  
KELWAY and SON, Langport, Somerset.

**GLADIOLI.**—Twenty Acres. The largest collection in Europe. CATALOGUES free, with Cultural Directions.  
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**JERSEY CHRYSANTHEMUMS.**—All the best, New and Old. LIST free, from  
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**PYRETHRUMS, Double and Single.**—The largest collection in Europe. Now is the time to plant, to bloom this year. See CATALOGUE.  
KELWAY and SON, Langport, Somerset.

**MANETTI STOCKS.**—6000 Manetti Stocks, disbudded when made. Cheap—price on application.  
GEO WILLIAMS, Stapleford, Salisbury.

Must be Cleared by March 25.  
**A FEW THOUSAND good LARCH, 3 to 4 feet;** also a quantity of PICEA NOBILIS, 12 to 15 inches, good. Samples and Prices on application to  
T. JACKSON and SON, Nurseries, Kingston-on-Thames.

**NEW ROSES, BEDFORD BELLE and GIPSY (Laxton).**—Full particulars of these distinct and beautiful new Roses on application. Strong Plants in May next; Bedford Belle, 7s. 6d.; Gipsy, 5s., or of  
T. LAXTON, Bedford.

**Hyacinthus candicans.**  
**BUDDENBORG BROS., BULB GROWERS,** Hillegom, near Haarlem, Holland, offer the above, splendid white flowering bulb, at 50s. per 1000.

**HERBACEOUS and ALPINE PLANTS.**—Now is the season to plant and insure success. Write for R. H. VERTEGANS' Pocket CATALOGUE, and make your choice from his unrivalled Collection.  
Chad Valley Nurseries, Edgbaston, Birmingham.

**HEATHS a SPECIALTY.**—The finest Collection of HEATHS, AZALEAS, and HARD-WOODED STOVE and GREENHOUSE PLANTS generally in the country. An inspection solicited.  
T. JACKSON and SON, Nurseries, Kingston-on-Thames.

**Hyacinth Flowers.**  
**DRIEHIJZEN BROTHERS, FLORISTS,** Lisse, near Haarlem, Holland, will send 100 live cut HYACINTH FLOWERS, large, various colours, for 8s. No charge for packing. Letters prepaid.

**CARNATIONS, PICOTEEs, CLOVES, PINKS, PANSIES,** in the very best varieties, strong, vigorous plants. Special Trade Quotations  
SAMUEL HARTLEY, Headingley Nursery, Leeds.

**TO EXHIBITORS.**—A special cheap offer of very fine quarter and half-Specimen Hard-wooded ERICAS, APHELEXIS, CROTONS, PANCATRUMS, also two LATANIA BORBONICAS (very large specimens), all in first-rate condition, from one of the finest collections in the North of England. For List of varieties, prices, &c., apply to  
CALDWELL and SONS, Nurserymen, Knutsford, Cheshire.

**Gardenias.—Gardenias.**  
**JOHN STANDISH and CO.** have to offer a splendid lot of GARDENIA PLANTS, clean, bushy, and well set, at the undermentioned prices for Cash with order:—10 5-inch pots, 18s. per dozen; in 6-inch pots, 27s. per dozen; in 8-inch pots, 40s. per dozen.  
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**Wholesale List of Vegetable Seeds.**  
**H. and F. SHARPE** will be pleased to forward their WHOLESALE LIST of Home Grown VEGETABLE SEEDS to those who have not yet received it. It comprises all the best varieties in cultivation, and the quality of the seeds is exceptionally good.  
Seed Growing Establishment, Wisbech.

**THE PRIZEWINNER'S PEA, LAXTON'S EVOLUTION.**—The Premier Exhibition Pea of 1884, described by Mr. H. Marriott, the chief prizewinner, as "The Everlasting." Sealed half-pints, 3s. 6d.  
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**CAULIFLOWER PLANTS, Autumn-Sown,** strong, 2s. 6d. 120, 18s. 1200. CABBAGE PLANTS, HERBS, LETTUCE, &c., PLANTS, cheap, carriage paid. LIST free of  
EDWARD LEIGH, Ivy House, Cranleigh, Surrey.

**ASPARAGUS, grand Roots for Forcing, 2s.** per dozen, 12s. 6d. per 100; strong, for planting, 2s. 6d. per 100. SEAKALE, forcing, 2s. 6d. per dozen, 16s. per 100; planting, 2s. per dozen, 12s. 6d. per 100.  
RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.



## SALES BY AUCTION.

Wednesday Next.—(Sale No. 688a.)

HARDY PLANTS and BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, March 25, at half-past 12 o'clock precisely, First-class Standard, Half-Standard, and Dwarf ROSES, comprising most of the leading varieties; a consignment of RHODODENDRONS, THUIAS, KALMIAS, HYDRANGEAS, ILEX, and other SHRUBS and PLANTS from Holland; BORDER PLANTS in quantity to name, LILIUMS, GLADIOLI, and other hardy BULBS and ROOTS, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 688b.)

CATTLEYA LAWRECEANA, Rehb. f., new species. A distinct and beautiful NEW CATTLEYA from the Roraima.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on THURSDAY, March 26, at half-past 12 o'clock precisely, the entire importation of this most superb CATTLEYA. The consignment, brought home under the personal care of the Collector, is in exceptional order, and it has not been our fortune before to offer a finer, more compact, and altogether satisfactory lot of plants; and we do not hesitate to say that we have never seen such splendid sound pieces—they are well shaped, leaves fresh and green, and eyes perfectly dormant, and are the result of two years' diligent search. Cattleys Lawrenceana belongs to the very finest of the genus, the colour of the large flower is deep, rich, and warm; the lip is flat and large, the lower half intensely dark and brilliant, throat yellow and often finely veined red. There are no poor or light coloured varieties among them, and although this Cattleys varies in the markings of the inner lip, all are superb. It is a free-growing, free flowering species, the flower-spikes on plants show up to fifteen flowers; habit of plant is most compact, bulbs thick and varying in size from 6 to 15 inches. The leaves are in some varieties reddish in colour, in others green, and from 6 to 9 inches long.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 688c.)

5000 LILIU AURATUM.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, March 26, an importation of 5000 LILIU AURATUM, just received from Japan in the finest possible condition.

On view morning of Sale, and Catalogues had.

Choice Established Orchids.

MR. J. C. STEVENS has received instructions from Mr. H. James, in consequence of his large boiler giving out, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 1, at half-past 12 o'clock precisely, almost without reserve, a fine collection of ESTABLISHED ORCHIDS, including, amongst many other fine things—

Aërides Larpetum, fourteen leaves	Dendrobium roseum	Ainsworthii
" suavisimum, thirty leaves	Oncidium zebrium	
Angracum sesquipedale	Odontoglossum pardinum	
Dendrobium Ainsworthii	Cattleya Warscewiczii de ic ita	
" nobile nobiliss	Masdevallia towarensis, sev. nty leaves	
Aërides Mendelii, fourteen leaves	" Chelsoni, sixty leaves	
Phaius tuberculatus	Cypripedium hirsutissimum	
Cattleya Mendelii Selborniana-sis	Dendrobium Pierardi giganteum	
" Mossie alba	Lycaste Lawrenceia (scarce)	
Miltonia bicolor	Schomburgkii tubicina	
Oncidium lameligerum	Phaiopsis Ludemanaiana	
Cypripedium cordatum roseum	Sobralia macrantha	
Disa grandiflora, fine health	Masdevallia trochilus, twenty leaves	
Grammatophyllum Ellisi	Cymbidium giganteum	
Cattleya Trianae Jamesianum	Cypripedium grandis, &c.	

On view morning of Sale, and Catalogues had.

Caversham Park, Reading.

MR. J. C. STEVENS has received instructions from the Executors of the late Mrs. Crawshaw, to SELL by AUCTION, on the Premises, as above, EARLY IN MAY, without reserve, the collection of STOVE and GREEN-HOUSE PLANTS, consisting of Crotons, Dracenas, Marantas, Palms, Alcaeosias, Camellias, and Azaleas, &c.; also 12,000 BEDDING PLANTS, of all the best varieties; a small collection of ORCHIDS, including several nice plants of Dendrobium nobile, Cypripedium insigne, C. venustum, C. barbatum, Cattleyas of sorts, Anthurium Scherzerianum, and other species; a quantity of IMPLEMENTS, comprising 3 Rollers, Water-barrows, Cans, Tanks, Mowing Machines, Farm and Spring Carts, together with a Cart-horse, Cob, &c. Date of Sale will shortly be announced.

Monday Next.

LILIU AURATUM, ROSES, PLANTS, &amp;c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, at half-past 12 o'clock precisely, 4000 very fine and fresh Bulbs of LILIU AURATUM, just received from Japan in splendid condition; English-grown CAMELLIAS, beautifully set with buds; PALMS and GARDENIAS, 1200 Standard, Half-standard, and Dwarf ROSES of the best sorts from an English Nursery; 3000 Double African TUBEROSES, 4000 fine Bulbs GLADIOLIUS BRECHLEYENSIS, 2000 Berlin Crowns LILY of the VALLEY, and an assortment of Hardy English-grown LILIES and BULBS.

On view mornings of Sale, and Catalogues had.

Monday Next.—To the Trade.

4000 LILIU AURATUM.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on MONDAY NEXT, 4000 exceedingly fine BULBS, just received from Japan.

On view morning of Sale, and Catalogues had.

Important Sale of Choice Double Camellias, 1½ to 3½ feet, beautifully set with bloom-buds, GREEN-HOUSE PLANTS in variety, 400 Standard, Dwarf, and other ROSES, selected Fruit TREES, HARDY AMERICAN PLANTS, CONIFERÆ, and EVER-GREEN SHRUBS, with a small collection of choice CARNATIONS and PICOTEES, LILIU AURATUM, DAHLIAS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, March 24, at 12 o'clock precisely.

On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Tuesday and Wednesday Next.

MESSRS. PROTHEROE AND MORRIS will include in their SALE of the Suggall Hall COLLECTION OF ESTABLISHED ORCHIDS, on TUESDAY and WEDNESDAY NEXT, by order of Mr. F. Sander, some five masses of LÆLIA ANCEPS SCHRODERIANA, L. ANCEPS STELLA and SANDERIANA, LÆLIA ANCEPS, white variety; ODONTOGLOSSUM CITROSUM, AERIDES TRIBANTIANA, and ODONTOGLOSSUM ALEXANDRIÆ.

On view morning of Sale, and Catalogues had.

Tuesday and Wednesday Next.

IMPORTANT UNRESERVED SALE of the Suggall Hall COLLECTION OF ORCHIDS.

MESSRS. PROTHEROE AND MORRIS

are favoured with instructions from Walter Williams, Esq., to SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C., on TUESDAY and WEDNESDAY, March 24 and 25, at half-past 12 o'clock precisely each day, this VALUABLE COLLECTION, which has been got together with great care during the last dozen years from the oldest established collections in the country, including types not latterly imported, embracing a large number of specimen Cattleyas, the whole in robust health, including:—

Cattleya Mossie, beautiful old type; six grand specimens	Cattleya Trianae alba
" Warneri	" Wallisi
" Warscewiczii delicata	" gigas
" superba (ing)	" Mendelii
" labiata (autumn-flower)	" Eldorado
	" Skinneri

Also Trichocentrum albo-purpureum, Angracum eburneum, Sobralia macrantha, Epidendrum prismatocarpum, Oncidium myanthes barbatum, Oncidium ampliatum majus, several Odontoglossums, Dendrobiums, Oncidiums, &c.

The whole of the Collection will be Sold, and no plants will be disposed of prior to the Auction.

On view mornings of Sale, and Catalogues had.

Friday Next.

IMPORTED BURMESE ORCHIDS.

MESSRS. PROTHEROE AND MORRIS

are instructed by Messrs. Hugh Low and Co. to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, March 27, at half-past 12 o'clock precisely, a large quantity of choice BURMESE ORCHIDS, collected by Mr. Cornow, comprising Dendrobiums in variety, specially a grand lot of the rare and lovely D. luteolum, Aërides Lobbi, Vanda acerulea, also Cattleya Dowiana, C. gigas, C. maxima, Odontoglossum luteo purpureum variety from Antioquia, O. vexillarium, large flowered variety; O. Alexandrie, fine imported pieces from the localities whence come the best varieties.

On view morning of Sale, and Catalogues had.

Friday Next.

PHALÆNOPSIS.

MESSRS. PROTHEROE AND MORRIS

will include in their SALE on FRIDAY NEXT, March 27, by order of F. Sewell, Esq., of Southend, Catford, who is giving up their cultivation, about sixty plants of PHALÆNOPSIS SCHILLERIANA and P. AMABILIS (forming his entire stock of Phalænopsis). For sale without reserve.

On view morning of Sale, and Catalogues had.

Orchids in Flower.—Special Sale.

MESSRS. PROTHEROE AND MORRIS

beg to announce that their next SPECIAL SALE OF ORCHIDS, in Flower and in Bud, will take place on TUESDAY, March 31, and they will be glad to receive entries not later than the 24th inst.

67 and 68, Cheapside, E.C.

TO BE DISPOSED OF, A WHOLESALE

AND RETAIL SEED BUSINESS. A splendid going concern. One of the finest in existence, doing a large and profitable trade. An unusual opportunity.

Apply (by letter only) to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

TO BE DISPOSED OF, A genuine SEED,

FLORIST, and JOBBING BUSINESS, in a main thoroughfare. Rent £32 per annum, with long Lease.

Address A, Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

Brentwood.

Half-an-hour's ride from London.

TO BE LET on LEASE, a compact NURSERY, in the High Street, with several Green-houses, Seed Shop, and Dwelling-house. No Stock to take. A capital opening for an enterprising man.

Apply to Messrs. PROTHEROE AND MORRIS, Auctioneers, 67 and 68, Cheapside, E.C.; or Messrs. POSTANS AND LANDONS, Solicitors, High Street, Brentwood.

Dorington, near Sleaford.

To MARKET GARDENERS and OTHERS.

TO BE LET, and entered upon at Lady Day Next, or earlier if desired, 2 MESSUAGE, STABLE, BARN, and OUTBUILDING, and about 2 Acres of Garden Ground adjoining. Well planted with Fruit Trees, and having 2 well-built Hot-houses suitable for Early Forcing; and also about 3 Acres of Arable Land, the whole in Dorington, and lately occupied by Mr. Henry Sandy, deceased.

Apply to Mr. GEORGE SANDY, of Kelby, Grantham, or to Mr. C. E. BISSILL, Solicitor, Sleaford.

To Florists, Market Gardeners and Others.

TO LET, at Fulham, S.W., 1½ Acre of GARDEN GROUND with Tea Glass-houses suitable for the Business of a Florist or Seedman.

For particulars apply to Messrs. ROSE AND JOHNSON, 25, Great George Street, Westminster, S.W., Solicitors.

TO LET, from March 25 next, THE

NURSERY, Mill Hill, near Hendon, Middlesex, late in the occupation of Mr. James Wright. There is a fair amount of Stock, &c., which would be offered on easy terms to a respectable Tenant. There is a cottage and about 5 Acres of Land. Application for terms, &c., to be made to

C. DRUMMOND, Estate Agent, Hertford, Herts.

Strand (close to).

TO BE LET, the Upper Part of a HOUSE,

in a leading thoroughfare on the north side of the Strand. For particulars, apply to G. H., 24, Great New Street, Fetter Lane, E.C.

Proposed Gardeners' and Foresters'

BENEVOLENT INSTITUTION

for SCOTLAND.

At a Meeting of the Scottish Horticultural Association, held at Edinburgh, on the 6th of February, it was Proposed by Mr. JOHN DOWNIE, and Seconded by Mr. JOHN MEETHVEN, and unanimously agreed to, that an endeavour should be made to start such an Institution. Gardeners' and Foresters' opinions for or against the above are solicited.—(Signed)

JOHN DOWNIE.

JOHN MEETHVEN.

JOHN KENNARD'S HORTICULTURAL

SUNDRIES, FERT. LOAM, SAND, and BERTSHIRE POTTERY DEPOT. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

T. HARPAM, PRACTICAL ROCK BUILDER

and GENERAL HORTICULTURAL DECORATOR (for many years leading hand with Dick Radecliff & Co. London), 107, Church Street, Edgware Road, London, W.

YENARCISSUS or DAFFODIL;

containing its History, Poetry, and Culture, with Notes on Hybridisation, and Illustrated with many Woodcuts. Price 1s. BARR AND SON, King Street, Covent Garden, W.C.

BARR'S THAMES EMBANKMENT

GRASS SEED, as supplied by us to the London Embankments and Parks 21s. per bushel.

BARR'S LAWN GRASS MIXTURE, for

Improving Old Lawns, Laying Down New ones, Cricket Grounds and Bowling Greens. Per lb. 1s. 4d., 25s. per bushel.

BARR'S NEW MIXTURE OF DWARF

GROWING GRASSES for very fine Lawns 1s. 8d. lb

BARR'S GRASS MIXTURES contain

NO CLOVER.

BARR AND SON,

King Street, Covent Garden, W.C.

CAMELLIAS.—A choice Private Collection

for Sale: fine healthy plants, from 3 to 7 feet high, in tub. GARDEN, 97, South Street, Exeter.

QUICKS.—Fine clean grown, 4-year trans-

planted, 17s. 6d. per 1000. Holly box hedges, 18s. p. 100 W. JACKSON, Blakedown, Kidderminster.

FIVE THOUSAND PELARGONIUMS.

Must be sold. Clean, large bushy stuff, to flower early. Established in 48-pots, including all the best named varieties, as Dr. Masters, Duchess of Bedford, Bridal Bouquet, King-ton Beauty, &c., 7s. 6d. per dozen for cash. Also ditto in 60's, ready for 48-pots, at 4s. per dozen for cash.

Address, MANAGER, The Hill Nurseries, Landiacre, Notts.

Hollies, move best now.

PAUL AND SON have at their High Beech

Nursery one of the finest stocks of Hollies in the country. Golden Queen by the 100 or 1000, of all sizes. Priced LIST post-free. The "Old" Nurseries, Cheshunt.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.

H. AND F. SHARPE'S Wholesale Priced

LIST of the above-named Seeds is now ready, and may be had on application. It comprises all the very finest varieties of 1884 growth.

Seed Growing Establishment, Wisbech.

ARBOR-VITÆ, American, 2-yr., 25s. per

1000. CHINESE ARBOR-VITÆ, 1-yr. fine, 10s. per 1000. SWEET BAY, 8 to 9 inches, transplanted, 10s. per 1000. BOX Tree, 4 inches, 30s. per 1000. GOLDEN JAPAN BOX, transplanted, 12s. per 1000. COTONEASTER MICRO-PHYLLA, 6 to 8 inches, 40s. per 1000. CLEMATIS FIAM-

MULA, 1 and 2-yr., 20s. per 1000. CLEMATIS VITALBA, 2-yr., 20s. per 1000. CUPRESSUS MICROCARPA, 1-yr. transplanted, 60s. per 1000; CUPRESSUS LAWSONIANA, 4 to 6 inches, 50s. per 1000. LAUREL, Colchic, 1-yr., 30s. per 1000.

Portugal LAUREL, 1-yr., 25s. per 1000. PINUS INSIGNI-1-yr., fine, 4s. per 1000. PINUS EXCELSA, 2-yr., 4s. per 1000.

PICEA NORDMANNIANA, 1-yr., 4s. per 1000. KILIN-SPORA PLUMOSA, 6 to 8 inches, 10s. per 1000; R. SQUAR-

ROSA, 6 inches, 10s. per 1000. THUIA TARTARICA, 6 to 8 inches, transplanted, 10s. per 1000. THUIA COMPACTA, 8 inches, 8s. per 1000; THUIA LOBBI, 9 to 12 inches, 80s. per 1000.

THUIOPSIS DOLABRATA, 6 to 8 inches, 12s. per 1000. English YEW, 2-yr., 30s. per 1000; 2-yr., transplanted, 50s. per 1000.

GARLIES MITCHELL, Nurseryman, Stranraer, N. B.

CELEBRATED KERRY FERNS, 30 fine

plants, 12 varieties, including rare Tunbridge Fern, 3s., free. FITZPEET, Rathanny, Tralee, Kerry.

FRESH SEED OF CEDRUS DEODARA,

just arrived. Samples and quotations on application. PETER LAWSON AND SON, Limited, Edinburgh.

NOBLESSE and other PEACHES,

ELRUGE and other NECTARINES, in Dwarf-trained trees; BRUSSELS and COMMON PLUM STOCKS, trimmed ready for quartering.

WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

ISAAC DAVIES AND SON

have still to offer—RHODODENDRONS, selected hybrid Seedlings, colour labelled on each plant, 2½ to 3 feet, well budded, 24s. to 30s. per dozen.

" Choice named kinds, fine bushy plants, 1½ to 2½ feet, well budded, 30s. 40s., to 50s. per dozen.

" Seedlings from our choicest kinds, various colours, 12 to 15 inches, bushy, 40s. to 50s. per 1000, many with buds.

AZALEA PONTICA, bushy plants, well budded, 4s., 6s., to 9s. per dozen.

" MOLLIS, Seedlings from best varieties, colours kept distinct, nice bushes, five to ten buds, 9s. per dozen, 50s. per 1000.

We have a fine stock of Green and Variegated HOLLIES, from 2 to 5 feet high, well rooted, and a large General Nursery Stock. Also sweet-scented RHODODENDRONS and other choice hybrids of our own raising.

Priced CATALOGUE on application.

Ormskirk, Lancashire.



**Seed Potatoes.**  
**JOSIAH H. BATH,**  
 York Street, Borough Market, S.E.,  
 Offers the following varieties of SEED POTATOS:—  
 Rivers' Royal Ashleaf.  
 Myatt's Prolific Ashleaf.  
 White Elephant.  
 Beauty of Hebron.  
 Snowflake.  
 Schoolmaster.  
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 And other leading varieties. Prices on application.

**ANTHONY WATERER**  
 has to offer:—  
 BIRCH, 3, 4 and 5 feet.  
 SPRUCE, 2½, 3, 4, and 5 feet.  
 LARCH, 4 to 6 feet.  
 All stout and well rooted.  
 ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

**NEW RUNNER BEAN.—GIRTFORD**  
**GIANT (Laxton).**—The finest and most prolific Scarlet Runner, has secured the highest encomiums and awards during the past season, including a special first-class Certificate at Shrewsbury. Should be grown by all Exhibitors, Gardeners, and Market Growers. A true selected stock of 1884, in my own sealed packets, 2s. 6d. per half pint.  
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**GUINEA BOX OF SPECIALTIES.**—  
 We again offer a choice Collection of CARNATIONS and other POPULAR PLANTS, package and carriage free, for One Guinea, consisting of Six Pairs each choice Show Carnations, Picotee, and Pinks to name; twelve true old Crimsom Lilies, twelve border Carnations, twelve Pyrethrum, double, named; twelve Show and Fancy Dahlias (dry roots). Half the above, 11s.  
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**HOUSE'S PERFECT MARROW PEA.**  
 Pronounced by competent judges to be the finest Pea ever eaten. Prizes of 30s. and 20s. per Forty Pods will be given at the Royal Horticultural Society's Show in July. Sold in Half-Pint Packets, post-free for Fifteen Penny Stamps.  
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**JOHN STANDISH AND CO.** beg to offer the under-mentioned finely grown and well-rooted shrubs:—  
**LAUREL**, caucasicum, 2 to 2½ feet, 30s. per 100.  
 Common, 2 to 2½ feet, 20s. per 100.  
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**BERBERIS DARWINII**, 2 to 2½ feet, 25s. per 100.  
**YEW**, English, 2 to 2½ feet, 50s. per 100.  
**AUCUBA**, Green, 2 to 2½ feet, 63s. per 100.  
**LIMES**, Standard, stout, 5 to 7 feet, 12s. per dozen.  
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**SPECIAL OFFER.**  
**ASPARAGUS ROOTS**, strong, two years in drills, 1s. 6d. per 100, 10s. per 1000.  
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 CATALOGUE containing a splendid collection of finest named Hollyhocks, all fully described and priced, also probably the largest, most select, and best collections of all other Florists' Flowers, Perennials, &c., ever brought together, is now ready, and will be posted on application. It consists of eighty pages of closely printed matter, and forms a very handy reference book on flowers, which should be in the hands of all who cultivate a Garden or Greenhouse.  
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**LOVEL'S STRAWBERRY PLANTS.**  
 Price 2s. 6d. per 100, 10s. per 500, 17s. 6d. per 1000.  
 Sample and Pamphlet, post-free, 4d.  
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**AIR.**—The best for outdoor cultivation. A hardy disease-resisting variety, which ripens very early, does not crack, and is a free and continuous bearer. Fruit large, very handsome, smooth, and of a brilliant vermilion scarlet colour, flavour excellent. Sealed packets, 1s. 6d.  
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**Cheap Plants.—Special Offer.**  
**WILLIAM BADMAN** offers as under from store pots, all healthy, well-rooted, and fit for preseat potting:—  
**TRICOLORS**—Mrs. Pollock, one of the best, 2s. per dozen, 15s. per 100; Lady Cullum, S. Dumaresque, Sir R. Napier, 2s. 6d. per dozen, 18s. per 100. Twelve choice varieties of Tricolors, for 1s. 6d. per dozen.  
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**GOLD LEAF**—Crystal Palace Gem, 2s. per dozen, 10s. per 100; Happy Thought, 2s. 6d. per dozen.  
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**CRIMSON**—Henry Jacoby, 2s. per dozen, 15s. per 100; Waltham Seedling, 1s. 6d. per dozen, 8s. per 100.  
**LOBELIA**—Brighton, Blue Stoe, Pumila magifica, 3s. per 100, 20s. per 1000.  
**HELIOTROPE**—Jean d'Amour, Miss Nightingale and Light, 6s. per 100.  
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**CALCEOLARIA**—Golden Gem and Dark Camden Hero, 5s. per 100, 40s. per 1000.  
**COLEUS** Verschaffelti and IRESINE Lindeni, 5s. per 100.  
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**PELAGONIUM**—Show and Fancy, in single pots, 3s. per dozen, 20s. per 100.  
 Packing included. Terms Cash.  
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**ROSES.—Our Specialty.**  
 Cheapest yet offered both as to quality and price.  
**STANDARDS and HALF-STANDARDS**, fine heads, 9s. to 12s. per dozen.  
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 Packing included. Special price for large quantities.  
 Our Roses, so widely known for their superior excellence, cannot be surpassed by any for vigorous and fibrous roots. The universal satisfaction they have given is a sufficient guarantee for their superior quality.  
**W. B. ROWE AND CO. (Limited)**, Barbours Nurseries, Worcester.

**NEW ROSES of 1885.**  
 The whole of those raised in England, including:—  
**Mrs. CAROLINE SWALES (H.P.),**  
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**BEDFORD BELLE (Hybrid Tea);**  
 And all the best of those raised abroad, including:—  
**GLOIRE LYONNAISE (the yellow H.P.),**  
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 can now be supplied in very fine plants, fit for immediate working or for summer budding.  
**CATALOGUES**, giving raisers' descriptions of each variety, post-free on application to  
**KEYNES, WILLIAMS AND CO.,** Salisbury.

**MR. DODWELL'S GRAND CARNATIONS.** The finest grown.  
 Two thousand Plants, including five sets of his Seedlings of last autumn, to be SOLD, for the BENEFIT of the Prize Fund of the OXFORD UNION CARNATION and PICOTEE SOCIETY. Special terms to the Trade. Particulars on application.  
 Address **HEAD GARDENER**, The Cottage, Stanley Road, Oxford.

**Tuberous Begonias.**  
**R. OWEN** offers his magnificent strain, the result of many years' selection and hybridising. Tubers selected when in bloom. In colours or mixed, single, 3s. 6d. to 10s. 6d. per dozen; double (warranted double) 5s. to 21s. per dozen. Seed, 1s. 6d. and 2s. 6d. single, 2s. 6d. and 5s. double. See **BEGONIA LIST** for opinions of Horticultural Press, on application—one stamp. The Floral Nurseries, Maidenhead.

**GRAPE VINES**, strong Fruiting and Planting Canes; also **STRAWBERRIES** in pots. LIST on application.  
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**LILIES of the VALLEY.**—Crowns from which blooms have been cut, but not been forced to bottom-heat, for planting out to obtain stock. This is the best and cheapest way to get a stock. Many thousands for disposal, the true large flowering Berlin variety, at 12s. per 1000. Prices for crowns for forcing or planting out on application.  
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**BEAUTY OF HEBRON**—A white-skinned selection from Beauty of Hebron, the finest of all the early American sorts. The selection is very early, of large size, and a great producer; quality excellent for early or late eating. Is being largely grown for market. 2 lb., 2s.; 6 lb., 4s., by Parcels Post; 14 lb., 6s.; 2½ bushel.  
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**LILIAM AURATUM.—Special Offer.**—  
 Another large consignment just to hand. Splendid firm sound BULBS, 6 to 8 and 8 to 10 inches in circumference, 25s. and 35s. per 100, 4s. and 6s. per dozen. Cheapest for quality ever offered. Samples twelve stamps. Please order quickly.  
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**SURPLUS STOCK.**  
 Special offer of Nursery Stock:—  
**FIR**, Scotch, 3 to 5 feet, 2-yr., 2-yr.  
 Spruce, 2-yr., 3-yr.  
**LARCH**, 2-yr., 2-yr., strong stuff.  
**BIRCH**, 2 to 3 feet.  
**ALDER**, 1½ to 2 feet.  
**ASH**, Mountain, 4 to 6 feet.  
**LABURNUM**, 4 to 5 feet.  
**WYCH ELM**, 5 to 6 feet.  
**SYCAMORE**, 4 to 6 feet.  
 Prices on application.  
**JOS. TREMBLE AND SON**, Nurserymen, Peart.

**CABBAGE PLANTS!—CABBAGE**  
**PLANTS**!—Extra fine stock and well-rooted plants of the following:—Early Enfield Market, Battersea, East Ham, Rainham, and Noopareil; the above, 3s. per 1000. Red Drumhead (true), 5s. per 1000. Brown Cos, Hardy Green Cos, and Grand Admiral LETTUCE, 5s. per 1000. Cash or reference must accompany all orders from unknown correspondents.  
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**H. AND F. SHARPE** offer the following varieties of SEED POTATOS, of the finest quality, and at very reasonable prices:—  
 Sandringham Kidney  
 Hammersmith Kidney  
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 Rivers' Royal Ashleaf  
 Myatt's Prolific Ashleaf  
 Early Rose  
 Extra Early Vermont  
 Pride of Ontario  
 Pride of America  
 Reading Hero  
 Magnum Bonum  
 Scotch Champion  
 Covent Garden Perfection  
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 White Elephant  
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 Bresse's Prolific  
 Snowflake  
 And other choice varieties.  
 Seed Growing Establishment, Wisbech.

**VINES.—VINES.—VINES.**  
**STRONG FRUITING CANES**, 4s. 6d. each.  
**STRONG PLANTING CANES**, 3s. each.  
 All the best varieties in cultivation.  
**CALDWELL AND SONS**, The Nurseries, Knutsford, Chester.

**Rhododendrons.—Rhododendrons.**  
**JOHN STANDISH AND CO.** have to offer many thousands fine bushy Plants of **PONTICUM RHODODENDRONS**, exceedingly well grown and well-rooted, from 1 to 2½ feet in height, suitable for covert planting, 9 to 12 inches, at 30s. per 100; 12 to 15 inches, 42s. per 100; 18 to 24 inches, 55s. per 100; 24 to 30 inches, 75s. per 100.  
**HYBRID PONTICUM RHODODENDRONS**, 2 to 2½ feet, 4s. per 100. Choice named varieties, 1½ to 2 feet, with flower-buds, 27s. per dozen, 110 per 1000.  
 Royal Nurseries, Ascut.

**SAMUEL SHEPPERSON, FLORIST and SEEDSMAN**, Prospect House, Belper, Derbyshire, begs to inform the readers of the *Gardeners' Chronicle* that he is prepared to execute orders for the following plants, all of which have been grown on the Derbyshire hills, and are very hardy and strong stocky plants, and sure to succeed well. They are of the very finest strains that money can buy. They are carriage free for cash with order.  
 Descriptive CATALOGUE of Florists' Flowers free.  
 Established 26 years.

**PANSIES a SPECIALTY.**—Probably the best collection in England. The cream only of the most noted raisers. The latest new sorts, and the winners at all the great shows. Good plants, correctly named, Show or Fancy, 12 for 3s.; 25 for 5s. 6d.; 100 varieties for 20s. Postal Orders.

**BEAUTIFUL WHITE POLYANTHUS.**  
 —Strong Plants, full of Bloom-buds, 12 for 1s. 6d., 8 for 1s.

**CARNATIONS, PICOTEEES, and CLOVES.**  
 —Yellow, Pink, Scarlet, Dark Red, Pure White, &c., beautifully Striped, Spotted, and Selfs, 12 named varieties, all strong layers, for 4s.

**CANTERBURY BELLS.**—Unrivalled Collection, grand new Colours, Double and Single Telescopes, Candelabra, and other new forms, 12 for 1s.; 12 extra strong for 1s. 6d. Postal Orders.

**CARNATIONS and PICOTEEES.**—The new French Perpetual, a really grand new strain, most beautiful colours, twelve varieties, strong plants, to bloom well, for 2s.; 6 for 1s. 2d.; 12 extra strong for 2s. 6d.

**AURICULAS (Alpines).**—Fine large Trusses and Blooms, most beautiful colours, strong Plants, to bloom well, 12 for 2s.; 12 extra strong for 3s. Postal Orders.

**AURICULAS.**—The old-fashioned Single Yellow. Most deliciously scented. Soon bloom. 12 strong plants for 2s. 6d.; 6 for 1s. 6d.

**POLYANTHUS.**—The finest strain grown; fine large Trusses and Blooms, and splendid Colours. 12 for 1s.; 25 for 1s. 9d.

**BEAUTIFUL PURE WHITE GARDEN PINKS**, deliciously Scented.—Good strong Plants, to bloom well, 12 for 1s.; 25 for 1s. 9d.

**CARNATION.**—The new German Scarlet Greendia, a really fine decorative variety, early and free bloomer. Twelve strong plants, to bloom well, 10s. 6d. for 1s. 2d.; 12 extra strong for 2s. 6d.

**HOLLYHOCKS of Chater's** very finest and most select strain, 12 varieties for 2s. 6d.; 6 for 1s. 6d.; 6 extra strong for 2s. Postal Order.

**DAISIES.**—A fine Collection, three plants each of six distinct sorts, named, for 1s.; Earl of Beaconsfield, the grand New Scotch Dark Daisy, 2 for 1s.

**CARNATIONS and PICOTEEES (Seedling)**, from Carter's celebrated strain. All Colours. Strong plants, to bloom, 12 for 1s. 2d., 24 for 2s., 12 extra strong for 1s. 6d.

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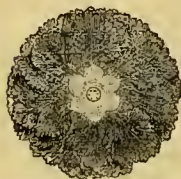
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W. CLIBRAN AND SON'S NEW CATALOGUE (free for two stamps) of Hardy Plants and Flowering Plants for outdoors, is a list of the finest Collections in the Country of Low Priced Plants, and includes only varieties which are annually tested and compared to ensure the weeding out of all inferior plants. The following cheap Collections are of our selection only, all named sorts for Garden or Exhibition:—

- |                                                                                           |                        |                              |                                                                                                                          |                               |                                               |
|-------------------------------------------------------------------------------------------|------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------|
| 12 each of ANTIRRHINUMS, PENTSTEMONS, PHLOXES, for 9s., or 12 of any separate for 3s. 6d. | 12 PYRETHRUMS, 5s.     | 12 POTENTILLAS, 5s.          | 12 DELPHINIUMS, 7s. 6d.                                                                                                  | 12 PÆONIES, 9s.               | or 12 of each, 2s. 6d.                        |
| 12 CARNATIONS, 6s.                                                                        | 12 PICOTÉES, 6s.       | 12 PINKS, 3s. 6d.            | 12 Slow or Fancy PANSIES, 3s.                                                                                            | or 12 of each for 17s. 6d.    |                                               |
| 12 DAHLIAS of any class, Show, Fancy, Bedding, Bouquet, or Single, 3s.                    | 50 varieties, 12s. 6d. | 100 varieties, 25s.          | 12 lovely IRIS, 3s.                                                                                                      | 12 beautiful MINULUS, 3s.     | 12 lovely PRIMROSES, Double, 6s.              |
| 12 Sweet VIOLETS, 2s. 6d.                                                                 | 12 VIOLAS, 2s. 6d.     | or 100 in four colours, 12s. | 12 beautiful Seedling HOLLYHOCKS, 4s.                                                                                    | 50 for 12s. 6d., 100 for 21s. | 12 beautiful PRIMULAS SIEBOLDI, 12 sorts, 6s. |
| 40 Acres fine NURSERY STOCK.                                                              | 5 " HERBACEOUS PLANTS. | 2 " GLASS HOUSES.            | The Oldfield Nurseries, Altrincham, Cheshire, and the Seed and Bulb and Cut Flower Depot, 12, Market Street, Manchester. |                               |                                               |

**10,000 PELARGONIUMS,**

Very fine healthy plants, in 5 inch pots, 50s. and 75s. per 100; in bud, 120s. per 100; in bloom, 16s. per dozen, packing free.

Cash with order, or reference, from unknown Correspondents.

**TURNER BROS., Nurserymen and Florists,**

GREEN HILL NURSERY, ALLERTON, LIVERPOOL.

**RICHARD SMITH & CO., WORCESTER.**

(ESTABLISHED 1804.)

**FOREST TREES** of Perfect Quality and Moderate Price.

**ROSES (20 acres)** BUSHES, 8s. per dozen, 60s. per 100; STANDARDS, 15s. per dozen, 105s. per 100. Packing and Carriage Free for Cash with Order.

**FRUITS (74 acres)** Best varieties of every form and kind of tree at low prices.

**SHRUBS, &c. (91 acres)** CONIFERS, TREES, FLOWERING PLANTS (8s. per dozen, 50s. per 100), FOREST TREES.

**EXPIRATION OF LEASE.**  
SEVEN ACRES OF NURSERY, containing a VALUABLE STOCK, continues to be offered at a nominal price. The lease cannot be renewed. See CHARLES NOBLE'S full Advertisement, *Gardeners' Chronicle*, March 14 and 28.

**SURPLUS STOCK. ROSES.**

Standard and Dwarf Hybrid Perpetuals, Bourbons, Tea-scented, &c., in upwards of 200 varieties, all fine plants, to be sold at very low prices. Special quotations will be given and CATALOGUE sent on application.

**Cranston's Nursery & Seed Co.**

(LIMITED), KING'S ACRE, HEREFORD.  
N.B.—All the best of the NEW CONTINENTAL and ENGLISH ROSES will be ready in Strong Plants early in April.

**PRIMROSES.—PRIMROSES.**

- |                                                     |                                             |
|-----------------------------------------------------|---------------------------------------------|
| DOUBLE, White, 2s. per dozen, 12s. per 100.         | Yellow, early, 4s. per dozen, 30s. per 100. |
| Yellow, late, 2s. per dozen, 12s. per 100.          | Lilac, 2s. per dozen, 14s. per 100.         |
| Red, 4s. per dozen, 30s. per 100.                   | Purple, 6s. per dozen.                      |
| Crimson, 6s. per dozen.                             | Crimson, 18s. per dozen.                    |
| Crousi, 18s. per dozen.                             | Cloth of Gold, 18s. per dozen.              |
| Blush, 9s. per dozen.                               | platyepala, 6s. per dozen.                  |
| SINGLE, White (Purity), 1s. per dozen, 6s. per 100. | Yellow, 1s. per dozen, 6s. per 100.         |
| Hose io-Hose, 9s. per dozen.                        |                                             |

**POLYANTHUS.**

- |                                                     |                                                        |
|-----------------------------------------------------|--------------------------------------------------------|
| GOLD-LACED, named varieties, 9s. to 18s. per dozen. | Border varieties, 1s. per dozen, 6s. per 100.          |
| CERULEA, O'd Blue, 9s. per dozen.                   | HOSE-IN-HOSE, in variety, 2s. per dozen, 14s. per 100. |
| DOUBLE BLACK, Theodore Rex, 9s. per dozen.          | Gold-edged, new, 12s. per dozen.                       |
| JACK IN THE GREEN, 9s. per dozen.                   | GIANT, Yellow and White, 6s. per dozen.                |

**AURICULAS.**

- |                                                                           |                                                                                                                                         |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| ALPINE, named varieties, 6s. to 12s. per dozen.                           | mixed, 6s. per dozen.                                                                                                                   |
| BORDER SORTS, Yellow and Purple, 1s. per dozen, 6s. per 100.              | GREEN EDGED and WHITE EDGED, 3s. per dozen, 20s. per 100.                                                                               |
| PURE WHITE (P. nivalis), 3s. per dozen, 20s. per 100.                     | LARGE DARK PURPLE, 6s. per dozen.                                                                                                       |
| GRAND TURK, black with white centre, beautifully fringed, 18s. per dozen. | DOUBLE YELLOW, 18s. per dozen.                                                                                                          |
| DOUBLE BLACK (O'hella), 30s. per dozen.                                   | PRIMULA DENTICULATA, 6s. per dozen.                                                                                                     |
| FARINOSA, 9s. per dozen.                                                  | JAPONICA, 2s. per dozen, 14s. per 100.                                                                                                  |
| ALBA, 6s. per dozen.                                                      | MUNROI, 6s. per dozen.                                                                                                                  |
| PULCHERRIMA, 6s. per dozen.                                               | ROSEA, 6s. per dozen.                                                                                                                   |
| SIEBOLDI, of sorts, 2s. per dozen, 12s. per 100.                          | SPECTABILIS, 6s. per dozen.                                                                                                             |
| VISCOSA, 6s. per dozen.                                                   | Delivered free to any address in the kingdom for cash with order. When orders are not prepaid, carriage and packing will be charged on. |

**MORRISON BROTHERS, NURSERIES, ABERDEEN.**



## ORCHIDS, HYACINTHS, AND AMARYLLIS.



MESSRS. JAMES VEITCH &amp; SONS

BEG TO

INVITE INSPECTION of their MAGNIFICENT COLLECTIONS

WHICH ARE NOW IN FULL BLOOM.

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

THURSDAY NEXT.—(Sale No. 6881.)

CATTLEYA LAWRENCEANA (RCHB. F.), NEW SPECIES.

A DISTINCT and BEAUTIFUL NEW CATTLEYA, from the RORAIMA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. SANDER, on THURSDAY, March 26, at half-past 12 o'clock precisely,

The entire Importation of this most superb Cattleya.

The consignment, brought home under the personal care of the Collector, is in exceptional order, and it has not been our fortune before to offer a finer, more compact, and altogether satisfactory lot of plants, and we do not hesitate to say that we have never seen such splendid sound pieces. They are well shaped, leaves fresh and green, and eyes perfectly dormant, and are the result of two years' diligent search. Cattleya Lawrenceana belongs to the very finest of the genus; the colour of the large flower is deep, rich, and warm; the lip is flat, and large, the lower half intensely dark and brilliant; throat yellow, and often finely veined red. There are no poor or light-coloured varieties among them, and although this Cattleya varies in the markings of the inner lip, all are superb. It is a free-growing, free-flowering species, the flower-spikes on plants show up to fifteen flowers. Habit of plant most compact, bulbs thick and varying in size from 6 to 15 inches. The leaves are in some varieties reddish in colour, in others green, and from 6 to 9 inches long.

*On view morning of Sale, and Catalogues had.*

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

FRIDAY NEXT.

IMPORTED BURMESE ORCHIDS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. HUGH LOW & Co. to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, March 27, at half-past 12 o'clock precisely, a large quantity of choice BURMESE ORCHIDS, collected by Mr. Curnow, comprising DENDROBIUMS in variety, specially a grand lot of the rare and lovely D. LUTEOLUM; AERIDES LOBBI, VANDA CÆRULEA, also CATTLEYA DOWIANA, C. GIGAS, C. MAXIMA, ODONTOGLOSSUM LUTEO-PURPUREUM, variety from Antioquia; O. VEXILLARIUM, large flowered variety; O. ALEXANDRÆ, fine imported pieces from the localities whence come the best varieties.

*On view morning of Sale, and Catalogues had.*SHARPE'S  
EARLY PARAGON PEA.*The Earliest Large Wrinkled Marrow.*

First-class Certificate, Royal Horticultural Soc., 1884

PARAGON shows in many respects a great improvement upon any variety at present in the trade. It is a Blue Wrinkled Marrow of fine flavour; height from 3 to 4 feet. The pods are produced two and three together in such abundance as to almost conceal the foliage. They are of an unusual size, broad and thick backed, containing from twelve to fourteen immense Peas packed in a double row.

Paragon is the earliest of the large Wrinkled Marrows, being ready before Prizetaker. It is very hardy, and will stand earlier sowing than any Pea of its class. It is most valuable for succession crops, as it is not liable to mildew, and a constant supply of Peas for four months can be obtained from this one variety.

Paragon will prove a most invaluable Market Gardeners' Pea, its earliness, hardness, and immense cropping quality surpass anything yet sent out—it also stands long railway carriage without injury.

The following Testimonial is from the largest dealers in the kingdom in Peas for Market Garden Purposes:—

"December 6, 1884.—In reply to yours respecting your Paragon Pea. We grew it last season and were favourably impressed with its qualities. We consider it a great improvement on Telephone, the pods being a much better colour and the Peas in it being much finer. We consider it is the finest Pea in our trials last season, and we grew every Pea we thought of merit and nearly every novelty.

Price, 2s. 6d. per Pint, 1s. 6d. per Half-pint

*Trade Price on application.*

CHARLES SHARPE &amp; CO., SLEAFORD.

THE MOST SUITABLE FOR  
SHADING ORCHIDS, FERNS,  
Palms and Stove and  
GREENHOUSE PLANTS.

It is a strong, durable Cotton Netting, woven in squares so close as to exclude the direct rays of the sun, but admitting the greatest amount of light attainable through shading.

It withstands the weather better than any other class of Shading, and may be beneficially used on account of the thickness of its texture, during cold weather, to keep the frost out. R. WARNER, Esq., Broomfield, Cbeilmsford, has employed this material for some years, and speaks very highly of it, pronouncing it to be the very best material for Orchids he has ever used.

Blinds made up and fixed complete. Sold in pieces, 30 yards long by 1½ yard wide. Price 45s. each. Sample submitted.

B. S. WILLIAMS,  
VICTORIA AND PARADISE NURSERIES,  
UPPER HOLLOWAY, LONDON, N.

Plants for the Season.  
CHARLES TURNER'S Descriptive CATALOGUE, containing some fine novelties as well as the choicest selections of established kinds, is now ready. The present is the best time to procure plants of Carnations, Picotees, Cloves, &c., to ensure a good bloom. Plants are unusually fine this season. The Royal Nurseries, Slough.

SPRING CLEARANCE SALE,  
to avoid planting.  
LILIUM AURATUM, SINGLE DAHLIAS, IRIS, GLADIOLI, BEGONIAS, and many other Bulbs, with some choice Seeds, at greatly reduced rates. Send for our Special Clearance LIST, No. 73.  
NEW PLANT AND BULB COMPANY,  
Lion Walk, Colchester.



# NATIVE GUANO.

Extracts from the Ninth Annual Collection of Testimonials from persons who have used this  
Manure for Farm and Garden Crops:—

## ROOTS, GRAIN, GRASS, &c.

GEORGE STONE, *Cashio Bridge Farm, Watford.*

February 19, 1885.  
"Used for Swedes on plants at the rate of about 6 cwt. per acre. Results: I was very well satisfied, considering the long time we were without rain; the Swedes were quite as good or better than some in the same field with more expensive manures. I have used your Native Guano for Swedes and white Turnips, and have a very good crop for the season. Kindly send me 3 tons at your earliest convenience, and oblige."

JAMES KITLEY, *Farm Steward to the Right Hon. Lord Derby, Witley Park, Haslemere.* January 24, 1885.  
"Used for Tares, at the rate of 4 cwt. per acre. Results: Very good."

ROBERT CRAWLEY, *Chelveston, near Higham Ferrers.* January 29, 1885.

"Used for Wheat, Oats, Barley, Clover, and grass, at the rate of from 2½ to 5 cwt. per acre (according to the condition of the land, which was cold clay), with good results; had quite 5 cwt. of hay more per acre. Your manure, if as good as last year's, is the best I have ever used, except guano. All other manures are land-damagers—they doctor the land for a time, afterwards they require a physician."

WM. GEO. ELLIOTT, *Aston Abbotts, Aylesbury.*

February 5, 1885.  
"Used for Oats grown after seed Tares at the rate of 7 cwt. per acre. Results: Very good; about 12½ qr. per acre. Being grown against the road, it was generally remarked what a fine piece of corn it was, and I have no doubt will be the cause of several of my neighbours using it this season."

JAMES SOMES, *Bashiff, Yelden Estate, Higham Ferrers.* February 3, 1885.

"Used for Oats and roots, at the rate of 4 cwt. per acre for roots, and 2 cwt. for Oats, with farmyard manure. Results: Exceedingly good for crops. I was very pleased with your manure, and we intend using it largely this year."

JOSEPH FRANKLIN, *Scots Grove, Thame.*

February 18, 1885.  
"Used for grass and Mangel Wurzel, at the rate of 6 to 8 cwt. per acre. Results: Very good."

A. C. HILLS, *Marston, Oxford.* February 7, 1885.

"Used for Mangel Wurzel, at the rate of 5 cwt. per acre, with plenty of ash. Results: A splendid crop. I think a lot of ash with the Guano does a deal of good."

J. SHRIMPTON, *Great Hasely, Tetworth, Oxford.*

February 5, 1885.  
"Used for Swedes and Turnips, without farmyard manure, at the rate of 4 cwt. mixed with ashes. Results: Gave good satisfaction, the Turnips being a very good crop indeed. The Swedes were a good plant, but owing to the dryness of the season and severe attacks of blight did not finish up so well. I shall be a customer again this season."

C. BESON, *Glory Farm, Amersham.* February 9, 1885.

"Used for Mangel at the rate of 6 cwt. per acre. Results: Very good. I have given my opinions on your manure previously."

JOHN A. WILLIAMS, *Alderminster Lodge, Stratford-on-Avon.* January 26, 1885.

"My first experience with your manure has been confirmed during the past year. It seems especially valuable and economical when used for roots."

## POTATOS and KITCHEN GARDEN CROPS.

G. WHEELER, *Bourne End.*

February 2, 1885.  
"Used for Potatoes at the rate of 16 cwt. per acre. Results: Tubers much finer and quantity considerably larger than any other manures I ever tried. I consider your manure the best possible, as it supplies the tubers when most needed, without a tendency to rot them."

JACOB ROBINSON, *Beyton Green, Bury St. Edmunds.*

February 9, 1885.  
"Used for Potatoes at the rate of 10 cwt. per acre. Results: Most satisfactory: no other manure whatever used. My method of applying is to sow broadcast immediately in front of the hands engaged in moulding up."

J. SMITH, *Head Gardener to the Right Hon. Lord Rosebery, Mentmore, Bucks.* January 28, 1885.

"Used for Peas, Onions, Lettuce, Cabbages, Potatoes, Turnips, and fruit trees. Results: Onions, a splendid crop; other crops, where used, most satisfactory. As a surface-dressing I consider your Native Guano most useful. Peas seemed to derive much benefit from the dressing."

JAMES DART, *Gardener to the Right Hon. Lord Carlingford, K.P., The Priory, Cheyton Mendip, Bath.*

February 9, 1885.  
"The Native Guano I received from your firm in 1884; instead of using it dry I used it as liquid in large tubs to plants of many sorts in pots; also Roses, Cucumbers, Marrows, and many other things, and I was quite satisfied with it."

THOMAS HAMILTON, *Gardener to the Right Hon. Viscount Hood, Lynwood, Sunningdale, Ascot.*

January 28, 1885.  
"Used for Tomatoes, Cucumbers, and soft-wooded plants in general. Results: Very good. As we had only a 2 cwt. bag, cannot bear testimony on a large scale; but have no doubt for general purposes is very good."

THOMAS HENRY HILL, *The Gardens, Durward's, Witham.*

January 24, 1885.  
"Used for Potatoes, Onions, Beet, and Carrots, at the rate of 8 cwt. per acre. Results: Very good indeed. I can report again on the excellency of your Native Guano. I use no other artificial manure. All I used it for did very well, considering the dry season we had."

H. CAKEBREAD, *Head Gardener to Sir Philip Rose, Bart., Rayners, Bucks.*

January 28, 1885.  
"Used for Potatoes, Peas, Beans, and all kinds of winter Greens, Vines, Peaches, and Pot Plants. Results: Satisfactory in all cases. Without doubt your Native Guano is a very stimulating manure, and especially for all green crops. I am of opinion, to thoroughly prove any kind of artificial manure on the same piece of ground, one row should be manured and the next left, i.e., every alternate row only done."

JAMES SAYERS, *Gardener to Frank Snood, Esq., The Firs, Old Charlton, Kent.*

January 26, 1885.  
"Used for Peas, Beans, Potatoes, Cabbages, Cauliflowers, Celery, Lettuce, Radish, Endive, Cucumbers, Tomatoes, &c., and Fruit Trees, also Stove, Greenhouse, and Conservatory. Results: Very satisfactory. I consider it a first-rate manure for all these purposes. I think the Native Guano only requires to be better known to be much more largely used."

E. S. WILES, *The Gardens, Edgerote, Banbury.*

January 26, 1885.  
"Used for Melons, Cucumbers, Peas, Onions, and Pot Plants. Results: Good on all—Melons, Cucumbers, Peas, and Pot Plants in particular. The Native Guano supplied to me last year was very good, and as a cheap manure I highly recommend it."

## VINES, STRAWBERRIES, LAWNS, FRUIT TREES and FLOWERS.

ISABELLA MECCHI, *The Limes, Earls Colne, Essex.*

February, 1885.  
"Used for all kinds of vegetables, and young fruit trees, with satisfactory results. On pot plants the effects are very marked, producing a brilliant green foliage, and enabling them to resist greenfly. I have no doubt whatever of the fertilising qualities of Native Guano."

Dr. CHAS. A. BURGHARDT, *Delamere, Alderley Edge, Cheshire.* February 9, 1885.

"Used for Peas, Cauliflowers, Strawberries, Cabbages, and grass. Quantity used: well dusted over surface for grass; well dusted over surface and forked in for other crops. Results: The Strawberries were excellent in quality and larger in size than usual, the Peas and other vegetables were much improved by this manure, in fact the Brussels Sprouts were earlier and finer than I have seen them for some years. No other manure used on grass, ordinary farmyard manure on Strawberries, as I always have used it. I consider the manure you sent me most excellent for grass, lawns are much improved by the use of it, the grass growing much quicker and having a much better colour than before."

Col. the Hon. W. P. TALBOT, *Glenhurst, Esher.*

January 27, 1885.  
"Used for all sorts of flowers, fruit, and vegetables, in and out of houses. I have used it principally on small patches of ground and in the houses in pots, but my gardener tells me he supposes about 10 cwt. to the acre. Results: Very good; won a great number of prizes at South Kensington, Richmond, and other shows with fruit, flowers, and vegetables grown with it."

General BOILEAU, *Bognor.*

January 24, 1885.  
"Used for almost all garden crops, Peas, Beans, Lettuce, Asparagus, Tomatoes, Carrots, Turnips, Salsify, &c., Strawberries. Results: Very good, with all vegetables, fruit, &c."

WILLIAM APPLETON, *Sifton, Slough.*

Feb. 5, 1885.  
"Used for Strawberries at the rate of half a ton per acre. Results: Season very dry; not a fair trial; where used the Strawberries were more free from mildew."

J. E. HAINSWORTH, *Deusbury.*

January 29, 1885.  
"Used for Vines. Results: Great improvement. I think the manure good for many kinds of things—Roses, Geraniums. I have used it for Camellias that have not bloomed for a long time without retopping. Crops this year good: Peaches, Figs, Nectarines. It must be used with reason."

W. PATERSON, *Beech Grove, Sydenham Hill.*

February 9, 1885.  
"Used for lawns, vegetables, Vines, flowers; grass thinly covered with the Guano (probably at half a ton per acre). Results: Very satisfactory. Having used your Guano for twelve years, I have no hesitation in saying that it has always answered well, and that my gardeners say they could not do without it, more especially for my grass slopes and lawns."

C. L. NICHOLSON, *Thatched House Club, St. James's, London.* January 24, 1885.

"Used for lawn. Results: Excellent. Marking out the area over which I used the manure, the crop of fine new grass compared most favourably with that portion of the lawn over which ordinary manure was applied. Our gardener desires a larger supply this season."

A. MARGETSON, *Victor Road, Teddington.*

January 31, 1885.  
"Used for Beet, Onions, Lettuce, Celery, Turnips, Endive, Roses, Pelargoniums, Primulas, Cinerarias, Tomatoes. The results have been greatly to my satisfaction, especially in cases of Roses, Beet, and Celery. I have tried all other manures, but, considering the price you charge, I shall recommend it to all my friends."

At the Birmingham Show, 1884, Nineteen Prizes were taken by Exhibitors who used Native Guano.

PRICE £3 10s. PER TON, in Bags, at the RAILWAY STATION, AYLESBURY.

Pamphlets of Testimonials and all other particulars may be obtained on application to the Secretary of the

NATIVE GUANO COMPANY, LIMITED,  
29, NEW BRIDGE STREET, BLACKFRIARS, LONDON, E.C.

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UPPER GROUND STREET, LONDON, S.E.

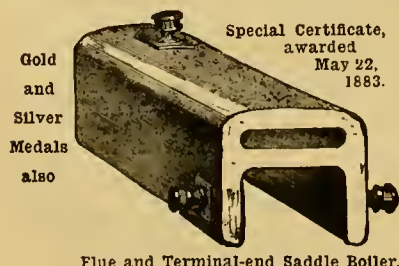
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and all Castings for Horticultural Purposes.

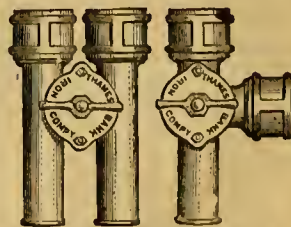
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Hot-water and Hot-air Apparatus erected Complete, or  
the Materials supplied.



Flue and Terminal-end Saddle Boiler.



Patent Reliance Rotary Valve.



# WEBBS'

## LAWN GRASSSEEDS



RAPIDLY ESTABLISH THE BEST AND MOST ENDURING

TENNIS  
LAWNS.

BOWLING  
GREENS.

CROQUET  
GROUNDS.

CRICKET  
GROUNDS.

Best Mixtures, 1s. 3d. per pound, 24s. per bush.  
Ordinary " 1s. 0d. " 20s. "

# WEBBS' SUPERB NEW PRIMULAS



From Mr. A. SMITH, Gardener to the Venerable Archdeacon Holbeck, Farnborough, March 11, 1884.

"Your Primula Purity is the best that I have grown. The flowers are large and of great substance. It is a great acquisition, the dark foliage and pure white flowers being so distinct."

Webbs' Purity .. .. .	2s. 6d.	} Per Packet, Post Free.
Webbs' Scarlet Emperor .. ..	2s. 6d.	
Webbs' Rosy Morn .. .. .	2s. 6d.	
Webbs' Exquisite Mixed Colours	1s. 6d.	

WEBBS' SPRING CATALOGUE,

Beautifully Illustrated, Post-free, 1s.

WEBBS' SELECT LIST

Gratis and Post-free.

THE QUEEN'S SEEDSMEN,

WORDSLEY, STOURBRIDGE.

SEEDSMEN  
By Royal Warrant AND BY To H.M. The Queen,  
Special Warrant to H.R.H. the Prince of Wales.

# SUTTON'S

Post-free. CHOICE Post-free.

## FLOWER SEEDS



CINERARIA.

Sutton's Superb Mixed, 2s. 6d. and 5	Per Packet—s. d.	0 } Post
Sutton's Tricolor ... .. 5	0 } Free	



PRIMULA.

Sutton's Special Hybrid, Single ... ..	5	0	Per Packet, Post-free—s. d.
Sutton's Special Hybrid, Double ... ..	5	0	
Sutton's Superb Mixed ... ..	2s. 6d. and	5	0
Sutton's Reading Blue (50 seeds) ... ..	5	0	
Sutton's Princess Beatrice ... ..	2	6	
Sutton's Snowdrift (Fern-leaved) 2/6 & 5	0		
Sutton's Rosy Queen do. ... ..	5	0	
Sutton's White do. ... ..	2	6	
Sutton's Red do. ... ..	2	6	
Sutton's Mixed do. ... ..	1/6 & 2	6	

"The strain of Primulas you sent me in the Spring is the best I have ever seen; they are beautifully fringed."—Mr. S. PEARCE, Gardener to Captain Crothers, Chew Magna.

Royal Berks Seed Establishment,  
READING.



THE

# Gardeners' Chronicle.

SATURDAY, MARCH 21, 1885.

JUNIPERS.

AMONG the widespread family of Junipers the Juniperus oxycedrus has an interesting history in connection with the destruction of forests in Madeira. I received lately a bit of this species which had lain in the ground probably without life, but still undecayed, and which retained its peculiar perfume during 400 years. The specimen in question was unearthed at an altitude of 6000 feet above the sea by Mr. C. H. Sharman, of the firm of Messrs. Carter, of Holborn, who took a well-earned holiday in Madeira last year. Madeira was discovered by the Portuguese in 1419, and received its name from the word *Materia*, wood, the dense woods which covered the island consisting mainly of *J. oxycedrus*. This elegant drooping Juniper—a European species—reaching a height of 40 or 50 feet, was formerly in great demand among cabinet-makers, and the red and "scented Cedar-wood," which forms the lining and the material of the drawers of many old cabinets and costly coffers, frequently consists of the Juniper of Madeira. This useful tree, however, has shared the fate of some of the other indigenous trees and shrubs which abounded in the island previous to their reckless destruction by its modern owners, and by the traders and merchants of Europe. A list of all the native trees and plants, and of the abounding flowers and Ferns and seaweeds of Madeira, may be found in Lowe's *Manual Flora of Madeira*, but all the choice and useful kinds of trees which were once plentiful, such as *Dracæna Draco*, the Dragon tree; *Persea indica*, the Madeira Mahogany; *Rhamnus glandulosa*, *Taxus baccata*, with its fragrant wood, used for torches; and *Juniperus oxycedrus*, have become scarce through the "plundering and blundering" of modern times.

Loudon describes *J. oxycedrus*, the Sharp Cedar or Brown-berried Cedar (*Arboretum Britannicum*), as a native of Spain, Portugal, and the south of France, feathered to the ground, and reaching to the height of 10 or 12 feet. In the delightful climate of Madeira it grows four or five times taller, resembling in this respect the closely allied shrub, *J. communis*, our common Juniper, which is a native of Europe, Asia, and America, a familiar shrub of our downs and wastes, growing usually from 3 to 5 feet, but attaining a much greater height in favourable situations. Both on the chalk and sand of Surrey the common Juniper, in sheltered sites, reaches large proportions. One of its favourite localities is the exposed slope of the Albury Downs, between Guildford and Dorking, but on one particular part of the hill there is a beautiful shrubbery of Junipers of Nature's planting which have reached 12 and 15 feet or more. The soil is thin, as elsewhere on the Downs, and the chalk rock is immediately below the surface.

*Juniperus virginiana*, commonly called the Red Cedar, and a native of North America, is described as growing at Whitton, 60 feet high and



2 feet in diameter; while the trees at Syon House, Pain's Hill, and many other places, are also famous. It is not a tree of much utility in this country, though in North America its timber, when obtainable, is largely used by rural carpenters, as Ash and Elm are here. Lumbering, however, has made it scarce and dear. The best timber is produced in the southern maritime States, where this Western Cedar is still used for coffins, as the Cedar of Lebanon was in the East, and where, as the favourite fuel for the river steamboats, its combustion perfumes the air for miles. It is largely used in England as an imported wood in the manufacture of black-lead pencils; and as it grows rapidly here on light soil, and attains a large size, it seems not improbable that it might be cultivated with advantage in the warmer parts of our island. There are thousands of acres of sandy wastes in the sunny county of Surrey which afford no return in their present neglected condition, and which might perhaps enrich their owners if they were planted with Red Cedar.

The best pencils were undoubtedly made from the wood of *Juniperus bermudiana*, the Bermuda Cedar; but this has now become so scarce that the Red Cedar has taken its place both in the manufacture of "cedar pencils," as they are sometimes called, as well as of cigar boxes; and in Lady Brassey's graphic picture in *The Trades, the Tropics, and the Roaring Forties*, of the productions and industries of the Bermudas, the accomplished authoress does not notice the once famous Cedar of these islands.

The destruction of the forests in Madeira is mentioned in Dr. Fructuoso's account of the landing of Captain Zargo in 1419. The work is in Portuguese, and I am indebted to Mr. Sharman for extracts relating to the forests. Zargo sailed under the patronage of Prince Henry, a grandson of our John of Gaunt, whose daughter married the King of Portugal. It was at his suggestion, on his return to Portugal previous to his long residence in Madeira as Governor, that the forests were set on fire, as the woods of the Western States of America have been, for the sake of making clearances for cultivation—once on fire they continued burning for a period of seven years. Translated literally, Fructuoso's account of the calamity is that Zargo "awoke to the fact that it was not possible, with labour of men, to undo so much forest as there was in the island from the beginning of the world;" so the forest in the Valley of Funchal was fired, and "on account of the great quantity of wood and its great antiquity, much of it was lying on the ground, some was dry and standing up," and "the fire took such hold, that it walked seven years among the trees, and trunks, and the roots, under the earth, so that it could not be put out." An informant writes from Madeira that the spot where the Cedar root was found is about 6000 feet above sea level, and that the root was pulled out of the earth by the side of a rivulet. He adds that the Cedar (*J. oxycedrus*) was found growing, on the discovery of the island, from the summits of the mountains to the sea shore, and that it is now only found in the remotest ravines and nearly inaccessible places. It is used principally as the material of the torches by the light of which coalings is carried on at night. Governor Zargo, who ruled in Madeira forty years, and was buried in the island, cut down a Cedar which contained a sufficient quantity of timber for the construction of a small church! The statement is vague, and we may see in North Britain specimens of the architecture of an ancient people, forts and watch towers, which were built without the use of a stick of wood, or an ounce of mortar. One would like to know the actual size which these trees have attained. *H. E.*

## New Garden Plants.

ODONTOGLOSSUM CIRROSUM HRUBYANUM,  
*n. var.*

THIS grand variety has large snow-white flowers, with only a blotch of orange at the base of the lip, and with some red lines. It has just flowered a second time with Mr. W. Lee, who has kindly forwarded a second excellent specimen. There has been much search and much doubt about this introduction of Mr. F. Sander, but it is only requisite to make a pilgrimage to Mr. Lee to see it. It is dedicated to Baron Hruby of Peckar (say Petchkar if you can!) in Bohemia, one of our most enthusiastic and intelligent collectors on the Continent, who is so famous for his *Renanthera Loweii* and his enormous stock of Masdevallias. *H. G. Rehb. f.*

## RANUNCULUS LYALLI.

ONE of the finest plants of New Zealand is the mountain Lily of the settlers, *Ranunculus Lyalli*, Hook. fil. As I have succeeded very well in its cultivation, I purpose to give a few particulars regarding it, trusting to show how it may be grown in England with more success than hitherto. This fine plant was first collected by Dr. Lyall, in 1848 or 1849, in Milford Sound, on the west coast of Otago, but was not described botanically until the publication of the *Handbook of the New Zealand Flora*, by Sir J. D. Hooker, in 1864. Prior to this it had been raised from Dr. Lyall's seeds by the late Mr. Anderson-Henry, but whether the plants were preserved I am unable to say. However, Mr. Henry informed me some years ago that the plant was in flower on his rockery. Since that time a considerable number of plants have been sent home from here, but with the exception of two at Kew and some in the possession of Messrs. Backhouse, I believe all have been lost. This is to be regretted, as there are few finer hardy plants in cultivation, and there is really no difficulty in growing it once the necessary conditions are understood and intelligently followed up. In the wild state the plant is confined to the mountains of the middle island, being found chiefly in Canterbury and Otago; in the former province at 2000 to 4000 feet altitude, and in Otago at 1000 to 3500 feet. It grows on mountain slopes below the snow fields, where the ground is usually moist during summer from the trickling downwards of the melting snow. I have seen it described as an aquatic, but that is entirely a mistake, as the drainage of the slopes is rendered perfect by the large masses of rock debris which have been worn away by the frosts of ages, and these are generally nearly or quite covered up with peat, formed by the decay of the countless plants which have grown upon them. It is on this natural rockery that the mountain Lily flourishes best, though it is sometimes found in sand or even in shingle, with scarcely any peat. It is also usually found in situations shaded from the mid-day sun—such, for instance as the southern face of a defile or gorge. On mountains facing the south I have seen it covering the ground for hundreds of acres with one huge sheet of white, but more usually it grows in patches of a score or thirty plants nestling among straggling plants of *Olearias*, *Veronicas*, or other shrubs. The necessary conditions for success in its cultivation are therefore—shade, by which I do not mean the shade of trees, but that produced by a wall or high bank; a peaty soil, with a fair proportion of sand; a constant supply of moisture both in the soil and atmosphere, and perfect drainage. The latter point is of great importance, as the *Ranunculus* soon suffers from stagnant moisture. You will see by the photograph (fig. 67) that the plant has done fairly well here, and it must be remembered that our climate is unfitted for alpinos owing to the severe droughts of early autumn. It is therefore only reasonable to suppose that the plant will do better in England than in the New Zealand lowlands. The leaves shown in the photograph vary from 6 to 12 inches across, and the flowers from 1½ to 3½ inches. The plants, about 100 in number, are growing on the south (the cool aspect here) side of a wooden fence at about 6 feet high, and have only been there about eighteen months, the bed being

prepared with peaty loam: the tubers were simply laid on the surface, and 2 or 3 inches of fine peat and leaf-mould placed over them. All the attention they have had since planting has been watering during dry weather, and yet they have grown most luxuriantly. I have tried to grow the plant in pots, but with indifferent success; it flowers well the first year, but makes very poor leaves, and eventually gets very weak. I should, therefore, advise any English grower who gets hold of a plant of this *Ranunculus* to plant it out in a suitable place as above described, or if that should be thought too risky, in a cold frame specially prepared. But there is not the slightest reason to doubt its hardiness in England, as there is no part of Britain so cold as our mountains, where this and many other fine alpinos flourish, although buried during the winter in snow and ice. To those who have never seen this fine plant a short description may be interesting. It is a deciduous herb, attaining a height of 2 or 3 feet when in flower. The rootstock is a thick fleshy tuber, as thick as the thumb, and very much resembling that of the common *Aemonea*, except in size. These rootstocks are frequently branched in old plants. The radical leaves are peltate and much concave in form, resembling huge saucers or rather funnels; indeed they are sometimes used as substitutes for the latter. They frequently hold as much as three-quarters of a pint of water and sometimes after a shower a very refreshing draught is obtainable from a big leaf of "the Lily" as the settlers call it. The petiole is stout and generally more or less hairy, about a foot or 18 inches long, broadly sheathing at the base, and more or less marked with purple spots. On old and flourishing plants the leaves are often a foot across, and I have measured some as much as 16 inches. They are very leathery in texture, and have coarsely crenated margins. The flower-stems are stout, 2 or 3 feet high, paniculately branched, bearing from four to thirty flowers and a few sessile deeply toothed and lobed cauline leaves, which in some varieties have bright red edges, adding to the beauty of the plant. The flowers are from 1 to 4 inches across, the central one being the largest. They are on stout peduncles, each with a coarsely lobed oblong bract at its base. Each flower has five broad hairy sepals and from eight to sixteen petals each, with an oblong gland at its base. The petals are snow-white in colour in all the varieties I have seen; but a pink one is reported by the shepherds to exist on the upper Rakaia, and Sir J. D. Hooker describes the variety, *R. Traversii*, as cream-coloured. This variety *Traversii* is a small form found in the Hurunui and Waiau districts, but it has very few claims to specific rank, more especially as *R. Lyalli* turns out to vary much in foliage, &c. When sown by Mr. Henry the seeds laid for four or five years, but some which I sowed as a test, when sending seeds to England, germinated in exactly eight months from the date of sowing, and this is doubtless the natural period when self sown. In the localities where the plant grows seedlings of all sizes are abundant; but we have at present no knowledge of the period required to bring them into a blooming condition, and consequently it is better to collect old plants of blooming size, than to raise it from seed. The plant blooms during the earlier part of summer in cultivation here, but in the mountains it blooms during late summer and early autumn. Soon after the seed is ripe the plant begins to look sere, and before winter disappears almost entirely. Its position must therefore be well marked when grown in the garden. *J. B. Armstrong, Christchurch, New Zealand.*

## JAPAN LILIES.

It would be well if we could know more about the conditions under which the bulbs grow and increase so fast in Japan, which they must do, or the nurserymen there could not export them in such quantities year after year. A good way to treat those fresh imported is carefully to scrape away any decayed part, and then dust the bulbs over with charcoal and lime mixed, which arrests further growth of mould, when the Lilies should at once be potted, in rather small well drained pots, using fresh turfy soil, sprinkling a little dry sand over the bulbs at the time, and giving no water till they start, and then only just sufficient to keep the ball moist till the plants get well into growth.

If they are to be planted out the places ought to be prepared for them by being dug out and the holes filled in with chopped turf that is rather sharp and



sandy, or with peat, which many seem to prefer, but I have always seen them do best in loam, such as that mentioned above. Although the plants seem rather to enjoy the sun on their stems and foliage I do not think they like it to shine strongly on the roots, where the ground, in my opinion, should be kept shaded, moist, and cool, at least during summer, by having a mulching of light material over it, or by growing some dwarf annuals around them. The lancifolium section are not half so difficult to grow, and with very little trouble may be grown very satisfactorily in pots, when they flower freely and increase quickly. Lilies of the kind referred to should be potted early, the best season being when the tops die down, as then there is no fear of injuring the roots, which are not formed till later on, when the bulbs begin to make a fresh start.

Although this is so, it is as well not to disturb them any more than can be avoided in removing the crocks and old loose soil, but I always like to clear away the stumps from the stems above, which pull out, with the dead root-fibres clinging around, and leave the crowns of the bulbs free and clear. If these

## THE VEGETATION OF THIBET.

THE mountainous regions of Eastern Thibet are wet, as I have said, and plunged in almost continual fogs, hence they offer singularly favourable conditions for the growth of certain plants, such as Ferns, Conifers, and Rhododendrons. These last plants, among which I have distinguished in Moupine some fifteen to twenty different species, form fairly large trees with persistent foliage, and with their magnificent flowers of red, rose, white, and yellow, lend to the landscape a beautiful appearance from April to July. One species, of little size, but with large red flowers only, grows on the trunks of old Fir trees as an epiphyte; another with round leaves is only found in woods about 9900 feet elevation. Here the Rhododendrons and Willows are the only hard-wooded plants which are found in the highest mountains forming the highest limit of the forests. It is a great pity that the ripe seeds of most of these Rhododendrons as well as those of three large Magnolias with white flowers and caducous leaves (huge in one case), which I collected with care, and sent to the Jardin des Plantes were

large and sweet fruits on those parts that are hidden beneath sand or stones.

Lower down towards the torrents, together with the Salix with large leaves, may be seen growing a splendid Alnus, a Pterocarya (which extends from this latitude down to the Eastern Sea along nearly all the watercourses), Liquidambar formosana, Rhus vernicifera, Mimosa julibrizin, &c. The beautiful Fir which I have distinguished by the name of Abies sacra only grows wild in the region of the massive mountain range which forms the frontier between Setchuen and Chensi. It is also in this western region that I have found the Poplar pyramidalis, planted commonly near houses. This tree is unknown in the rest of China. The Weeping Willow, moreover, exhibits here the most beautiful specimens, both male and female, that I have ever seen. It is among these lower hills that the Camphor is usually grown, often to a colossal size, whilst another Cinnamomum, called Nan-moi by the Chinese, and which forms one of the most elegant and largest trees that can be seen, is only found in the alluvial plains of Setchuen at an elevation of about 1700 feet. A single Rose, with rose-coloured flowers

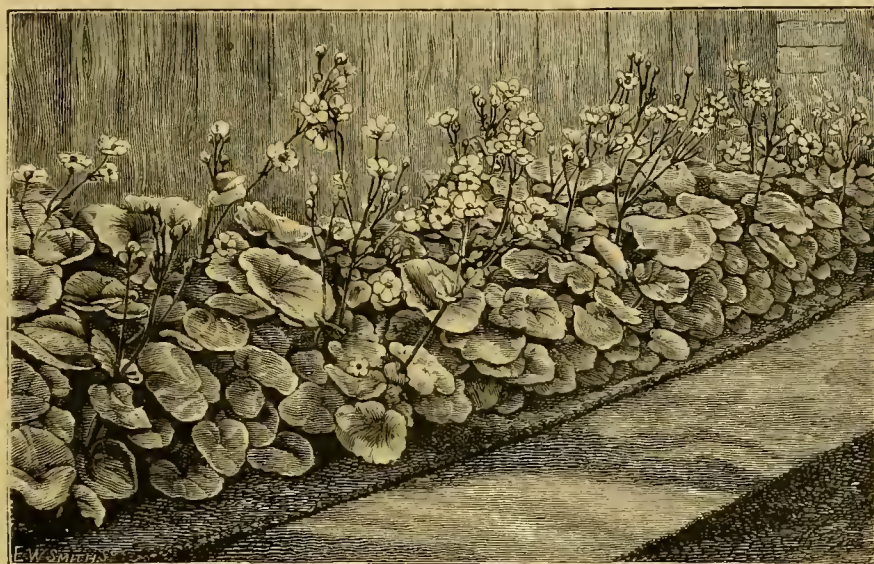


FIG. 67.—*RANUNCULUS LYALLI*. (SEE P. 370.)

should appear crowded and to want more room they should be pulled apart *en masse*, and so divided, without further separation, when they may be potted in pots according to the room they require. After being potted, the most suitable situation for Japan Lilies is a cold pit or frame, where they should be plunged in coal-ashes, which will prevent the soil drying and keep them in a more natural uniform condition than they would be if the outside of the pots was exposed. By managing thus there is no occasion to water till the plants move, and that is a great point gained, as however cautiously it is given they are apt to get more than is good for them, as they cannot take it up and make use of it. J. S.

**CRANBERRIES.**—Although much of this fruit is imported into this country, notably from America, its culture might be profitably undertaken in naturally suitable places at home. Much swampy land still exists that might be turned to such a use. Where the soil is naturally damp and rests on a bed of porous material and there is free circulation of air, the American Cranberry (*Oxycoccus macrocarpa*) grows quite luxuriantly.

lost, for they arrived in France during the unfortunate Franco-Prussian war.

The chief constituents of the high forest region are three or four species of Abies mixed with Birch trees, Cunninghamia, two Pines, a Cephalotaxus. They hardly ever extend beyond 6600 feet in elevation; the same applies to the Quercus, numerous Laurels, Pavias, and tall Cornus. There is a quantity of trees of all shapes, which I do not know for the most part, and which seem new to science; and with which Rhododendron, Buxus, Aralia, and Bamboo, form impenetrable thickets, tenanted by the beautiful Amherst pheasant. Near the ravines Mahonias and Berberis abound, as well as numerous species of Ribes, Rubus, Spiraea, Hydrangea, Hedera, Aralia, &c. The curious tree which Mr. Baillon has kindly named after me Davidia tibetana, grows also about 6600 metres in elevation in company with a great Cerasus, with small red fruits; a gigantic Corylus, a Quercus, with a corky bark; various Laurels, numerous Ficus, differing greatly from one another in height and appearance, some forming large trees of majestic appearance, others climbing as parasites on the bark and on rocks; one species creeps over the ground, and only produces its very

of a sweet scent, grows in the woods of Moupine; but the white flowering species with long shoots abounds there, as it does through all Central China.

Among the numerous climbing shrubs I ought to mention one which is remarkable for having largely developed floral bracts, like our Bougainvillea, but white; also the Glycine, so common on the hills of the eastern provinces, but which is absent from the west. I have not seen here either the wild Camellia, with white flowers of moderate size, which is so abundant in the district of Kiangsi, where the best table oil to be had in the country is made from the fruits [seeds?]. As to the Chamærops, it may be seen prospering in Setchuen and Moupine up to an elevation of 3400 feet, supporting with impunity the colds and snows of winter. This tree, the only representative of Palms in Central China, does not grow spontaneously farther north than the basin of the Yantze. In this region is found in a wild state and in abundance the Loquat of Japan and a Ligustrum. The Chinese make use of a Privet with persistent foliage, and of the Fraxinus sinensis, to raise their wax insect (*Coccus pela*). Pistacia sinensis and Elæagnus edulis, as well as Citrus triptera, the only wild form of the genus, are found here. I ought not



to forget to mention an Arundo, very near to our A. Donax, if not identical, which I have never seen but in Setchuen, whilst the Phragmites abounds near all freshwater courses.

The trees cultivated in the province of Setchuen (which is considered to be the most beautiful and richest of the empire) and which need man's care to propagate them, are the same as those found in all Southern China: Mandarin Pear, Peach, Plum with red flesh, Dryandra Stillingia, immense Ficus lucida (near the pagodas), and above all, a numerous assortment of splendid Bamboos, which the inhabitants make use of in a vast number of ways. Besides the ordinary Tea, spread throughout one half of China, in the mountains of Moupine and Setchuen, a second species, called "White Tea," is cultivated; it is a shrub much grown, with slightly hairy leaves and of an elongated form.

The herbaceous flora of Moupine, and of the large mountains of Western China is proportionately less rich than the arborescent vegetation, but it is always more interesting there than in the north of the empire, where monotony is the striking characteristic of the vegetable kingdom. And if the northern flora comprehends a certain number of European genera and species it is not so in Eastern Thibet, where these last are only represented by accidental introductions. I should say that it is only a few years ago that the culture of Maize, Potatoes, and European Cabbages was introduced into these mountains, and without which it would only be possible for a small number of hunters to live. Another observation of interest is that when the old forests are destroyed by fire for the purposes of agriculture, the denuded land gives spontaneous birth to other vegetation, to a great quantity of Sinapis with oily seeds, from which the natives obtain two or three good harvests without any labour. As this species of Sinapis (which is largely cultivated by the Chinese throughout the empire) is not seen growing in the woods, one asks with astonishment, Whence and how has it originated?

I should lengthen my letter without measure if I undertook to review the herbaceous plants of Moupine—those, more easy to prepare than the woody plants, are consequently better represented in my herbarium. I conclude by adding that in the valleys of Eastern Thibet I have counted fifty species of Ferns, and that in the high prairies of that region I have commonly found a large Rhubarb with palmate leaves, whilst the species with entire leaves is the only one that grows on the hills of Northern China and of Mongolia. The roots of these two medicinal plants are hunted after with avidity by the mountaineers, and constitutes an object of active commerce all over the empire. *Armand David, in Franchet's "Plante Davidiane."*

### TELEGRAPH POLES.

THE 900 miles of additional telegraph lines required outside of London for the cheaper service in August next have robbed the Norwegian Pine forests of some 20,000 trees. English Larches used to be employed for telegraph posts, but they proved to be sadly wanting in durability. The wood was of too close a grain to permit of its being impregnated with creosote, but yet incapable of resisting the effect of moisture for any great length of time. Larch, therefore, has been discarded, and all our telegraph poles are now imported from Norway.

In America they appear to have given the closest attention to this subject, for it has been found that dividends are very largely dependent on the durability of poles. They use various kinds of wood, Cedar by preference, and it is said that the durability of a pole depends to some extent on the time of year in which it is cut down. A sound Cedar post felled in winter, when the sap is low, will last for sixteen years. A Spruce pole will last seven years only under the best of circumstances. The soil in which they grow is said also to have considerable influence on the lasting powers of telegraph poles, and no doubt also much depends on the soil and situation in which they are planted for service. In America it has been found that the whole of their lines want completely renewing every two or fifteen years at the utmost. The importance of the supports of a telegraph line becomes particularly obvious when it is remembered that the breaking of a post involves not merely the necessity of renewing it, but also broken wires and interrupted service by throwing the various wires one across the other.

It seems probable that by-and-by Norwegian

Pines in this country will give place to iron posts, which of course may be made somewhat more ornamental than bare Pine poles, and possibly would prove sufficiently durable to more than counterbalance the extra cost. This is a point, however, which at present seems to be doubtful. An iron post will cost four times as much as a wooden one, and how many times longer it will last there is at present no sufficient evidence to show. A fourfold initial outlay is a matter that is not to be altogether overlooked. *Daily News.*

### THE INFLUENCE OF DIRECT SUNLIGHT ON VEGETATION.

(Concluded from p. 275.)

NOWHERE else is the influence of insolation more distinctly observed than in the Arctic regions. It is known that in high latitudes the heat of the sun's rays in summer is often very great. Richardson remarks that (being under about 60° N. lat. near the Slave River) he had never felt the heat within the tropics so oppressive as he experienced it on some occasions in these Arctic regions (Richardson, *Search Expedition*, vol. i., p. 144), though the sun's rays are here always horizontal instead of vertical, as is the case in the tropical countries. The enormous multitude of mosquitos suddenly appearing in spring, when the ice is thawing, and in places where there is water for their larvæ (swamps, pools, &c.), is also much greater than in India.

The following observations may give some idea of the difference between the temperature in the shade and that in the sun's rays.

At Fort Franklin, Great Bear Lake, North America, in 65° 12', the mean temperature in the last part of March or the beginning of April is about 0° F.; the effect of the sun's rays on the blackened bulb of a thermometer, however, is sufficient to raise the mercury to 90° (Richardson, *Search Expedition*, vol. ii., p. 254).

Comparing these observations with those within the tropics we see that the difference between the maximum temperature in the sun in these regions and the northern is relatively small. Maximum temperature in the sun, 1882:—Calcutta, 162°; Bombay, 151°; Colombo (Ceylon), 157°; Barbados, 156°. But in dry climates the difference is greater:—Melbourne, 169°; Adelaide, 180°. The mean humidity at Adelaide was only 58 per cent.; highest temperature in shade, 112°.

Even in the North American Arctic archipelago, in Smith Sound, lat. 78° 30', where the mean summer temperature is only 33° (June, 30°; July, 38°; August, 31½°), Kane's observations with the black bulb thermometer gave the following results:—From May 16 till September 4 the temperature in the sun's rays was constantly above the freezing point (with the exception of May 22, when this was not the case); on June 15 it reached 48°, on the 26th 54°, on July 5, 70°, and on August 11, 66°.

Observations at Pavlovsk, Russia, Lat. 59° 43'.

Date, 1881.	Temperature in shade.	Temperature in the sun's rays.	Difference.	Humidity.
	Deg.	Deg.	Deg.	Per cent.
Feb. 8 .. ..	2	70	68	73
" 18 .. ..	21	88	67	74
" 21 .. ..	12	88	76	82
" 24 .. ..	12	91	79	75
" 25 .. ..	18	97	79	71
" 28 .. ..	9	91	82	73
March 14 .. ..	20	105	86	73
" 16 .. ..	27	111	84	66
" 22 .. ..	20	109	89	65
May 25 .. ..	68	123	60	59
June 8 .. ..	82	140	58	40
" 19 .. ..	73	133	60	33
July 2 .. ..	80	138	58	30
Aug. 10 .. ..	64	131	67	71
Sept. 8 .. ..	66	124	58	57
" 18 .. ..	62	124	62	66
Oct. 10 .. ..	52	107	55	63
Nov. 4 .. ..	32	85	54	78

It is clear that the influence of the sun's rays increases with higher latitude, because the sun in summer rests above the horizon.

\* *Annalen des Physikalischen Central Observatoriums, St. Petersburg, 1881.*

Now we come to the main point, viz., the effect of the direct solar heat on vegetation in the northern regions.

In Novaya Zemlya the vegetation (consisting chiefly of herbaceous plants) is, in places exposed to the sun's rays (at the foot of the mountains), like an arctic flower-garden, the surface of the soil not being covered with grass, as is the case in the temperate regions. The flowers are here of a much greater size than the leaves. In this island, and even in Spitzbergen, the snow disappears in summer by the action of the sun from hills exposed to its light; but on Ben Nevis in Scotland, being a difference in latitude of more than 20°, the snow rests sometimes the whole year.

In the Tundra of Siberia, on the declivities of hills sheltered from the winds and exposed vertically to the sun's rays, the same herbaceous vegetation, with its large, splendid-coloured flowers, is observed (Middendorff, *Sibirische Reise*, bd. iv., th. i., p. 733), but this is not the case in plains where the sunlight in its horizontal direction cannot have so much influence on the vegetation of the frozen ground; therefore these plains are in general really deserts, only covered with moss.

Insolation is also the cause of the rich vegetation in some parts of the mountains in the temperate zone (Alps, &c.).

Even in the most northern regions there may be a rich vegetation where the plants in sheltered localities are exposed to the sun. Parry (*Attempt to Reach the North Pole*) found the Scurvy-grass (*Cochlearia*) on Walden Island under 80° 30' N. lat. in such a luxuriant growth as he had never seen it before.

Middendorff observed, under 74° 30' N. lat., on the borders of Lake Taimyr, in Siberia, on August 2, a temperature of 52° in the shade, but a heliothermometer under glass placed in the sun's rays stood at 104°; an uncovered one marked, in the sun, 70°. The pitch on his boat was not only melted by this temperature, but flowed (Middendorff, *Sib. Reise*, p. 657).

But, as is the case also in lower latitudes, the greatest difference between the temperature in the shade and in the sun occurs in early spring. In June Middendorff was travelling in the Stanowoi Mountains, and saw a Rhododendron in full flower; when he was about to gather some flowers of this plant he found not only the roots, but even the stem, frozen hard in the soil. The temperature of the air was between 54° and 43°, but at night it was some degrees below freezing-point.

The assertion of some botanists that the contents of the cells, as soon as they are frozen, make the latter burst, thus causing the death of the plants, has been already refuted by Nägel; but the important observations of Middendorff have showed clearly that the severest frosts of the Asiatic arctic region, by which the innermost parts of the trees are frozen as hard as iron, have little influence on the tissue when the cold becomes gradually more intense; only when the temperature sinks suddenly below the freezing-point of the mercury the wood splits with a thundering noise. These crevices have a disadvantageous influence on the vegetation of the tree in summer, because in these places the plant often begins to rot.

The trees rest in a frozen state till, in spring, the sun's rays reach the upper parts, and here vegetation is raised, though the roots and lower parts of the stem are still in a frozen state.

But the most interesting discovery on this subject was made by Middendorff under 69° 30' N. lat., on April 14, near the village of Dudino; notwithstanding the clear sky and incessant brilliant light of the sun, the temperature at mid-day ranged from -4° to -13°, yet before and after this time from -24° to -35°. While going over the glittering snow he was suddenly stopped by the sight of a Willow catkin peeping about an inch out of it. The catkin was wholly developed, yet the branch on which it was observed was, 1 or 2 inches down, solidly frozen; this was also the case with the other parts of the plant hidden under the snow (Middendorff p. 653). Thus this little part of a branch was called to life, for some hours only, by the direct solar rays, in which it was thawed.

In the beginning of August, under lat. 74° 30', Middendorff found the soil exposed to the sun's rays heated to 86°, though the temperature about 4 inches below the surface was only 39°, and at the depth of about 1 foot the ground was constantly frozen (Middendorff, p. 666).

It is clear that plants in the high northern regions,



when they vegetate, receive more warmth by insolation than is often supposed—1° by the direct solar light itself, and 2° by the heated surface of the ground. The snow and ice being melted by the sun, the necessary water and humid atmosphere never fail; even this is the cause of the luxuriant growth of grass on some places in the Tundra. The flowing water gradually communicates its warmth to the soil, and prevents also the nightly radiation.

All this is proof enough that, when the mean temperature in the shade is known, this is not at all sufficient for a knowledge of the real temperature by which the vegetation of several plants is raised. What might have been the temperature in the tissue of the little branch, and also in that of the Willow catkin, of which we have spoken? and this when the temperature in the shade was so many degrees below freezing-point.

In the temperate regions vegetation commences in spring, when the difference of temperature between night and day is greatest; in the high north this difference is often insignificant, because the sun rests above the horizon; but the temperature of the soil being at this time very much lower than that of the objects exposed to the sun's rays, even this great difference is the cause of the very rapid vegetation in sheltered localities and under the influence of the solar light.\*

In conclusion we must remark that the facts thus briefly mentioned show how much a new system of bio-meteorological observations is wanted to ascertain the real quantity of warmth and sunlight necessary for the growth of plants, many of which are of the utmost importance in the life of man. *M. Buysman.*

## THE NOMENCLATURE OF ORCHIDS.

WE are now within a short period of time from the Orchid Conference, and one point that certainly deserves the attention of experts is the very important subject of naming. I have given a good deal of my time during the last ten or fifteen years to the study and the culture of Orchids; and I have no hesitation in saying, that the most difficult part of the subject to grasp is the principle on which they are named. I have protested again and again, at meetings and elsewhere, against the practice of attaching specific names to what are undoubtedly merely the varieties of a species. To illustrate my meaning, let us take one of the most popular of all Orchids—*Odontoglossum crispum*. This was introduced in 1844, and named by Dr. Lindley, and the name well describes the character of the flowers. Some fifteen or twenty years subsequently it was renamed in this way: the white ground varieties, with scarcely any spotting, took the cognomen of *O. Alexandræ*, and the blush spotted form *O. Bluntii*. For several years these specific names were used indiscriminately, until Messrs. Veitch, of Chelsea, exhibited the plant under the name of *O. crispum*, not without some loudly expressed protests against the alleged irregularity of their proceedings. When the irregularity is traced to its source it must be placed on the shoulders of those who in ignorance gave the specific names of *Bluntii* and *Alexandræ* to an Orchid which had already received its specific name, and that one descriptive of the character of the flower. Keeping to the same genus, it is well known that there is considerable variety in the ground colour and also in the spotting of *O. Rossii*. A year or two ago one with quite a pale yellow ground was sold at Stevens' rooms. The same form has flowered in other places. I saw it very fine at Messrs. Shuttleworth and Carder's, Clapham Road, lately, under the specific name of *O. asperum*. No one, I take it, has any doubt of it being merely a form of *O. Rossii*, why then make another species of it? Again, who is responsible for the specific name, *O. Hrubyanum*? It is not a distinct species, but a white form of *O. cirrosum*. A correct and descriptive name for it would be *O. cirrosum* var. *alba*. We have also been told during the last few years that the scarce plant, *O. nævium majus* is not correctly named, and that the true *O. nævium majus* is a plant of the gloriosum type, of no great beauty, and of very little value

commercially. So greatly have even our best cultivators been led astray over the *Odontoglossum* nomenclature, that the name of *O. crispum* is not used at all in the last edition of the *Orchid Growers Manual*! *O. Bluntii* is given as probably a variety of *O. Alexandræ*. Let the specific name of any Orchid be decided once for all [if possible]: the rule ought then to be that no merely varietal form of it should be called by a specific name. [Our correspondent overlooks that these are matters of degree, differently appreciated by different people. ED.]

I am not sure whether there is not greater confusion in the *Dendrobium* genus. Referring to my notes of the last committee meeting at South Kensington, I find *D. heterocarpum album* received a First-class Certificate. The first name given to this plant was *D. aureum*, and yet some authors give it as a synonym of *D. heterocarpum*. Paxton's *Botanical Dictionary* says that *D. aureum* was introduced from Ceylon in 1836, and *D. heterocarpum* from Khoosea in 1837. This sets the matter at rest as far as the original name is concerned. *D. heterocarpum album* would do very well, but if, as it ought to be, the original name is *D. aureum*, then some other name than *album* should be given to the white form. *D. moniliforme*, *D. macrophyllum*, and even the very recent *D. philippinense*, will require to be correctly named. The last is sometimes given as a species, and at other times as a variety of *heterocarpum*, which is itself nothing more than a synonym of *D. aureum*.

I quite agree with Mr. De B. Crawshaw, that the Orchid Conference should be "kept going all the year round." It is impossible to do any real good unless this plan is adopted. Most of us remember the interesting lectures given by Mr. Bateman on Orchids at the bi-monthly meetings of the Royal Horticultural Society. Such lectures might have very easily been developed into conferences. When the Orchid Conference announced for May 12 and 13 has been held, the lack of material for illustration will be painfully felt. The winter, early spring, late summer, and autumn flowering Orchids will not be seen at it. It will certainly be an arduous undertaking to hold a Conference twice a month on Orchids, but it will have to be done, and "Where there's a will there's a way." The season for Daffodils is practically a short one, and the Conference at the height of the season brought in nearly the whole of the genus. In the case of Orchids there is not one genus, but many, and not a third of them could possibly be brought in on any given date. *J. Douglas.*

## AMARYLLIS AT J. VEITCH AND SONS', CHELSEA.

THE Amaryllis-house at Messrs. Veitch's nursery is just now literally illuminated with bloom, there being over 1400 flower-spikes, and these will give a magnificent succession of bloom for some time. This number does not nearly represent all that are to flower, as there are over 2000 flowering bulbs to bloom this season. A great many bulbs are in flower for the first time just now, and from amongst the most noticeable of these we have selected the following:—

The Climax, a very fine large flower, from 8 to 9 inches across, with petals of fine substance, of a very deep crimson-scarlet; Navarino, fine form, scarlet, with green eye; Jason, white, flower of good substance, deeply feathered with scarlet; Correggio, very floriferous, vivid crimson-scarlet; Glencarn, finely formed, deep scarlet flower, streaked green and white; Lord of the Isles, vivid scarlet, without any eye, distinct; Charmer, claret, streaked with white; Duoholme, bright scarlet, greenish-white star, large flower; Euripides, finely shaped white flower, with reddish-purple markings; Valida, a very brilliant scarlet; Oiranto, claret, with white central bands and deep central spot; Mark Tapley, greenish-white star, tipped with bright red; Picotee, creamy-white, with a narrow distinct crimson edging, very distinct; Roderigo, brilliant scarlet, with a white band in petals; and Helvetia, crimson-lake, with pure white flakes, very distinct and pretty. Other choice varieties conspicuous amongst the forest of spikes are Royal Standard, Princess Ida, Sir Redvers Buller, James Douglas, Clarinda, Ceres, Empress of India, Chelsoni, and Lady of the Lake, fine flowers that have been seen at various times and duly noticed in these columns. The display is none the less pleasing on account of the health and vigour of the plants,

## FUCHSIAS.

THE illustration at p. 209 of Mr. Lye's magnificent Fuchsias may well prove instrumental in inspiring some other gardeners—younger ones especially—to strive to imitate the champion of the West in the cultivation of one of the most elegant and beautiful of all greenhouse plants. Though it is not all who can grow such big plants—at least very many may produce handsome specimens of medium size and exceeding beauty—plants that would prove of the greatest value for house decoration, if unable to display their charms at flower shows. We find in many gardens (and flower shows give ample evidence of the same) that easily grown foliage plants, especially Ferns and Palms, are preferred to those beautiful flowering plants which need some patience and skill to produce really good specimens. Almost any one may have these elements of greenery for the asking, they grow so freely and with so much ease. For those reasons it should be the aim of framers of flower show schedules to repress such effusive tastes for ordinary forms of foliage, by making the prizes of moderate amounts, whilst those for classes of flowering plants—Fuchsias especially—should receive more than ordinary encouragement. There are many so-called first-class shows about the country, at which one plant, much less a dozen of such Fuchsias as Mr. Lye grows, is seldom, or perhaps never, seen. Now that those grand plants have been so widely illustrated, perchance show committees may make an effort to promote and encourage high-class Fuchsia culture.

In describing the excellent travelling capacities of Mr. Lye's plants, stress is laid upon the careful tying which they receive. That is, of course, one important element in successful culture for exhibition, but still something is due to varieties that by reason of habit travel well; indeed, some kinds retain their bloom much better than others; hence are always better travellers. But very much is due also to the short-jointed, hard, and very floriferous growth promoted in the plants by exposure to the full light of the sun and free circulation of the air. It was most fortunate circumstance, after all, that the grand specimen plants illustrated were not photographed at the exhibition as originally intended, as then some admirers would, perhaps, refuse to admit that such splendid fellows could have been grown in the open air. That the picture presents them really in their outdoor summer quarters is proof positive that the sun and air have been potent agents in their production.

I remember many years since going into a garden in the New Forest, and seeing there plunged into a big bed of leaves a number of fine young pyramidal Fuchsias, which, in 2 inch pots, were developing into noble plants. The position was full south, with a belt of trees behind breaking the force of strong winds. The plants were occasionally turned, that the sun might play upon each side and thus produce what is so essential in a good pyramid, evenness and symmetry. That was an idea in Fuchsia culture which I found later to be of good service, although I could not command beds of leaves, I managed to find ashes, for in those days that useful article cocoa-fibre refuse had not been introduced to gardens. It is so long since that I have almost forgotten the names of the kinds then in vogue, but certainly none equalled in excellence those fine sorts which Mr. Lye has sent out. Not a few of the old Fuchsias were obstinately indifferent to form and symmetry, and only with exceeding difficulty could be made shapely; therefore any sorts that were specially amenable to training through the mere act of pinching were held in the highest esteem—they are so still, and such kinds are always the most free to bloom.

Cuttings put into sandy soil and in pots in the autumn soon made roots, and at the beginning of the winter were shifted into 60's singly, though not materially assisted with heat. At the commencement of the next spring, shifted into 48's, and given a temperature of 50°, the plants soon made strong growth, and the moment bloom displayed itself at the points the shoots were pinched, and new shoots promoted. The next shift was into 24's, using good loam mixed with old Cucurbit-bed manure and leaf soil. By this time the plants were some 2 feet in height, supported with one stake for the main stem, and from the base well furnished with growth, but not a bloom-bud was permitted to develop. The plants were now large enough to be plunged in a bed of ashes in a somewhat sheltered place outdoors, and here encouraged to make renewed

\* In 50° N. lat., on the banks of the Amur River, where the situation with regard to the ground-ice in spring is the same as in the Taimyr country, *Nasturtium* and *Calamagrostis* plants were observed to grow about half a foot every day (see *Beiträge zur Kenntniss der Russischen Reiches*, band xxiii., pp. 547, 617).



growth and fill the pots with roots, the plants being turned occasionally and kept well pinched. It is of the very first importance in the building up of a good pyramid plant that the leader shall never become bare of side shoots, hence the moment bloom-buds appear the leader must be pinched or stopped below these bloom-buds, and a fresh leader formed from the next leading shoot. Presently the plants needed a shift into 9-inch or 10-inch pots, according to size; and thus, with constant attention in the matter of pinching for a few more weeks, very perfect specimens, ranging from 4 to 5 feet in height, were formed, which became through the autumn months pyramids of bloom. As the pots filled with roots weak manure-water was applied, but when stopping ceased and bloom was encouraged the soakings of liquid-manure, obtained from horse-droppings, were given twice a week. These plants, kept henceforth in a cool position, would bloom superbly for some two months. Stored in winter, just as Mr. Lye keeps bis, and so cut back in the spring, and either shaken out and repotted or liberally top-dressed, these specimens would increase in height and breadth and make very fine plants for show during the following summer. If Art will build up the frame of a specimen, Nature will soon do the rest. A. D.

### ALPINE PLANTS.

*DRYAS OCTOPETALA*, L.—This is one of the most graceful of the plants of the Alps. It is called "Swiss Tea," because the population of the alpine cantons make a drink from it which with them takes the place of tea. It occurs everywhere in the region of the Alps, but it seems to prefer more particularly calcareous soils. It is hardly to be found above 7200 feet in elevation, and its inferior limit appears to be about 4900 feet.

Some horticultural books, on account of its generic name, say that this species grows in the woods, but this is a complete error. It is never found in the shade, but always exposed to the rays of the sun, and on a stony soil, frequently limestone. Often it is found on rocks most exposed to the sun, and where the rays penetrate into the fissures. It continues in bloom a long time in the Alps, and its clusters, which extend so as to form a carpet on which one may lie down, have flowers nearly all the summer. The shining green of its foliage, white and tomentose underneath, the graceful form of the crenate and dentate leaves, produce a pleasing impression on the traveller who visits the Alps; but when the immense tufts of dwarf procumbent verdure are covered with flowers, each like a small wild Rose without its thorns, the effect is very striking. One cannot help plucking some of them, and what traveller is there who has not wished to lay himself down to rest on these inviting tufts?

Unfortunately these plants throw out suckers, and extend so much over the ground that it is impossible to take them away; they are too large, and will not root again. If success is desired in the transplantation, the young runners in the dry beds of torrents, on stones, or in the fissures of the rocks, must be chosen. It is difficult to obtain all their roots, but if they are taken in autumn they generally succeed, and flower the following summer.

When they are collected in summer it is preferable to take them from a fertile soil, and surrounded with green turf or other plants, so that the soil may be kept round their roots. It is too dry here (Geneva) just now to permit transport and transplantation of runners taken from a sandy soil, loosened by the roots, on account of its want of consistence. In autumn this inconvenience does not exist, and, moreover, there is the advantage of being able to transplant the *Dryas* with all their roots, which are much easier obtained in a sandy soil than in any other.

The *Dryas* should be placed in a calcareous rock-work, in the sun, and in large and deep pockets, of which the bottoms should be filled with limestone, so as to secure perfect drainage. The soil should be peaty, rich in humus, but not heavy. Use one-third loam, one-third leaf-mould, and one-third peat and sand.

The plant in the Botanic Garden of Geneva measures nearly a metre in diameter, and has only been on the rocks about six years. Under cultivation the *Dryas* flower as freely as in the Alps, but they do not produce the same effect, because their flowers do

not appear all at once, but succeed each other all over the tuft from May 1 to the end of November.

The seeds I collected in the Botanic Garden were not fertile, and I have never been able to raise seedlings from them. Last September I sowed a pot with seeds of *Dryas* collected some days before on the Jura, and they germinated in about eighteen days. I believe that the seed is the best means to employ to raise the plants. *H. Correvon, Jardin d'Acclimatation, Geneva.*

### CATTLEYA LAWRENCEANA.

WE give in fig. 68 as accurate an appearance of the bulbs and leaves, and in fig. 69 the actual size and form, and such indications of the superb colouring as is possible in a woodcut, of this fine introduction from the hitherto unexplored region, Roraima, in British Guiana, the full description of the flower, foliage, and bulbs having been given in our last number, p. 338. A large consignment of this splen-



FIG. 68.—CATTLEYA LAWRENCEANA.

did new species will be sold on the 26th inst., by order of Mr. F. Sander, the enterprising importer, by Mr. Stevens, at his rooms in King Street, Covent Garden, W.C.

### THE ELECTRIC LIGHT AND THE GROWTH OF PLANTS.

IN conversation with Mr. Isaac Buchanan, one of the best known florists of New York, this subject came up, and he stated that his observation inclined him to believe that when plants were used for decorative purposes in rooms where the electric light was used instead of gas, they seemed to have all the health and vigour as if growing under the light of a conservatory. He furthermore said that he had long ago observed that on moonlight nights there was always a better development of the flowers of Camellias and Roses during the winter months than when there was no moonlight. Hence he inferred that light, no matter how obtained, was beneficial to the growth of plants. This opinion from such an authority as Mr. Buchanan, who is well known to have had nearly half a century's experience, and who

has always been a close observer, is certainly worthy of great attention.

It is well known to all cultivators that the greater the amount of sunlight the greater will be the development of the flowers. We all know that in the dark days of December and January the growth development of Rose buds, Carnations, &c., is less than half of what it is in the months of March and April, when the days have lengthened, and the increased sunlight gives nearly twice the amount of light. Few commercial florists have the means or time for such expensive experiments as would be necessary to determine whether the use of the electric light in forcing flowers and fruit in greenhouses during winter could be profitably employed. It is a matter of sufficient importance, it would seem, for the Agricultural Department at Washington to take hold of. For be it known that the gardening industry now in the forcing of vegetables, fruits, and particularly flowers, has millions [of dollars] of capital invested in it throughout the land, and gives employment to tens of thousands of men; and if Nature can be aided by this wonderful electric light it will be a leap forward that the discoverer might well be proud of. *Peter Henderson, in the "Scientific American."*

### COLONIAL NOTES.

A DAY'S RIDE IN NATAL.—It is an old saying, that "What can be done at any time is seldom attempted," and so I have deferred till now to say a few words about the plant-life of Natal—a tempting topic, for we have a rich and varied flora, and about which one rarely reads aught in the pages of gardening journals.

It is midsummer with us, and work in the nursery—always pressing—is very urgent just now. Often I have wished to ride up to Howick and see the Umgeni Falls—for they are a fine sight, and such a contrast to the everyday routine of work. At last, one fine summer morning, I started on horseback, and alone, just as the rising sun peered over Table Mountain, which lies about 15 miles east of Pietermaritzburg. It had rained heavily the night before, and as I cantered slowly down the long street the Syringa trees—*Melia azedarach*—laden with their purple flowers, shook out their heavy perfume. Taking the Town Bush Valley road, and passing field upon field of Tuberoses, each pushing up its snow-white spike, the town was left behind, and after an hour's uphill ride I reached the dense bush—the object of my visit. Dismounting here, and turning the horse loose to graze, I, prone on the grass, tried to take a little rest.

But what are these handsome large orange-coloured flowers peeping out of the thicket beside that spring?—*Clivia* (*Imantophyllum*) *miniata*, no less; and now I see many more, varying a good deal in colour and choice of site, often growing on rocks, stones, and mossy trees. *Selaginella denticulata* forms a green carpet under the shade of a handsome Tree Fern, some 8 feet high—*Cyathea Dregii*; and here, too, is *Begonia Dregii*, *B. geranoides*, a very handsome dwarf white-flowering species; and another *Begonia*, undescribed in Harvey and Sonder's *Flora*, with orange-red flowers and reddish stems and leaf-stalks, said to make a good preserve. Lower down, by the edge of the stream, grows *Osbeckia Umhliasiana*, not unlike a *Lasiandra*, with its rich purple flowers and golden stamens. Alongside is a thicket of *Thunbergia natalensis*, with flowers dull purple in colour. A few trees in bloom take one's attention. *Syzygium cordatum*, resembling a *Eucalyptus*, covered with heads of white blossom; *Kigelia pinnata*, which looks strange from the pale red flowers springing direct from the old trunk; a *Cussonia*, with its handsome palmate leaves and stiff, candelabrum-like spikes of greenish flowers; a few bushes of *Ochna atro-purpurea*, with its black and crimson fruit; and a *Pavetta*, with its handsome white flowers and exserted style.

Wandering a little higher up I chanced on *Lissochilus speciosus*, a very handsome terrestrial Orchid, with a flower-spike about 2 feet in height, sepals brown, petals bright yellow,  $1\frac{1}{2}$ —2 inches across, pseudobulbs 3 inches long. Many other terrestrial Orchids were growing near. A *Disa*, like a fiery jet, some 3 feet high, crowded with small orange-yellow flowers; another species has white petals, rose-tipped; a beautiful *Eulophia*, orange, with rich brown lip; and another, with golden-yellow



flowers in a dense head. We have many Orchids besides these, but unluckily there is no work describing them, or, in fact, any endogenous flowering plants native to this country. Here is running water, springs gushing out all over the hillside, and overhanging the water *Montbretia Pottsi* grows abundantly, its handsome red-yellow spikes rising and falling with every breath of wind. Here, too, are *Streptocarpus parviflorus*, and another species with small light purple flowers and one leaf, which often grows to a huge size—2 feet across.

But the sun is climbing higher—high time we were on our way. So onward and upward; for Howick is 1000 feet higher than Maritzburg, which again is 2600 feet above the sea. Passing along on the outskirts of the bush, I notice *Littonia modesta*, so like a *Gloriosa* in habit, with its six-parted yellow perianth.

grassy plains on either side; more flowers peep out of the grass—*Hypoxis latifolia*, with bold funnel-shaped flowers; *H. elata*, with long narrow leaves, flower large, handsome, bright yellow; *Diets Huttoni* is in seed, for it is our earliest spring flower, flowering in October when the summer rains begin, followed by a beautiful scarlet *Cyrtanthus*, called the Flame Lily. Dotted over hill and dale like Mushrooms is a flower resembling a single white *Petunia*, a species of *Cycnium*: many *Asclepiadæ* grow here, some resembling a *Hoya*, one in particular, with huge clusters of green flowers might be a *Lagaristhus*, another with a huge Turnip-like root and small purple flowers of peculiar structure is a *Raphionema* (*Thesaurus Capensis*, t. 66). *Gladioli* are plentiful and many other Irids.

After a long climb I gain the hill-top, and am

but until lately was unable to determine it. To give an idea of how little is known about our native plants a man—I should say a nurseryman—whom I asked regarding the last-named plant, he, having seen it, referred it to *Gaultheria*!—though how he came to this conclusion it would puzzle any one to say.

In the valley beneath the Zwartkop a *Crinum* is plentiful, like *C. Forbesianum*, but the anthers are black. On the Umlass River I have seen the river valley a mass of colour, caused by the vast quantities of *Crinums* growing there—some pure white, some pink flushed, and others banded with red; they are superb flowers. Now we are nearing Howick: in one spot the ground is pink with the flowers of a large bulb, perhaps a *Brunsvigia*; here and there grows *Pentanisia variabilis*, one of the *Rubiaceæ*, with deep blue heads of flowers. *Richardia macu-*



FIG. 69.—CATTLEYA LAWRENCEANA. (SEE P. 374.)

*Sandersonia aurantiaca* is also seen with its campanulate yellow flower. Conspicuous amongst the green leafage is *Sparmannia africana*, a snow-white mass; also *Polygala variegata*, erect with spikes of purple bloom. Here, too, is *Leonotis leonurus*, with dense whorls of bright orange flowers; *Burchellia capensis* in full bloom. Underneath these bushes is a very elegant thing which looks like *Adiantum æthiopicum*, but turns out to be a *Thalictrum*, perhaps *T. rhynocarpum* (see *Gardeners' Chronicle*, January 22, 1884, p. 22), remarkable when in seed, each single fruit hanging by a long hair-like thread. The flowers are very small and inconspicuous. A huge bulb grows plentifully here with a long spike of flowers and pink stamens—*Drimys altissima*; and scrambling over the bushes is a *Clematis*, *C. bracteata*, I think; also a singular bulbous-rooted leafless climber, *Bowia volubilis*.

At last I gain the high road, with boundless rolling

nearly level with my destination. About 4 miles to the left is Zwartkop, a flat topped hill towering some 2000 feet. Many fine plants grow on the top—*Greyia Sutherlandi*, with trunks 3 feet through and 15–20 feet high; other things handsome and unknown to me. On the eastern slope I once found *Cyrtanthus lutescens* and another plant, of which I wish to say a few words. It is one of the *Compositæ*, subtribe *Mutisiaceæ*, a stemless perennial, radiate-flowered herb, with the habit of a *Gazania*; leaves oblong-lanceolate: flowers 1½–2 inches across, of a rich bright scarlet colour. I take it to be *Gerbera aurantiaca* (*Fl. Capensis*, vol. iii., p. 523). Dr. Harvey describes it as “a very handsome species,” but dried specimens, which probably he had before him when describing the plant, give a poor idea of the living thing. Growing amongst grass on dry fully exposed hill-sides it might be treated in cultivation as a *Gazania*. I have known this plant for a long time,

*lata* is common, and more rarely a beautiful little golden Sedge. At last Howick comes in sight, a straggling village interspersed with plantations of trees consisting of *Eucalypti* and *Acacias*. Putting up my horse at the inn I make for the Falls, a few yards distant. The Umgeni River here makes one leap from the table land above down a huge cleft in the rocks some 360 feet perpendicular. Scrambling down a rough path strewn with boulders I reached the water edge below. Truly it is a fine sight, the white rill of ever-falling water with its everlasting roar, the vapour mists curl up, and are lost in the blue sky. Near the bank grows a fine yellow Irid, much like *Diets Huttoni*, and at the base of the cliff are vast quantities of *Richardia africana*, their snow-white spathes delighting in the cool moist air. Near by *Hæmanthus natalensis* is very plentiful, with its huge head of yellow stamens and red-brown spathes. High overhead, struggling for life in the seamy rock,



is *Agapanthus umbellatus*, together with what looks like a small yellow-flowered *Aloe*. Many other plants are seen, but not being in flower I could not name them. But the sun is getting lower, and will soon sink behind the far-distant Drakensberg, so I scramble up to the top again, noticing many *Zamias*, from one-leaved seedlings to ancient standing 6-8 feet high, with a vast crowd of spreading fronds atop 10-12 feet across; each leaflet has but one spine. It is a long climb up, laden as I am with sundry roots and bulbs. The mist is coming up from the sea, and the evening shadows fall thick and fast. Now for a 12 mile ride home. Nearing town I hear the cricket's shrill cry, the frogs croak loud and incessantly, the fire-flies dance and gleam, and the night air is heavy with Orange and Tuberose perfume: the holiday is over. *R. W. Adlam, Pieter-Maritzburg, Natal.*

## ORWELL LODGE, IPSWICH.

THIS, the residence of R. C. Ransome, Esq., of the famous engineering firm of Ransome, Sims & Jefferies, is pleasantly situated on the Stoke hills, the pleasure ground in front of the house opening out in a deep gorge, well broken up to the right and left, where on high knolls there are bold clumps of trees, and running sharp down into the park-like meadows below, over which a splendid view of the picturesque river Orwell, with its well wooded banks, is obtained. The kitchen garden and plant and fruit houses lie in a hollow, open to the south-east, and are, therefore, well sheltered on the northern side, but though this is so it is found, as is usually the case in low-lying places, that the late frosts in spring often cut off the fruit blossoms. The Pears and Apples, which are planted along the sides of the walks, are mostly trained in the pyramid or bush forms, the whole of the trees being very clean and well set with bud. The main range of houses is in four divisions, three being devoted to the growing of Grapes, and the other is used as a stove, and has in it a mixed collection of Orchids and other plants. In two of these houses the Vines are quite young, and are planted near the back wall, up which they are led with clear stems 8 or 10 feet high, and then under the hipped roof, and on down the front, which is steep. The Vines were breaking very strong at the ends, and were showing fine bunches of fruit. The sorts in the middle division are Mrs. Pince and Muscat of Alexandria, the former of which Mr. Munday, the gardener, colours well by keeping the foliage healthy, and giving plenty of air. In the end house the sorts grown are Raisin de Calabre and White Tokay, with the latter of which Mr. Munday was first at the Ipswich and East of England Autumn Show, the bunches being large and compact, with fine berries of a rich amber tint; and as this sort has done so well, and is so superior in flavour to the Raisin de Calabre, it is intended to work the one on the other.

The object in making the border inside, and planting and training the Vines in the way referred to, was to give them as wide a root-run as possible, as they can go out under the front wall, where the ground is on the same level, but soon recedes rapidly, and the wisdom of the arrangement so far is shown in the success attending it, and the great strength of the rods. In the Hamburg-house the Vines are old, but still very healthy, one of Wilmot's, with a large stem, filling a good deal of space, the canes being carried up to the top and down again according to convenience, and to have them where wanted for covering the roof.

The stove at the end contains some fine Orchids, and among them a very superior variety of *Oncidium Kramerii* in full flower, and two distinct kinds of *Cattleya Trianae*, the one being pale, and the other nearly as highly coloured as *C. labiata*. Abutting on this range, and leading from it, is one of Sir J. Paxton's patent houses—a span-roofed structure, the centre bed being filled by large *Camellias* in tubs, and the rest of the floor-space around them being occupied by mixed greenhouse plants, the side stages were filled with *Pelargoniums*, *Cyclamens*, *Primulas*, *Cinerarias*, and other soft-wooded subjects in flower. The chief collection of Orchids is grown in a light low span-roofed house, parallel to the one just mentioned, and has a pathway down the centre, with 4-foot beds on each side, made up of chalk, covered with a thick layer of loose shingle, from which cool bottom plenty of moisture is constantly

rising. The first plants to attract notice on entering were the *Cœlogyne cristata*, owing to their fulness of flower, one in a 48-sized pot having no less than seven spikes, and others were equally fine in proportion. Among the *Odontoglossum Alexandræ* one variety stood out most conspicuously as being exceptionally fine, and in this Mr. Ransome has a gem, as it is very rare indeed such are met with at sales, at one of which I was told this one was bought. The *Dendrobies*, of which there are some ten or twelve kinds, were remarkable for the hard short-jointed growth they have made, which is owing to Mr. Munday's treatment in giving so much light and air, and keeping a low temperature, for in the middle of February, the time of my visit, the thermometer stood below 60°, and air was coming in freely through the roof ventilators, as could be seen, as well as felt, by the movement of the spikes of bloom on the Orchids, which were waving about. At the end of the Orchid-house is a small stove, in which was a fine pot of *Eucharis* which had had twenty spikes of flower on it, and looked equal to produce that number again. Plenty of drainage, with good loam, peat and sand, and not much water during the winter, are the secrets of Mr. Munday's success with this, one of the most useful of all hot-house plants. The Rose-house is a low lean-to structure, and stands by itself, the floor and staging at the back being occupied with Roses in pots, and a *Maréchal Niel* in the border, showing hundreds of blooms, under the roof. *J. Sheppard.*

## ORCHIDS FOR AMATEURS.

(Continued from p. 247)

**SHADING.**—Shading by means of blinds is very necessary during the summer, indeed blinds are needed from the end of April, or even earlier, until the end of September. Many growers, to save trouble, paint the glass over on the outside with a mixture of starch, plaster of Paris, and water—plaster of Paris, 1 lb.; starch, 6 oz.; make a milk with water and add water until the mixture measures half a gallon. This may be painted on to the glass, and forms a good shade. There is, however, this great objection to its use—it cannot be removed after the sun ceases to shine on the house nor in dull weather. I use this mixture for the windows at the south end of my house, but prefer thin blinds of tiffany, which are easily removed as a shade for the roof. The tiffany should be stretched on light wooden frames provided with hooks to fix them to the upper part of the roof, as tiffany does not roll well and canvas keeps out far too much light.

### LIGHT.

Although few Orchids bear the strong sun when they are growing or flowering all want as much light as it is possible to give them, and many fail to flower from an insufficiency of light. There can be no doubt that the distance of the glass from the plants seriously affects their growth. The nearer they are placed to it the better they grow and the more likely they are to produce flowers. This has been a puzzle to me for years, for it does not seem easy to understand why the light should be more powerful near the glass than at a distance from it, unless the loss is due to the shade of the rafters, and if these are properly constructed they should not diminish the light very much. I have often thought that the better growth near the glass is due to a freer circulation of air, and to the fact that the heat is more intense there in the day, and less at night than in other parts of the house. Whatever the explanation may be, there is no doubt of the fact, that proximity to the glass favours the growth of all flowering plants, but with Orchids it is necessary to remember that many plants suffer from cold at night if they are too near the glass; we must, therefore, put them as near as possible, always remembering that those species to which cold is fatal should not be too near it, especially in the cold nights of winter and spring.

### COVERING THE GLASS.

I have seen flower-buds destroyed by cold when they have been allowed to remain within an inch or two of the glass. Some Orchids, especially *Odontoglossums* and *Oncidiums*, never flower if too far removed from the glass. In very cold weather, when the Orchids are resting, light is of far less importance, and I am in the habit of protecting mine by covering the whole roof, or even the side lights, with straw and matting. Sometimes they have been covered in this way for

three weeks without injury, but under such circumstances they must not grow; too high a temperature and too much moisture would then very much damage the plants. I believe that such protection is a far better means of keeping up a suitable temperature than driving the fires, for, as I have already remarked, very hot pipes in cold weather are very liable to dry the plants and scorch the more delicate leaves, as well as to favour the development of thrips and red-spider.

The best kind of protective covering is made of frames like light sashes, with straw fixed over them instead of glass. The straw can be readily kept in its place by nailing battens of wood over its ends and in the middle of each layer. The straw must be placed like thatch, and the lower ends of the straws above must overlap the upper ends of those below. No covering should rest immediately upon the glass, as when it becomes wet it will do little to protect the plants below, for the drying of the covering will rob the house of heat very rapidly.

Bast mats are not nearly so effective as straw, if the latter is properly arranged on frames—and this is especially the case when the mats are allowed to rest upon the glass. They are also far more difficult to manage. The same frames which are used for blinds in summer may be readily used for straw in winter if the stowage of two sets of frames is inconvenient. A few shillings expended in such frames will amply repay the amateur by saving both fuel and labour as well as by relieving him of all the anxiety attendant on a severe frost. *B. T. L.*

(To be continued.)

## THE PROPAGATOR.

### THE PROPAGATION AND CULTURE OF ALOCASIAS.

WE intend for the present to restrict ourselves to a description of the various ways of multiplying the following varieties, viz., *A. Chelsoni*, *A. gigantea*, *A. hybrida*, *A. intermedia*, *A. Lowii*, *A. metallica*, *A. Sedeni*, *A. Thibautiana*, *A. Veitchii*, *A. zebrina*, and *A. longiloba*.

### CUTTINGS.

One of the methods of propagating these varieties is by cutting out what is called the crown of the plant, and putting it in as a cutting. In making the cutting care should be taken to cut  $1\frac{1}{2}$  inch of the main stem with it. They can be potted into small 48-sized pots, but the soil should be pressed firmly around the cutting, at the base of which a little sand should be placed. Further on we have a few special remarks to offer as to potting, so it will not be necessary to give any directions here. A stick should be placed to each cutting, which should be securely tied to it, and after having been watered with a fine-rose pot they can be put into a cutting case upon a brisk bottom-heat. If the case is not deep enough to stand the cuttings upright they can be laid down upon their sides or tilted, provided they are moved to a different position every two or three days, otherwise they will grow crooked and deformed. The lights of the cases should be taken off for an hour both in the morning and at night, but an inch of air should be left on all night, at the same time the cuttings should be sprinkled with a fine-rose pot. They should also be shaded from the sun's rays. When the cuttings have rooted more and more air should gradually be given them during the few days before they are taken out of the case. When this has been done it will be necessary to keep them upon the open bottom-heat until they have become well rooted and established with hard (*i.e.*, not tender) foliage. They can then be potted into 32-sized pots, watered, and replaced upon the bottom-heat. When the plants have established themselves in this sized pot they can, if large plants are required, be potted into a larger-sized pot; but if this is not the case, they can be removed to any warm house where they may be required.

### THE OLD PLANTS.

The tops or crowns of these from which have just been taken out should have a little dry sand sprinkled over the fresh cut for two or three days in succession, in order to prevent the exudation of sap. They must be replaced and kept upon the bottom-heat, and should be given a moderate supply of water. They form a kind of stock plant, and should therefore be taken care of. As soon as the fresh growths which they



will put forth are strong enough they should be taken off, and potted up as cuttings, and treated in the same way as the crowns of the plants.

By BULBILS.

It is a habit of the *Alocasias* to produce young plants beneath the soil. In shape and size they mostly resemble a hazel-nut, and are generally found at the end of a thin stem that grows beneath the soil, although they are sometimes found near the main stem. The gardener must be exceedingly careful in his search for these bulb-like offsets, because, being of the same colour as the soil, and often found in the centre of a piece of fibrous peat or loam, or even amongst the cracks at the bottom of the pot, they often escape notice.

The offsets should be firmly potted into small thumb-pots, putting a little sand around each offset, and making its pointed centre level with the surface of the soil. After receiving a good watering they should be placed in a shallow cutting-case upon a brick bottom-heat. Here they should be watered when they become dry, and also shaded from the sun's rays. For ventilation the light should be raised for an hour at night and in the morning, but when the offsets have grown 2 inches in height, more and more air should gradually be given them for the purpose of making them hardy enough to be stood out upon the open bottom-heat: after they have been ten days upon this they will be strong enough for potting. They should then be potted into large 60-sized pots, and after having been well watered they must be replaced upon the bottom-heat. They can again be potted when the size and strength of the plant demand it.

#### POTTING AND CULTURE.

As the *Alocasias* require a large quantity of water, it is of great importance that the surplus water should pass off freely, and in order that this may be done, each pot must be well drained. A large piece of crock should be placed over the hole in the bottom of the pot, not so as to stop the passage of the water, but with the hollow of it towards, or arching over, the hole. The pot should then be filled to one-quarter of its depth with smaller crocks. The soil—which can be used for potting alike the plants, cuttings, and offsets—should be made up as follows:—Half good turfy peat, broken up into pieces about the size of a small thumb-pot; a quarter good turfy loam, and a quarter river sand, and to this should be added small quantities of charcoal broken up into pieces of Walnut size, chopped sphagnum, moss, and ballast, or broken potsherds. This mixture should be well mixed together, and moistened before it is used for potting purposes. In planting *Alocasias*, whether in the plant, cutting, or other states, it is necessary to make the soil high in the centre of the pot, and to make it slope gradually down towards the rim.

*Alocasias* should receive a liberal supply of both heat and moisture during the growing seasons, although for many weeks during the dull months of the year they require very little if any water. Excepting during the dull months they should be syringed twice a day, lightly shaded from the hot rays of the sun, and ventilated upon all warm days. T. O.

(To be continued.)

#### FRUIT NOTES.

**THE MARGIL APPLE.**—This excellent old English dessert Apple deserves to be more extensively planted than in general it is. The fruit is of excellent flavour, but is rather small. The tree is rather a slow grower, but it is an abundant bearer. It forms numerous spurs, which should be thinned every season; and the fruit will in consequence be all the finer. It forms a nice specimen as a pyramid, and does well as a bush, and being a slow grower is well suited for small gardens.

#### AROMATIC Russet.

This is an excellent and highly flavoured dessert Apple, which bears well. It is a free grower, and one of the most delicious and tender of Apples when in season. I have kept till May, and had the fruit fine during the spring months.

#### KING OF THE PIPPINS.

I cannot understand how this has got to be ranked among the leading kinds of dessert Apples. I have grown it for nearly forty years, and, no matter what

the season may have been, the quality of the fruit was always inferior, but when ripe it is always very showy, and a few fine fruits tastefully dished up make a nice show. The fruit is in season from January till April. The tree is an upright grower, and bears abundantly. If the fruit were a little larger it would make an excellent variety for market, its appearance being in its favour. M. Saul, York.

## Orchid Notes and Cleanings.

#### ORCHIDS AT OLDFIELD, BICKLEY.

I HAD often paid a friendly visit to Mr. Heims when he had charge of Mr. Philbrick's garden in the Regent's Park, and he had always something good in the way of Orchids to show me, and, what is ever pleasing and instructive to gardeners or practical amateurs, the plants were always clean and healthy—the *Phalenopsis* especially were excellent examples of good culture. When Mr. Philbrick removed to Bickley, many of the Orchids were sold, an entire clearance being made of the East Indian species. On my visit to Bickley the other day I found many of the old Regent's Park Orchids were still in the collection, with the addition of many choice new ones, all alike testifying by their cleanliness and general good condition that they were well managed. The *Cattleya*-house was the most attractive feature, and it is needless to say that the centre of attraction was the varieties of *Cattleya Trianae*. In this collection some of the varieties had been introduced years ago, and they held their own bravely against the recent importations. The variety *Penelope* was sold when Mr. Marshall's collection was dispersed from Enfield; the flowers are of a rosy-lilac colour, with a yellow blotch. Perhaps the best form in a large group was one purchased from Mr. Turner's collection about seven years ago; it is very lovely, and has broad well formed pure white sepals and petals, with a rich crimson-coloured labellum. Amongst the recently imported ones are some with very rich colours on the lip, and the beauty of some is enhanced by the sparkling effect of the deep yellow and orange throat. The delicately tinted group of which some are almost white was well represented; these are neither more nor less than forms of *C. Trianae*, although they have been grouped in another species as *C. Warszewiczii* *delicata*. Indeed there is no dividing line that I can see between these two species. *C. Warszewiczii* was introduced first in 1862. The name of *C. Trianae* was given four years later. *Laelia anceps Dawsoni* was very fine; a plant bearing two spikes was in splendid health. *L. anceps rubra* I noted as a richly coloured and distinct form. Mr. Philbrick has purchased a number of fine plants of the recently imported white forms, and all of which Mr. Heims has potted in the usual way. The plants are not so much trouble when they are grown in pots as when fixed to blocks or rafts, and my long experience has convinced me that, all things considered, pot culture is best. In passing round the houses many interesting plants in flower were noted. Here, for instance, was a little group of *Cypripedium insigne* and the variety *Maulei*. *C. insigne* itself is a valuable species, and some of the varieties are much finer than others. Large masses of *Coleogyne cristata* are well grown, the variety with lemon blotched labellum being very fine. *Laelia flava*, of a clear golden-yellow colour, was in full beauty—a cluster of ten flowers together rivetted the attention. *L. harpophylla* was also very fine. *Dendrobifolium glumaceum* was in flower, and filled the house with perfume. No collection of Orchids should be without this sweet plant. The drooping spikes are very beautiful in a mass, although the individual flowers are insignificant indeed. *Epidendrum Wallisii* was just opening its flowers, and there was a gorgeous plant of *Dendrobium Wardianum* splendidum in full flower.

#### THE COOL HOUSE

contained some choice varieties of various species, the *Masdevallias* being especially rich in variety. The golden-yellow *M. Davisii* was very fine. One flower that I measured was  $1\frac{1}{4}$  inch across by 2 inches long. *M. amabilis lineata* is a distinct form of this species. *M. Harryana rosea violacea* is a rosy-violet colour, and very distinct. In the *M. ignea* group there are some charming varieties; *M. ignea superba* is the most attractive; *M. ignea aurantiaca* has very large flowers with a yellow suffusion; *M. ignea Bodartii* is rosy-red with deeper lines. The most interest-

ing plant of the whole group was a fine hybrid form, raised, I believe, in Scotland, between *M. Lindenii* and *M. ignea*. It has the form of leaf and habit of plant of the first-named, while the flowers are nearer the latter. Their colour is a brilliant rosy-red with deep crimson lines. *M. polysticta* is in its way very quaint and very pretty: a well-flowered plant would be a feature in any collection. The flowers are very numerous, of a creamy-ground colour, thickly spotted with deep purple, each of the three segments of the flowers being adorned with yellow tails. *M. Crossii* is a complete failure. A healthy, well-grown plant was in flower, a small rosy-tinted little thing, which might be dealt with as a novelty by the Scientific Committee. I must say, however, that the dried flowers gave one an idea that this might be a good garden plant; the flowers at the best are not large, but six or eight may be found open at one time on a spike. The most interesting of the *Odontoglossums* was the fine yellow form of *crispum*; it has been named and certificated as *O. crispum aureum*, while the varieties of *O. Andersonianum* are as numerous as the plants. *O. Erstedii* major is decidedly a good thing. I have seen it in several gardens, and can say that it is quite distinct from the normal form, and far superior. A small collection of *Phalenopsis* has been formed, and they are grown remarkably well in a low span-roofed house. On the stage underneath there was an exuberant growth of *Fittonia argyoneura* and *Cyrtodeira fulgida* mingled together, producing a fine effect. There was an excellent example of *Phalenopsis Stuartiana nobilis*; *P. amabilis*, *P. Schilleriana*, and others are in fine flower and capital condition. J. D.

#### ORCHIDS AT SILVERDALE LODGE, SYDENHAM.

The collection of Orchids here is very choice, and contains some fine specimens. At present, being in a state of great luxuriance and having a grand lot of bloom, they are a sight well worth seeing. In a large house of *Vandas*, *Cattleyas*, &c., amongst the first plants we noticed was a splendid specimen of *Cymbidium Lowii*, we should think one of the largest in the country; it has seven strong spikes of bloom, each carrying twenty-seven or twenty-eight blooms, and will be a splendid sight when all are fully expanded. Amongst the *Vandas*, *saavis* and others were in bloom, and a fine lot of spikes was coming up. The *Cattleya Trianae* were just getting past their best, but we were luckily in time to see one of the finest we have ever seen in full bloom, named *C. T. Alexandrae*, the outer petals being of a most delicate tinge, somewhat approaching puce; the labellum has a blotch of the deepest purple, which gradually shades off to the white, and the throat is a deep orange, also fading into the white of the labellum; the flower is of medium size, but of fine proportions and substance. In other houses several fine forms of *Odontoglossum crispum* were to be seen, *O. Hierbstii majus*, *O. gloriosum*, *O. hystrix* var., fine; *O. Pescatorei*, *O. Rossii*, and *O. coronarium*, a fine plant, well flowered, something like *O. Insleyi*, only larger. *Dendrobiums* were very well grown, and had large and numerous spikes of bloom, and included the following varieties:—*D. Farmeri alba*, fine plant; *D. Wardianum*, *D. nobile elegans*, *D. japonicum*, very sweet scented; *D. crassinode*, *D. moniliforme*, and *D. splendidissimum*, one of Veitch's hybrids, very fine. *Sophranites grandiflora* was showing its conspicuous blooms; *Phaius grandifolius*, too, was fine. *Cypripediums* were looking well; *C. villosum*, *C. Maulei*, *C. concolor*, *C. Harrisianum*, with two flowers on a spike; *C. Argus*, and *C. Lowii*, had all fine blooms. *Masdevallias* were throwing up large quantities of spikes; *M. ignea* and *M. Massangeana* were in bloom. *Oncidium fuscum* was in flower, and *O. bicolor* had a very strong spike. This is a very useful Orchid, as it usually blooms in August and September when Orchid bloom is, comparatively speaking, scarce. Several fine plants of *Coleogyne cristata* were in bloom, a fine plant of *Cymbidium eburneum Dayii*, and *Laelia harpophylla* were also blooming freely. All the Orchids continue to be well managed by Mr. Catt, but if it were possible to instance any particular class, we should certainly pronounce in favour of the *Phalenopsis*, which are very luxuriant, not only as regards the great, thick, board-like leaves, which some growers sigh for, but the flowers also, which for quantity, substance, and size, are, we should think, very seldom excelled. The collection comprises the finest known varieties.

**DENDROBIUM WARDIANUM.**—In the issue of the *Gardeners' Chronicle* for March 15, 1884, is an account of a plant having thirty-two blooms on one growth. We have one just opening with thirty-eight blooms. Can any of your readers give a case where this number has been surpassed, or state the highest number produced by one growth, all open at one time? If ours is unusually good, and a note of its culture interesting to any of your readers, I shall be willing to give it. N. Blandford. [Anything touching on Orchid culture would be welcome. ED.]



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Mar. 23	Sale of Liliun auratum, Roses, and Plants, at Protheroe & Morris' Rooms. Royal Horticultural Society: Meeting of Fruit, Floral, and Scientific Committees, and Promenade Show.
TUESDAY,	Mar. 24	Unreserved Sale of the Suggall Hall Collection of Established Orchids, at Protheroe & Morris' Rooms (two days). Sale of Camellias, Azaleas, Roses, &c., at the City Auction Rooms, by Protheroe & Morris. Bath Bulb Show (two days).
WEDNESDAY,	Mar. 25	Sale of Hardy Plants and Bulbs, at Stevens' Rooms. Glasgow and West of Scotland Horticultural Society's Show, St. Andrew's Hall, Glasgow.
THURSDAY,	Mar. 26	Sale of Imported Orchids, from Mr. F. Sander, at Stevens' Rooms. Crystal Palace Spring Exhibition of Plants and Flowers (two days).
FRIDAY,	Mar. 27	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY,	Mar. 28	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

AS no operation will be more frequent in our gardens for the next month than seed sowing, it may not be inopportune to offer a few observations on SEED BUYING, for there are some very unsound ideas far too prevalent, which often lead to injudicious purchases. In the opinion of a large number of persons seeds are a purchasable commodity of like value from whomsoever obtained. No more delusive idea exists. If one thing is more certain than another it is this: that there is as much difference in seeds as in men and women, and consequently it behoves every one to get the best obtainable. There may be some trifling difference in price; the good will undoubtedly cost rather more money, but what is that circumstance compared with paying a trifle less and getting an inferior article? Satisfactory crops cannot be grown from inferior seeds, however good the cultivation. Good seeds must be secured, then, whatever the cost and trouble in selecting them.

The sage advice in one of our famous cookery books which commenced with the admonition to "first catch your hare," may be paraphrased on the present occasion by the advice to "first select your seeds." Any one who has paid a moderate amount of attention to matters horticultural must know that during the last few years great improvements have been made in most of our vegetables, and in many flowering plants raised from seed. For example, compare the Cabbages of to-day with those of ten years ago, or the Peas, Broccoli, or Cauliflowers. These marked improvements—small from year to year, but important over longer intervals—we owe chiefly to our leading seedsmen, who have spent great pains in the creation and improvement of so many plants of everyday use. In numbers of instances they have done the work in their own grounds; in others they have bought up at large premiums the results of other men's labours; but in one way or other it is to the enterprise of our leading seedsmen that we are indebted for the improved characters of so many universally grown plants.

Then, it must be remembered, that these enterprising members of the craft, however enthusiastic they may be—and we believe that many of them are enthusiastic to a degree not common among business men in other trades—have to regard the distribution of their seeds, however good they may be, as a commercial transaction, and if they are to thrive they must contrive to gather a little profit by the way, or they will fail in their object. In what way, it may be asked, does this consideration affect the seed buyer? The answer to this will appear a little later on.

It must be conceded that every real improvement effected in any plant of general use is a national gain. It is equally a personal gain to the individual cultivator. Each gardener has thus, it would seem, not only a personal but a collective interest in these improvements. And again, if the seedsmen and the other raisers of improved seeds are repaid for their past

labours, they are encouraged to undertake others, which in turn will benefit the general community. This result can only be secured by a very large number of persons buying the novelties which are offered from year to year. There is a frequent notion among gardeners that it is hazardous to buy novelties. Perhaps it was so when ill-advised people offered untried things for sale; but now-a-days, what with criticism in the gardening Press and the care which good business men take to prevent disappointment, the risk is reduced to a minimum. It is rare that any strongly recommended novelty will now prove absolutely delusive. We may then, without indiscretion, urge our gardeners to be trustful as well as careful; only suggesting that, in selecting novelties for trial, they should do so judiciously by choosing those only which are sent forth by well-tried and trustworthy firms.

We think in preparing seed lists a mistake is often made which can be easily remedied. If a man buys all his seeds from one firm he is limited to those kinds which they offer for sale. But almost every house has its own specialties. These are things on which they have expended their strength. Obviously it is better to buy the specialties from those who are the original distributors of them than from any one else, and it is fairer to do so. Our advice, then, would be to buy the specialties from the original distributors, and the ordinary seeds from the house most usually dealt with.

We cannot too forcibly impress on our readers this fact, that the pedigree of seeds is as important as the pedigree of stock. If a celebrated breeder of Shorthorns by his skill and perseverance through long years has obtained a strain of animals superior in some respect to all others, and so commands a higher price for his produce, why should not our seedsmen who have taken equal pains equally reap the reward of their labours and enterprise?

It is the more necessary to put these points forcibly, inasmuch as nowadays the desire for the utmost money value and necessary economy have induced many people to go to Co-operative Stores for their seeds. It may answer to buy many things there, because they are cheaper than in ordinary shops, but seeds are different to tinned meats and patent medicines. Seeds are a variable quantity, and as those sold at the stores can in the usual course of things be only such as any one can obtain from any of the wholesale houses, and the special strains of seeds which embody the results of years of labour are special things, only to be bought of those who possess them, we feel we are doing a service by urging the purchase of the best seeds only, even though they cost a little more money.

— NOISSETTE ROSE LAMARCK. — Amongst the Roses which have suffered a partial eclipse from the rush for novelties is the old and beautiful climbing Noisette, which the facile pencil of Mr. FITCH has so well portrayed (fig. 70), and yet it is not, after all, a very old Rose. It was raised by MARÉCHAL, a French grower, about the year 1830, and was at one time very generally cultivated by such Rose growers as could give space to it, for being a rampant growing climbing Rose it requires considerable room on a south wall; and where this is to be had, most Rose lovers prefer (such is the taste for yellow Roses amongst us) to give it to either a Gloire de Dijon, Madame Bérard, Belle Lyonnaise, or Maréchal Niel. There is another reason which has tended to limit the number of its admirers—it is not perfectly hardy, and it will not stand severe winters as well as Roses of the Gloire de Dijon class; moreover, it is hardly ever fit for an exhibition stand, and that in these days is a serious drawback. And yet it surely deserves a better fate than this; its numerous clusters of white flowers, with oftentimes the faintest *souffron* of yellow in the centre, are very chaste and charming, and there is no Rose that looks better when cut with a good long footstalk and placed

loosely in a tall vase, especially if the vase be of ruby-coloured glass, when the contrast of the pure white flowers is very marked; it is less formal in its growth than many of the exhibition kinds, and is thoroughly a lady's flower.

— A NEW FORESTERS' AND GARDENERS' BENEVOLENT INSTITUTION.—It is proposed to form an Institution with the above title for Scotland, and with a view to ascertain the feeling of those most concerned in the matter the opinion of gardeners and foresters is solicited, either in its favour or otherwise.

— ROYAL BOTANIC SOCIETY.—At a meeting of this Society, held on Saturday last, Sir WALTER STIRLING, Vice-President, in the chair, the following candidates were balloted for and elected Fellows:—Mrs. BLUETT, Mrs. HARRISON, Lady KNIGHT, and Captain DOUGLAS WHITMORE. The Secretary, Mr. SOWERBY, who lately returned from a trip to the South of Europe, exhibited some interesting botanical curiosities he had collected.

— SULPHIDE OF POTASSIUM.—In support of his previous testimony with regard to the efficacy of the substance in checking the ravages of mildew and allied forms of fungus growth on plants Mr. TONKS, of Knowle, Warwickshire, recently sent to our office a fine healthy specimen of a zonal Pelargonium which a month ago was rapidly perishing from the disease. This plant had been totally immersed, soil and all, in the solution, to the complete cure of the malady.

— "STUDIES IN MICROSCOPICAL SCIENCE."—This publication, edited by Mr. ARTHUR COLE, is excellent. The text deals with the mode of preparation of the objects, explains what there is to be seen in them, and is further illustrated by chromolithographs, and, better still, by appropriate microscopical preparations. The botanical portion of the work can be had separately. It may be had from Messrs. BAILLIÈRE, TINDALL & COX.

— VENETIAN HOUSES.—We are informed that these houses, illustrated on p. 282, February 28, which at first seemed to be even too well supplied with ventilation, at least for some kinds of plants, and at certain times, are now so constructed that the lights can be easily disconnected, and half or one-third of the house may be ventilated, the other portion remaining closed if desired.

— GHENT FLORAL COMMITTEE.—At a meeting held on Monday, the 9th inst., the following awards were made:—

*Certificates of Merit.*—Clivea, Mr. Ambrose Verschaffelt, exhibited by Mr. F. J. Spaë; Begonia sceptum, exhibited by Mr. E. Pynaert; Korthalsia robusta, exhibited by Mr. Aug. Van Geert; Cattleya Trianae, var. from Popayan, exhibited by Mr. James Bray; Odontoglossum Edwardi, exhibited by the Compagnie Continentale d'Horticulture; Phalenopsis Stuartiana, exhibited by the Compagnie Continentale d'Horticulture; Camellia, General Stewart, exhibited by Mr. J. Moentjens.

*Cultural Commendations.*—Cypripedium Boxalli, exhibited by Messrs. Vervae & Co.; Anthurium ferrierense, exhibited by Mr. L. Van Houtte; Sparmannia africana flore-pleno, exhibited by Mr. Van Driessche-Leys; Clivea miniata, exhibited by Mr. de Ghellinck de Walle; Cypripedium Boxalli, exhibited by Mr. James Bray.

*Votes of Thanks.*—Phaius Blumei, exhibited by Mr. Aug. Van Geert; Dendrobium Findleyanum, exhibited by Messrs. Vervae & Co.; Odontoglossum Alexandrae, exhibited by Messrs. Vervae & Co.; O. hystrix magnificum, exhibited by Messrs. Vervae & Co.; Laelia superbiens, exhibited by Mr. Van Geert; Clivea Chevalier Heyndrick, exhibited by Messrs. Blancquaert & Vermeire; Clivea (seedling), exhibited by Mr. Louis Desmet; Phalenopsis Schilleriana, exhibited by Messrs. Vervae & Co.

— MUSHROOMS.—These esculents seem to be particularly fine and abundant during the present winter, more especially where the cultivation in beds in the open is well understood. This is the most profitable method of growing them, but the time required is much longer than with beds in warmed houses. Mr. N. FULLER, gardener to Sir J. C. JERVOISE, Bart., Idsworth, Hants, sent us lately for our inspection some extraordinarily fine samples, firm, solid, and large, the produce of beds in a Mushroom-house.





FIG. 70.—ROSE "LAMARCK." (SEE P. 378.)



— GARDENERS' ROYAL BENEVOLENT INSTITUTION.—A special meeting, very largely attended, was held on the 13th inst., at the "Bedford" Hotel, Covent Garden, and over fifty gentlemen were present, many of them gardeners. Mr. E. TIDSWELL, the Treasurer, being in the chair. Mr. J. LEE, the Chairman of the committee, explained the working of the various additions and alterations made to the rules, which were unanimously agreed to; and the alteration in Rule 8, for increasing the pensions of recipients of the charity by £4 per annum was carried by acclamation. The first increase of the pensions will take place on the next payment of them, *i.e.*, this quarter. A vote of thanks was accorded to Mr. JOHN LEE in consideration of his successful management of the Augmentation Fund, and the affairs of the evening were brought to a pleasing conclusion by a dinner given to commemorate the occasion. The forty-second anniversary dinner is appointed for Friday, July 3, when E. J. TIDSWELL, Esq., will preside, and we have reason to hope he will be most substantially supported.

— MIKANIA APIHOLIA.—This is a little known evergreen climber, adapted for cultivation on the pillars or walls of a stove. The palmately divided leaves are borne on long stalks, each of the five leaflets being lanceolate and irregularly lobed at the margin. It is figured in the *Illustration Horticole*, t. 549.

— "DICTIONNAIRE DE BOTANIQUE."—We are glad to announce the publication of another part of this useful work, which comprises articles from "Dual" to "Eubi." We may suggest to the Editor, Mr. BAILLON, to give in all cases references to the latest or best esteemed monograph, and not merely references to general works, like the *Genera Plantarum* or the *Histoire des Plantes*. These latter works are the first that would be consulted by the student, who, however, might not have the means of knowing of the more elaborately detailed monographs, while, on the other hand, those who are familiar with the works in question are just those to whom the *Dictionnaire* is least useful. "Edgeworth" is a slip of the pen for "Edgeworth," which occurs twice in the same paragraph. The work is beautifully got up, typography and illustrations alike being good, but some scale of proportionis needed in the latter case.

— THE PARCEL POST.—A correspondent says:—"Useful as the Parcel Post undoubtedly is, the uncertainty as to the time parcels will arrive is a serious drawback, especially with such perishable things as flowers. The Parcel Post is useless where it is requisite that parcels should arrive at a given time, as there is no certainty that they may not be delayed one or two days longer than a letter going the same distance. If an extra charge were made for such parcels as require to be sent without delay, and for which the time of arrival could be as accurately reckoned on as that of a letter, it would add much to the number of parcels sent through the post, as well as to the convenience of the senders."

— ZAMIA TONQUINENSIS.—A handsome Cycad, probably a Cycas and not a Zamia, the species of which latter genus are American, and with slender erect stem covered with woolly hairs. The leaves are oblong pinnate, bright green; the leaf-stalks are downy and provided with small spines. The leaflets are narrow lanceolate, wavy at the margins, each about 6 inches long. It is said to come from Tonquin, and is highly spoken of by the editor of the *Illustration Horticole*, in which journal it is figured, t. 547.

— YEAR BOOK OF THE BERLIN BOTANIC GARDEN.—The third volume of this publication has been recently issued. It contains a report on the work of the museum and garden from April 1, 1881, to September 30, 1884, besides numerous papers relating to work done in the laboratory and herbarium. Mr. VOLKENS treats of the relation between the structure of plants and the nature of the locality in which they grow. Mr. LOEW deals with the relation between flowers and insects. Mr. SCHUMANN on the etymology and history of the Gewürznelke (Clove). Dr. SCHUMANN describes certain malformations of *Gagea pratensis*. Dr. FUNKESTÜCK treats of

the development of Lichens. Mr. WENZIG contributes a monograph of the American species of Oak. Mr. SCHWACKE discusses the arrow poison (*pfelgift*) of the Tecuna Indians, the most important ingredient in which appears to be *Strychnos Castelnaei*. Lastly, Mr. PRANTL furnishes a systematic review of the genus *Ophioglossum*.

— CERREUS C. M. HOVEY.—This is a variety of *C. speciosissimus*, of dwarfer habit, with smaller but with more numerous and more brightly coloured flowers. It is figured in the *Illustration Horticole*, t. 548.

— MESSRS. CARTER AND CO.'S PRIMULAS.—Although past their best, the blooms of this well-known strain are still very fine, and one can judge by the amount of seed-cases how fine they have been; many of them have thrown three tiers of bloom on one spike. Messrs. CARTER & CO. have several types, which are pretty well known; all shades of the favourite colours are to be seen, and they have from 300 to 400 so-called "blues," or rather violet, but the blues will no doubt intensify in time, and then it will be an acquisition; at present even it is decidedly interesting. The other varieties are all good in their class; Holborn Carmine and H. Salmon are both good varieties, as also are Rosy Morn, Alba Magnifica, Holborn Elaine, fine Fern-leaved white, and another white, called H. Pearl; H. Magenta, H. Mauve, H. Vermilion, very fine; H. Blush, Venus, flaked like a Carnation with magenta and scarlet; Tomkin's Queen, a fine Fern-leaved white, was very fine; and we must not forget to mention two semi-doubles, Prince of Wales, and Snowflake, the former a fine salmon, and the latter white.

— AGAPETES BUXIFOLIA.—Judging from the beauty and floriferous character of this plant, it is to be regretted that three or four species are all that have been introduced to British gardens, and that these are seldom seen in cultivation. Twenty-five species are known to science, and all are stated to be of a showy and decorative character. They are natives of the mountains of India and the Malayan peninsula, with an outlying member in Fijii. *A. buxifolia* is a native of the Bootan Himalayas, and consequently amenable to greenhouse or conservatory treatment. In its native habitat it grows to the height of 5 feet, but under cultivation at least, growth is slow and bushy, so that as to house-room it is as easily accommodated as a Heath or an Epacris. The tubular scarlet flowers are about an inch long, and produced in clusters at the end of the short branches. Specimens may always be seen in flower at this season in the temperate-house at Kew.

— PHAIUS GRANDIFOLIUS.—Botanically the characters of this species exhibit a close relationship with *P. Wallichii*. For garden purposes, however, they are easily separable. The former is a robust and vigorous grower, with ample foliage, and flower-stems attaining a height of 3 feet. The sepals and petals are whitish externally, and brownish or buff internally. The lip has a pale tube, with a deep dull purple limb, while the tube internally is striped with darker veins. *P. Wallichii*, on the other hand, has shorter flower-stems and narrower segments to the perianth, while the lip is distinctly yellow, with a white limb and purple mouth. The two species have been confused by some authorities in books. There are a number of strong healthy plants of the Orchid under notice stood about in various positions in the Orchid-house at Kew, and present a bold appearance with their tall many-flowered stems and parti-coloured flowers amongst the numerous subjects now flowering there.

— ILLUSTRATIONS IN NURSERYMEN'S CATALOGUES.—How much of ingenuity is displayed annually in the production of drawings of most impossible plants, flowers, and vegetables those that receive catalogues best know. Our American cousins are not at all behind in this matter. All who receive catalogues are familiar with the wonderful Fuchsias, Carnations, Cinerarias, &c.; the "prolific Cucumber," so long, even, and straight, with no "neck" to speak of, and hanging so thick on the vine that from all appearances one would require to cut those hanging in front before it would be pos-

sible to get at those behind. Illustrations of Peas, showing their habit of growth, are, to put it mildly, somewhat startling, for if we take the length of pod and compare it with the height of the "bine," we find that the pods measure a little over 14 inches, so that reckoning eight Peas in a pod, we get the gigantic size of at least 1½ inch!

— ST. NEOT'S HORTICULTURAL SOCIETY.—The annual show of this Society will be held on Monday, August 3.

— BROWNEA GRANDICEPS.—With the exception of *Brownea Ariza*, this is one of the grandest flowering species in the genus. The long pinnately compound leaves assume an elegantly drooping habit; and, although presenting a somewhat tufted appearance, owing to their being crowded together towards the summits of the stems and branches, their graceful character more than redeems this fault. Some plants in the Palm-house at Kew never fail to flower during the winter or spring, when they are a source of great attraction to visitors. The plant belongs to a sub-order of the great Pea family with regular flowers. These are collected together in a large dense head, and appear like a huge Rose, the central unopened flowers representing petals still in bud. This species is a native of several parts of Venezuela on the mountains, and is known there by the native name of Rosa del Moote. The flowers are rose-coloured, but produced in more imposing heads than either *B. coccinea* or *B. Ariza*. There is a figure of the plant in the *Botanical Magazine*, t. 4839, and in these pages, 1841, p. 436.

— BERRIED AUCUBAS.—Lovers of plants who have a cold house, and but little in the way of hardy plants of a decorative character to fill it in early spring, should make use of *Aucuba japonica* in pots, growing also a male plant or two for the supply of pollen with which to fertilise those of the opposite sex. Plants of this free growing hardy evergreen shrub can be kept in due bounds as regards size by means of judicious cutting back, and also in good shape, and the leaves are always handsome and do not readily turn brown even when the plants are kept dry. The male plant should be kept out-of-doors in order to retard its flowering, as in this respect it is earlier than the female; but it is not difficult to gather the pollen and keep it for a long period for the purpose of artificial impregnation. The berries are formed in summer, and they keep green until about Christmas, when they change colour rapidly, and are highly ornamental in early spring.

— THE BRIGHTON AND HOVE CHRYSANTHEMUM SOCIETY'S EXHIBITION will be held on Tuesday and Wednesday, November 10 and 11.

— HYACINTH SHOW AT MESSRS. LUCOMBE, PINE & CO.'S NURSERY, EXETER.—On Friday, the 13th inst., the annual Hyacinth exhibition was held as usual in the show-house belonging to the firm. More competitors than usual entered the lists, the flowers exhibited being of the average merit. First honours were given to Mr. VINEY, gardener to Mrs. NORRIS, Pinhoe, Exeter. The principal kinds in his collection of first-class flowers were *Ida*, yellow; *Queen of Hyacinths*, red; *Lord Macaulay*, General Havelock, and *King of the Blues*. Mr. SPARKS, gardener to A. BARNETT, Esq., Tiverton, was 2d; his collection included good spikes of *General Havelock*; *La Tour d'Auvergne*, *Fabiola*, and *Baron Van Tuyl*. The Rev. T. GARDE, Chudleigh, came in 3d, with a very nice even collection. Other exhibitors from Taunton, Torquay, Exmouth, and Exeter staged very creditable collections. Considering that Hyacinth bulbs have not been of first-class quality this season, the productions staged reflected much credit on the growers. As usual, the whole of the houses and nursery grounds were open to the public, and the weather being all that could be desired the exhibition proved very attractive.

— GARDENING APPOINTMENTS.—Mr. GEORGE CLARKE, formerly Gardener to W. N. MARCY, Esq., The Manor House, Bewdley, has been appointed Gardener to the Rev. GEORGE LAMBE, The Highlands, Ivy Bridge, Plymouth.—Mr. L. BARNES as Head Gardener to H. BENTLY, Esq., Westacre High Hall, Swaffham, Norfolk.



## NITRATE OF SODA AS MANURE.

THE committee of the Saltpetre Producers' Association on the West Coast of South America (Comité Salitrero, at Iquique, Chili) offers £1000 in prizes for essays on the use of nitrate of soda as manure. Of this amount—

I. A prize of £500 will be awarded for the best popular essay, showing the importance of nitrate of soda as a manure, and the best mode of its employment.

The essay, in its theoretical part, is to treat of the effect of nitrate of soda on vegetation, as compared with other manures containing nitrogen, and should exhibit the present state of knowledge on this point. In its practical part the essay is to give directions for the use of nitrate of soda in the various conditions of plant culture. References and quotations and purely scientific explanations, if necessary, are to appear as notes. The essay may be written in English, German (italic characters), or French. The writing must be distinct, and on one side of the paper only. It is desired that the length of the essay may not exceed six sheets of printed octavo. Each manuscript is to be signed with a motto; the name and address of the author is to be given in a sealed envelope bearing the motto outside. The essays are to be sent on or before October 1, 1885, to any of the undermentioned judges.

II. A prize of £500 will be awarded for the best essay treating of the same subjects on the basis of new experimental researches made by the author himself. The essays must fulfil the conditions already mentioned. They may be sent to any of the judges on or before January 1, 1877. The committee of judges consists of the following agricultural chemists:—

Germany.—Professor Paul Wagner, Director of the Agricultural Station at Darmstadt.

England.—R. Warrington, Esq., Agricultural Laboratory, Rothamstead, St. Albans, Herts.

United States of America.—Vacant.

France.—Professor L. Grandeau, Director of the Agricultural Station, and Dean of the Faculty of Natural Philosophy at Nancy.

Belgium.—Professor Petermann, Director of the Royal Agricultural Station at Gembloux.

Holland.—Professor Adolf Mayer, Director of the Agricultural Station of the State at Wageningen.

Russia.—Professor L. Thoms, Director of the Agricultural Station at the Polytechnical Institution at Riga.

If none of the essays received should thoroughly satisfy the committee of judges, they are authorised to award inferior prizes of not less than £150 each. Any essay for which a prize is awarded becomes the absolute property of the Saltpetre Producers' Association at Iquique, which also reserves to itself the right of translation into other languages. (Signed) *Professor Paul Wagner, Darmstadt, for the Comité Salitrero, at Iquique.*

## Plants and their Culture.

### GREENHOUSE HARD-WOODED PLANTS.

THIS section of cool-house plants will now become attractive; the earlier flowering genera should soon yield a good display. Although many of these are not grown to any extent for supplying cut flowers, we do not see any reason why such should not be the case. They would furnish material whereby a pleasing change might be made from the ordinary run of greenhouse flowers. Several of the Cape Heaths would not be in the least injured by moderate cutting, neither would the Boronias, Polygalas, Chorozemas, Eriostemons, Pimeleas, or Darwinias; each of these genera, too, possess flowers of such persistency as should recommend them to favourable notice. Closer attention will be needed to their requirements, as they advance into flower. When the flower-buds are being developed the plants will require a gradual increase in the supply of water, and they must not be exposed to sudden currents of cold air, especially when the house is so situated as to take the full force of an easterly wind. It must not be inferred from this that the house is to be kept close, as ventilation judiciously given is quite necessary to the

perfect development of the flowers; these will then be possessed of more lasting qualities. Attention to these details will have a beneficial effect, bearing in mind that most of the Cape and New Holland plants last in flower for a longer period when under favourable conditions; this should therefore be a sufficient inducement to study their needs, if not from any other point of view. Where two or three plants of *Dracophyllum gracile* or *Pimelea mirabilis* are grown, it will be a good plan to pinch out the points of the shoots in order to obtain a later flowering. We have practised this for some years, and always found it to answer well; the flower trusses are not quite so large, but there will be at least two to one where the pinching is not performed at all. No shading will be required for some time to come. These plants invariably delight in the maximum amount of sunshine that this climate affords them, except when in the height of their flowering season. The past summer and autumn should have been most favourable to floriferousness in all the species this year, resembling closely as it did the climate of their native countries. Autumn flowering plants such as *Pleroma elegans*, *Crocea saligna*, and other species with the late blooming Heaths may require a shift; should this be the case we advise it being seen to at once. When their flowering period is passed the autumn will be rather far advanced for this work to be done safely. Young stock of *Pleroma elegans* should be kept pinched at every second joint that is made, in order to keep the plants dwarf and bushy. *James Hudson, Gunnersbury, Acton, W.*



## FRUITS UNDER GLASS.

### FIG TREES IN POTS.

WITH the aid of suitable and well heated glass structures, and proper treatment combined, we certainly ought never to fail in securing two crops of Figs every year, the first from the well developed and matured growths made the preceding season, and the last crop from those of the current year. Trees which were placed under the influence of forcing operations in the early part of last December will now have both crops of fruit advancing simultaneously, and the fruit of the former crop will be completing the formation of its seeds, when for a time progress appears to be suspended, which state continues until the seed is perfect, after which the increase of size will be rapid, and the ripening process speedily follow.

### THINNING THE FRUITS.

Before this time, however, the second crop of Figs will be ready to be thinned. This should be done as soon as they are about the size of a full grown Grape, and should not be done too lavishly at this advanced season; two or three fruits on each vigorous shoot, and one on the weaker ones will be ample for a crop.

### STOPPING AND THINNING SHOOTS.

Any lateral growths which are made after this period should be kept pinched at the first or second leaf, and any weakly ones, or those which are at all crowded together, should be removed altogether. Strict attention should at all times be given to details in management, but at no season should it be more rigorously enforced than at this time and onwards until the fruit is perfected, as the crop will mainly depend on the kind of treatment given during this interval.

### FEEDING.

The Fig tree is naturally a gross feeder when in a healthy state, and will absorb water very freely, which as occasion demands should therefore be plentifully supplied in a tepid state, and on every alternate occasion guano-water should be substituted for it if the surface-soil be full of roots, and they should also be still more encouraged to grow by an addition of fibrous loam and manure in a lumpy state being put on the pots, and if the roots have run over the top of the pots into the fermenting bed their wants in the way of water should be supplied.

### GENERAL TREATMENT.

The temperature in this compartment now should

range from 60° to 65° at night, 70° to 75° in the day time, with a rise of 10° or 15° more by solar heat. Moisture should be abundantly supplied, and syringing carried out twice every day. Open the ventilators at top at 75°, and gradually increase or diminish the supply of air according to external influences, and close the house early in the afternoon with sunheat at 85°. This condition of treatment will need modifying when the fruit shows signs of ripening, or it will be insipid and devoid of colour. To avoid this, syringing and moisture about the house must be somewhat abated, and the temperature, as indicated, should be well supported by fire-heat, so as to be able to keep a little air on the house constantly until such time as the fruit is gathered, when the former treatment should be resumed again and continued until more air is required to harden and mature the growth for another season. *G. T. Miles, Wycombe Abbey.*

## The Kitchen Garden.

### SEED SOWING.

AUTUMN and early winter varieties of Broccoli should now be sown; let the seed-beds be made thoroughly firm before sowing the seed, and also afterwards. Sow successions of Mustard and Cress, Radish, Spinach, and Turnips. Firm soil produces the best shaped roots of the latter. In the beginning of April sow Salsify, Scorzonera, Seakale, Asparagus, and Rhubarb. Do not sow Savoys or Borecole yet. No one would care to eat them, when choicer vegetables could be had, and in most gardens ground would not be available for planting out such early sowings. *G. W. Richards, Somerley Gardens, Ringwood, Hants.*

### FORCING DEPARTMENT.

IN FRAMES WITHOUT HOT WATER.—Diminish the labour by drawing the lights clean off during rainy weather, unless it should be rain from a cold quarter, which would be better not admitted to the young plants on hotbeds. Thin the young plants early where necessary, and before they get into a weakly state through standing too thickly in the beds.

### CARROTS.

Florn varieties will stand a moderate amount of forcing by sun-heat, and where there is none left out-of-doors from last August's sowing, earliness will be a great consideration. Air freely during mild, sunny weather in the morning, and close in the afternoon early enough to catch a little sun-heat. The strength of the young plants will indicate when the frame may be kept a little warmer, or when more air is required as the case may be. Quite a fortnight may be gained by careful management and attention in this respect.

### TURNIPS.

Will bear but little forcing, and all that is necessary is to expel frost and ward off cold, biting winds.

### POTATOS.

Earth-up succession crops as the haulm becomes 5 or 6 inches high, and do not make the mouldings narrow at the top, but as broad as is consistent with the quantity of soil at command. Broad mouldings admit the water freely to the place where it is most wanted. The haulm will be getting somewhat firm in the earliest frame, and here sun-heat may be indulged in with advantage, where earliness takes the precedence of size. If no lukewarm water can be obtained for watering, choose mild weather and water that has been exposed to the air for a day or two, for the operation. A cold frame, say closed in March at 3 o'clock, and well covered at dusk, will be 5° warmer throughout the night, than one closed later and not covered. It is well worth the extra trouble to those who rely on these for their first crop.

### TOMATOS.

If not already done, the seed should now be sown for rearing plants for outdoor planting in May. There is a great advantage in having good sized and established plants with some firm shoots at planting-out time. Afterwards they do not grow away so rank, but produce and ripen fruit earlier. In growing on the young plants keep them as near the glass as possible. *G. W. Richards, Somerley Gardens, Ringwood, Hants.*



## The Rosery.

### TEAS OR NOISSETTES.

"Under which king, Bezonian?" *Il. King Henry IV.*, sc. 3.

A FRIEND, the diligent secretary of one of our provincial Rose societies, writes to me:—"I am preparing our schedule, and am anxious to confine our Tea classes to those which are pure Teas, and to exclude Noisettes. In which class is *Maréchal Niel* to be included?" At first sight this seems not difficult, but on looking into the matter I have come to the conclusion that it is neither one nor the other, and that its real position is as a Tea-scented Noisette. The National Rose Society places it amongst the Noisettes, while such an accomplished rosarian as Mr. George Paul classes it amongst the Teas. A few remarks, then, on the origin of these two classes and their subsequent development may not be uninteresting.

The Noisette Rose has a curious history, and, although so thoroughly French in its name, owes its origin to America, for there lived about the time when the great European wars of Napoleon had come to a close a French nurseryman of the name of Philippe Noisette, at Charlestown, in South Carolina, who had hybridised the old Musk Rose with a Rose called *Champneys' Pink Cluster*, which he sent to his brother, Louis Noisette, a nurseryman at Paris. *Pink Cluster* was the product of the white Musk fertilised with the blush *China*; and John *Champneys*, its raiser, ought to have some credit in the matter although he was put on one side; and while Noisette is known, *Champneys'*, except in America, is unknown. When Louis Noisette introduced the Rose it created quite a *furor* in Paris. Its habit was so remarkable, and its perfume so pleasant that everybody was desirous of possessing it. Mr. Rivers, in his *Rose Amateurs' Guide*, makes the natural mistake of supposing that the cross was (as in *Champneys'* case) between the Musk Rose and the *China*, whereas, as it has been shown, another generation had come into use, as much entitled to the term "*Pedigree Rose*" as many which are now so called. The tendency of the Noisette to bloom in clusters which it derived from one of its parents has been considerably lessened by the efforts of the hybridiser, who while producing large flowers has diminished their floriferous character. However much may have been thought at one time of what we may call the pure Noisette Roses, we hardly now ever see *Aimée Vibert*, *Fellenberg*, *Lamarck*, or *Jeanne d'Arc*; whether this is right or not I do not pretend to say, but they are certainly not exhibition Roses, and hence, probably, the neglect into which they have fallen. Probably the oldest of these Tea-scented Roses is *Jaune*, although often called *Jean Desprez* or *Jaune Desprez* from the name of the raiser; it was introduced in the year 1838. The best known, and, taking it all in all, when seen in perfection, the finest yellow Rose, *Cloth of Gold* or *Chromatelle*, was brought out by *Coquereau* in the year 1843; it was in this year that Mr. Rivers saw it at Angers, and describes the buds as hanging down and being like golden balls. This is much more like a description of *Maréchal Niel* than *Cloth of Gold*, for its superiority to *Maréchal Niel* consists, I think, in the bold manner in which it holds itself erect. Mr. Alex. Hill Gray has described in the *Rosarians' Year Book* for the present year what it is in the Azores, and it is unquestionably better suited for a warmer climate than ours—although on a wall close by me there was a magnificent tree of it, on which I had veritable clusters of grand flowers until the ruthless hand of an improving (?) gardener cut it hard back, and it has not yet recovered the treatment.

Mr. Rivers is inclined to place that favourite Rose, *Gloire de Dijon*, amongst the Teas. Mr. Elwanger calls it a climbing Tea, and in the National Rose Society's *Catalogue* it is placed amongst the Teas and called the parent of a hardy race of Tea Roses; yet it bears a very striking analogy to the Noisettes: it is like them impatient of the knife, and has the long rambling habit of the older type of Noisette Roses. Unfortunately we cannot determine its parentage; it came up, as *Jacotot* himself told me, as a chance seedling in his garden at Dijon. He pointed out to me the very spot. And what a success it has been! In all places and under all circumstances old "*Glory of John*" comes to the fore; nor do I think that any of

its progeny have eclipsed it. Madame *Trifle*, Madame *Bérard*, *Belle Lyonnaise*, *Bouquet d'Or*, *Jeanne d'Arc*, are all good Roses, but the comely mother of them all is still unsurpassed. *Maréchal Niel* is the next claimant for a place; its place is, however, pretty well defined: as far as quality and popularity are concerned it is *facile princeps* of all Roses; it must, however, be considered, I think, as either a Tea-scented Noisette or a climbing Tea; the former would probably be its proper position, the young foliage is so unmistakably Teay, and the perfume is so exactly that of the Tea that it would seem to be difficult to disassociate it from that class. Its origin is unknown. It was raised by *Prüdel*, and is said to be a seedling from *Isabella Gray*, itself a seedling from *Cloth of Gold*. It may be, perhaps, said that its habit is very improper for a Tea, that there is "*rampageousness*" about it, which shows that it is not fit company for such modest maidens as *Catherine Mermet*, *Comtesse de Nadaillac*, *Marie Van Houtte*, &c.; but this will hardly hold. There cannot be a finer Tea than *Devoniensis*, the only one of its class (until very recently) raised in England, and we can all testify to what a lovely Rose it is; although amongst the tenderer varieties of a popular class, yet see what it has come to be in climbing *Devoniensis*. This, as we know, Mr. Pavitt observed in his garden as a stray shoot; it has been fixed, and while the normal plant will grow its couple of feet in the year, shoots of the climbing variety 16 to 20 feet long in one season are not uncommon.

There is one point in which all these Roses—*Gloire de Dijon*, Madame *Bérard*, *Maréchal Niel*, *Cloth of Gold*, &c.—have a complete accord with the Noisettes, they do not like the knife; pruning leads to growth, but not to flowering, and all who wish to grow *Maréchal Niel* out-of-doors are advised to spare, not the root, but the knife; and yet there are plants of it not far from me which are cut about with as little ceremony as a *Gooseberry* bush, and yet they bloom profusely. Why this should be I know not, but it is an exception to the general rule, and to the advice of all rosarians. I must, therefore, regard *Maréchal Niel*, not as a true Noisette, nor a true Tea, but as a combination of both—and in truth, whether by chance or artificial cross-fertilisation, the classes of Roses have got irretrievably mixed. Tea influence is to be traced in many of our hybrid perpetuals, in such Roses as *La France*, *Captain Christy*, *Jules Finger*, and others; while the influence of the Noisette is seen in such Roses as *Coquette des Alpes*, *Coquette des Blanches*, *Baronne de Maynard*, and others, mostly due to the well-known raiser *Lacharme*; and that in *Duchess of Edinburgh* (*Veitch*) we have unquestionably a large share of the *China* blood, if, indeed, there be any genuine Tea blood in it; in fact, in the large class of hybrid perpetuals it is hard to say which blood has not been introduced.

I have said but little of the hybrid Tea Roses, as they hardly come within the scope of my notes. I do not think that they have as yet established a very strong claim on the attention and love of Rose growers. There are one or two, such as *Reine Marie Henriette* and *Cheshunt Hybrid*, which are, especially the latter, very largely grown, and as climbing or pillar Roses they are unsurpassed at present; but like many other varieties which have been brought forward have no special merit, they lack the delicate beauty of the Tea, and the brilliancy of colour of the hybrid perpetual. We may get something of value amongst them by-and-by; but at present, both in the garden and in the exhibition room, they are at a discount. *Wild Rose*.

### FILMY FERNS.

As the name of our firm is mentioned in connection with this class of plants in your issue of March 7, perhaps we may be permitted to say that we think the terms "*cool*" and "*warm*" are likely to be misleading, unless very distinct information is given as to the range of temperature intended to be indicated by these terms.

When we speak of "*Cool Filmies*" we mean those which grow and thrive in the same temperature (not necessarily same degree of moisture) that suits the *Killarney Fern* (*Trichomanes radicans*). We have not found that *T. Luschnatianum*, *T. maximum*, *T. ariculatum*, and other *Filmies* from the West Indies, *Java*, &c., have flourished in such an atmosphere. Though they have existed with us under such conditions they were not what we call healthy or satisfactory.

If—as we now understand—Mr. Cooper-Foster has

succeeded in getting fine healthy development in such a climate as we call "*cool*" most certainly he is entitled to the credit of the discovery, and not us. At one time or other we have cultivated eighty or ninety species of *Trichomanes* and *Hymenophyllums*.

Many tropical species occur on high mountain ranges, in shaded ravines, which explains, no doubt, why some species will bear more cold than has usually been supposed; and Mr. Cooper-Foster's discovery of this fact only says, virtually:—This charming class of Ferns is manageable where there is little or no artificial heat, to an extent that cultivators generally have not been aware of. The thanks of Fern cultivators are certainly due to him, and his grand collection will "*speak for itself*." *Jas. Backhouse & Son, York*.

### THE TROPICAL HOUSE, CHERKLEY COURT.

THE illustration on p. 383 (fig. 71) gives a view of the splendid plant-house erected by A. Dixon, Esq., at Cherkley Court, for the home of the *Victoria Lily* mentioned at p. 19 of the *Gardeners' Chronicle* for January 3, and numerous species of tropical flowering plants, and others having striking foliage. The curved roof house is 62 feet long by 30 feet wide, having one bay in front 30 feet 9 inches wide by 24 feet high to the ridges. Ventilation is secured by openings along the ridge and in the brickwork in front. The whole is glazed on Helliwell's system, with patent zinc bars and caps of the same metal, the glass used being British sheet of 32 oz. to the square foot. The heating of the house is provided for by means of six rows of 4-inch pipes running underground the whole length of the house, and by sixteen rows of 4-inch pipes which go all round the house, while in the centre is a tank 20 feet by 15 feet for the *Victoria regia*. The water in the tank is heated by two wrought-iron pipes laid round the bottom of the tank, and which maintains the water at an average temperature of 75°. In all there are about 2600 feet of 4-inch pipe in the house, worked by a powerful saddle-boiler capable of maintaining the temperature at 75° in the coldest weather. Another boiler is fixed and connected with the first, in case of a break-down.



### HOME CORRESPONDENCE.

**Carter's Ashtop Fluke Potato.**—In reference to Mr. Murphy's last note on this Potato I may say I have referred to Messrs. Carter & Co.'s catalogue, and find it described as Mr. M. has stated; this is the first time I have seen it described as early. Turning to the same work for 1884, p. 31, it is described as second early, the same in 1883; and in 1879, p. 34, where Potatoes are arranged in their order of earliness, it stands sixth on the list. I do not understand why there should be this difference, but perhaps Messrs. Carter can explain it. With me it has been a late second always, and so it remains, as Potatoes do not change from late to early or *vice versa*. The soil is a rich light loam, rather sharp, and slopes due south; but in spite of early planting and these advantages, the crop is not fit for storing till about the end of August. We have them in use now, and they will remain good as late as any variety I am acquainted with (and I have grown a great many kinds on trial), and my object in doing so was to discover which was the best earliest variety, and thus avoid disappointment. *W. Divers, Wierton*.

**The First Brood of Aphides.**—There are some things so often repeated that they receive almost general acceptance, and yet they are only partially correct. Amongst these is the saying that hard winters leave few insects alive. It may be supposed that intense frost causes some discomfort to them, and may kill some; but instinct comes to the aid of the smallest and least significant of the animal king-



dom, as well as those that are larger, and they generally manage to keep out of harm's way in sufficient numbers to make their presence felt after there is sun-heat enough to bring them forth from their hiding places. With spring weather come the aphides, and such things as Roses on walls are usually amongst the first to get infested, and if left undisturbed they soon spoil the flowers. If timely means are taken to destroy the first brood much after-trouble will be saved, and as soon as their presence is observed the plants are well syringed with tobacco-water and soap-suds in equal quantities on a dry day and letting the liquid dry on, few will escape; a second application will usually effect a complete clearance. The soapy water added makes the dressing much more effectual than tobacco-water alone, through its adhesiveness causing it to stick better. *T. Baines.*

**Gardeners at the Present Time.**—I might suggest that there should be a register kept open at the Gardeners' Royal Benevolent Institution for gentlemen and gardeners to get mutually suited, at

fore I do not think the mites, if there were mites on them, cause a mite of difference, if they get the proper treatment, which so many abler correspondents than I am have already explained and recommended in your pages. *A. Macdonald, The Gardens, Cheadle Royal Asylum, Manchester.*

**Melons.**—In reference to Mr. Miles' remarks (p. 277) on Melon canker and his experimental zinc collar—which I hope he may soon be able to fully recommend as a preventative to the above perplexing disease—I have used a very simple glass collar for the past two years, more especially for wood-lice, whose immediate prevention is imperative, which I have found, together with the aid of the common toad, to complete the eradication of that pest. I have never seen the slightest signs of canker, but I do not wish to attribute its non-appearance to the aid of such a contrivance, and only give it for what it is worth, as it may be useful to many gardeners. I use common transparent three-gill bottles, and cut them at about 2 inches from the neck, and again  $2\frac{1}{2}$  inches from where the neck enlarges, that is, at the greatest

destructive, and the application of them cannot be safely entrusted to the ordinary gardener, who cannot conceive that a sprinkling on the soil of anything in about the same proportion as he peppers his boiled Cabbage could have any effect, consequently, in spite of the strictest injunctions as to quantity, he persists in giving a very visible dressing; and when in due course the resulting mischief becomes apparent, he abuses all chemical manures. An inch of rain covering the surface of an acre weighs 101 tons; 10 cwt. of artificial manure is a very heavy dressing. Assuming the weight of the manure to be the same as that of water, this dressing evenly spread over the surface would be only  $\frac{1}{30}$  inch in thickness. *Edmund Tonks, Knowle.*

**Lilium Bulbs.**—It is extremely interesting to me to find so good an authority as Mr. W. H. Rogers maintaining that the cause of disease, fungus, or whatever it may be, in *Lilium auratum* bulbs imported from Japan is found in the bruising or damage sustained by them in packing and transit. This is just what I urged a week or two since, and it is without

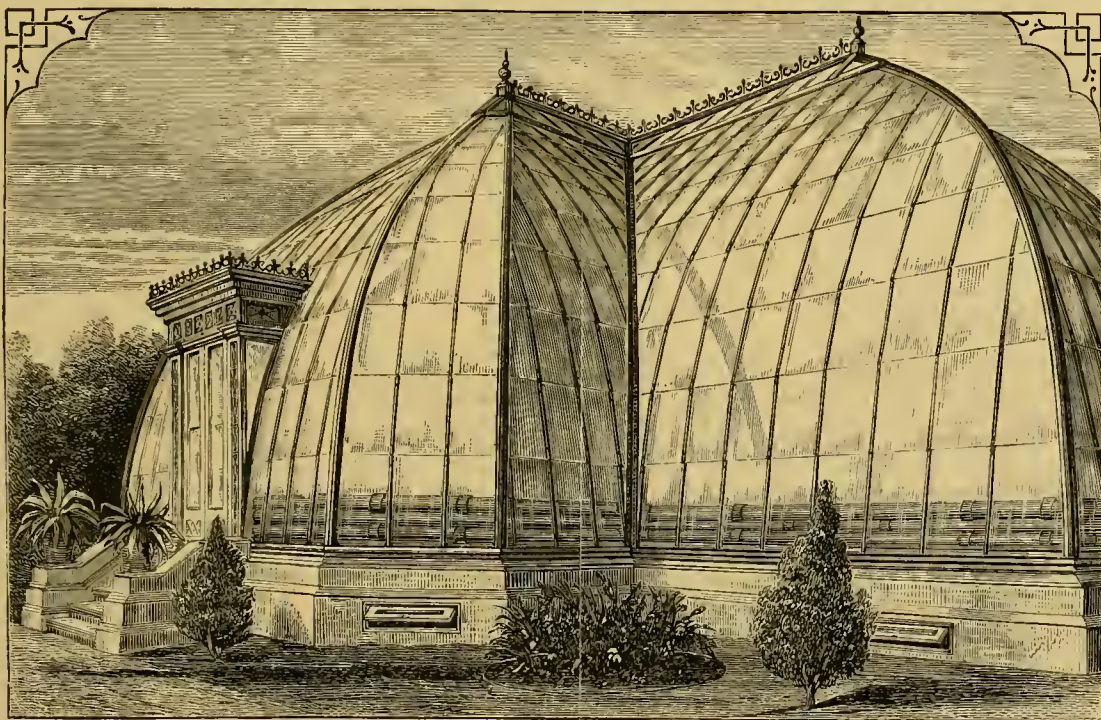


FIG. 71.—TROPICAL HOUSE, CHERKLEY COURT. (SEE P. 382.)

10s., say, for a gardener, and £1 for a gentleman on engagement, the money [after payment of expenses?] to go to the funds of the Gardeners' Royal Benevolent Institution. It would help to make both parties more independent of the nurserymen. It might be made a rule that a gardener, on wishing to be placed on the register, should send copies of testimonials from his last two situations, and that none but those of good character should be placed on the register. *S. W., Derby.*

**Eucharis Disease.**—A short time ago I found some that had done flowering were losing their foliage. On examining them I found the base full of the red rust to which "W. B." referred in one of your former issues. Can it be, after all, I said to myself, that there is a disease among them? However, I at once turned them out of their pots and found the roots all quite rotten, the bulbs were also covered with the same rust already mentioned, worms had got into the drainage and completely blocked it with soil, consequently water stagnated at the roots, and thus aided the destruction. I potted them immediately in fresh soil, put them in heat, and when I examined them recently I found they were making both roots and leaves, and I have no doubt they will soon be all right. There-

circumference of the bottle, placing them neck downwards when the plants are very young. I cut the glass with a hot iron. *Alexander Methven.*

**Artificial Manure for Bulbs.**—Mr. C. Wolley Dod's experience of the effect of his application of artificial manure to bulbs is not surprising, seeing that he applied nearly five times the proper quantity. Long experience has conclusively proved, not only the beneficial effect, but the necessity of artificial manure in profitable agriculture; if so, it cannot, when properly used, be injurious in horticulture. Ville, in his treatise on artificial manure, gives a formula for a stimulating manure of the same ingredients as those used by Mr. Dod, but in very different proportions:—Calcic superphosphate, 352; potassic nitrate, 264; calcic sulphate, 176; sodic nitrate, 88: total, 880; and specifies the number of pounds as the proper dressing for an acre. Mr. Dod applied a tablespoonful of his composition to a cubic foot of soil. I found on trial this quantity to weigh  $1\frac{1}{2}$  oz. To dress an acre in the same proportion, assuming the soil to be a foot deep, would require 4084 lb., or nearly five times the quantity recommended by Ville. Overdoses of strong chemical manures are most

doubt true. Perhaps, as Mr. Rogers suggests, the bulbs are lifted before they are matured; but still that would hardly account for the decay found in so many very fine roots. When these bulbs are imported in such vast numbers it is evident that they are cheap where grown; hence it is probable that about the same care is taken in lifting and packing as we here give ordinarily to market Potatoes. *Lilium* bulbs are essentially soft and succulent, and if bruised much sap is extravasated; this would soon breed mildew and rot. The fungus found is, without doubt, a product of decay, not a cause of it. It would be worth while for importers to try some better modes of packing, even if the price of the bulbs was raised. Certainly a consignment of bulbs absolutely sound and uninjured would be worth a score of badly packed consignments. Is it not possible to obtain bulbs in a very small stage of growth and then grow them into size in this country? Certainly such roots might well command a greatly enhanced price. *A. D.*

—If permitted to put my experience beside that of Mr. E. Jenkins, my advice to all who purchase *Lilium auratum* is—delay not an hour in potting the bulbs in a compost of fibry loam and good peat, with a fair proportion of sand. Pot the bulbs firmly, and let the top of the



bulb be at least 2 inches under the surface. This done, plunge the pots in ashes out-of-doors on the north side of a wall or hedge, and there let them remain until they spear through the ashes, or, still better, until the flower-buds are colouring. At this stage remove to the conservatory or corridor, first dropping the pots into others a little larger. If the plan suggested is followed there will be very few failures. Lilies dearly like fresh air and sweet soil; they detest frames, and all glass structures, in the first stages of growth. *Argus*.

**Camellia Blooms Losing their Centres.**—Your correspondent, D. T. Fish, in a recent number of the *Gardeners' Chronicle*, brings to the notice of readers that in some large white Camellia plants two-thirds of the blooms have shot their centre petals. It may reassure him to know that his are not the only ones so affected. We have a large plant of *C. fimbriata* which yearly sheds some of the centre petals in the same way as described by Mr. Fish. Some of the buds open in such a way as to represent three flowers in one; in fact, out of 200 or 300 buds we seldom get one to open quite perfect. I sent flowers to your office last year, and asked for advice. The advice you gave was to lift and replant, but I was afraid to do so, the plant being large and in robust health. Can any of your readers kindly inform me if it is the nature of this particular sort to act so? *H. Louth*.

**King of the Pippins Apple.**—I am surprised to find that at the Apple Congress there was such a large majority of votes in favour of King of the Pippins over Ribston Pippin and Cox's Orange Pippin for first place as dessert Apples. The King of the Pippins when grown in this part of Yorkshire is never worth calling a dessert Apple. With me it is classed as a third-rate kitchen fruit. No doubt soil and climate make all this difference in the flavour of the fruit. In reading your article, before coming to the place where you name the two favourites, one for dessert the other for kitchen use, I had in my own mind fixed upon either Ribston Pippin or Cox's Orange Pippin as first for dessert, and Lord Suffield first for kitchen use. The King of the Pippins may be the Apple of Apples in the South of England, but I think the Ribston Apple is the King of all the Pippins north of the Trent. *Thomas Jones, Ribston Hall, Wetherby*.

**The Education of Gardeners.**—In reference to the education of gardeners, the following remarks may not be inopportune. The profession of horticulture plays as important a part in the economy of civilisation as many other professions; in itself it is essentially a scientific calling, and requires also the aid of several collateral sciences, such as botany, geology, meteorology, &c. Why, then, should its members not have the advantage of some systematic course of special training? Why should they not participate in the same system of competitive examinations as students in biology, physical science, classics, or mathematics? I think the time has arrived when these advantages should be secured to them. In regard to instruction in the theory of horticulture, nothing is more discouraging and perplexing to an intelligent beginner than to be required to remember innumerable details of practice without having sufficient knowledge of the principles on which that practice is based. Not being able to understand the "reason why" of these details of culture, practical gardening presents to his mind a hopeless chaos of processes with apparently no capabilities of classification; whereas had he possessed a knowledge of the principles of horticulture he would be able to satisfactorily relegate these details to their proper place, as in botany one who has a previous acquaintance with its classification can readily determine the proper position of any species. *P. Ingram*.

**Clematis indivisa lobata.**—This lovely Clematis is to be seen just now in grand condition in the gardens at Stoneleigh Abbey, Kenilworth. It is planted in the border of the Camellia-house, where it grows luxuriantly, and appears quite at home. The plant is trained up one of the pillars in the centre of the bed, on a single stem; when it gets within 10 inches of the glass it is trained horizontally to wires, and covers the greater portion of the roof on the south side of the house. At present it is simply a grand sight, it being literally covered with snowy-white flowers, some of them measuring upwards of

3 inches in diameter. Mr. Beddard told me he had been cutting daily from it for some time past, and should do for some time to come. *R. Greenfield, Priory Gardens*.

**Narcissus becoming Double.**—Having the misfortune to live just 200 miles from London, I regret that I was unable to attend the Narcissus Committee: but the subject discussed is one to which I have given much attention during the past twelve months. I have collected a great amount of evidence about it from different parts of the country, which has quite convinced me that the popular belief amongst gardeners about single wild Daffodils being liable to turn by cultivation into the common garden form of double is no delusion. Some of my correspondents have most patiently and kindly submitted to be cross-questioned about it, but I hardly feel justified in mentioning their names, so as to render them liable to further inquiries: but I may be allowed to tell the parish in which they live, in case any member of the Narcissus Committee should have access to that part of the country. The change from single to double, which is common in *N. Pseudonarcissus*, in *N. poeticus*, and in *N. incomparabilis*, is evidently due to some property of soil, coupled perhaps with certain conditions of atmosphere and subsoil. The following are amongst the places which have soils causing Daffodils to become double:—

Alton, in Hampshire.  
Steventon, near Micheldever, in Hampshire.  
Frome, in Somersetshire.  
Brackley, in Northamptonshire.  
Knowle, in Warwickshire.  
Wyde Green, near Erdington, in Warwickshire.  
Brynkalnall, near Chirk, in Denbighshire.  
Lytham, in Lancashire.  
Warkworth, in Northumberland.  
Hawick, Co. Roxburgh.  
Alloa, Co. Clackmannan.

*C. Wolley Dod, Edge Hall, March 4.*

**Pruning Dendrobiums.**—When I described Mr. Simpson's Dendrobium Wardianum I made no appeal to Orchid growers to at once commence wholesale pruning; I merely stated plainly what I saw. Your correspondents may still remain convinced that the practice is bad—as I was a year ago; now I should have no hesitation in trying the pruning system. If the old bulbs are not wanted, why keep them? They only increase the weight of the plants, and are an eyesore when they are in flower. Let those who have never tried the system prune one or two plants—the poorest varieties will do—and grow them side by side with others which are at present about the same strength, and then honestly form their opinions from results. They may try it with other species of Dendrobiums, and no doubt will find some do just as well as formerly; others may become weaker. The result will be an increase of knowledge learned by experience. *W. Baxter*. [This has been stated before, and found wanting. Ed.]

**Mushroom Growing at Lythe Hill.**—Having lately paid a visit to Mr. Evans, gardener to S. Hodson, Esq., Lythe Hill, Haslemere, Surrey, I was so struck with the enormous quantity of Mushrooms that I trust you will allow space for a few remarks thereon; for, to say the least, the sight was something surprising, and it is a convincing proof of Mr. Evans' skill as a Mushroom grower. We know that success in Mushroom culture depends to a great extent upon the quality of spawn used, and undoubtedly Mr. Evans used some of the best, and he informed me that he purchased it from two different firms. Which of the two kinds is producing the best crop it would be difficult to say, for there are two beds in the Mushroom cellar, each 20 feet by 6, in full bearing, each bed being spawned with a different kind. There are also two others of the same size, from which several dishes could now be gathered; these have been in bearing from two to three months. In the Mushroom-house, which is on the rack system, there are two beds 16 feet by 4, in full bearing, with others coming on for succession. Outside, in a shubbery, with only just a covering of Fern on galvanised sheeting formed to a gable, is a bed 22 feet long by 6 feet wide, on which are some monster Mushrooms 8 inches in diameter. This bed is completely covered with clusters in various stages of growth. Mr. Evans remarked, that although he has

always had good crops he has not had them come in such large clusters on the whole season's crop as they are doing now, there being in many instances from twelve to eighteen Mushrooms fit for use. *J. W.* [We ourselves well know Mr. Evans' skill in Mushroom growing, as well as in all other departments of horticulture. Ed.]

**Melon Canker.**—I congratulate your correspondent "C. II." on his good fortune in having grown Melons nine years consecutively in freedom from this pest. I should like to hear if his other crops, and late ones especially, "if not grown in pots," have the same immunity from it. Although I am obliged for his advice about the collars in question, I nevertheless cannot accept it until such time as I have tried them and found them to be useless, or otherwise, because an experienced Melon grower introduced them to my notice whose opinion I esteem. *Geo. Thos. Miles, Wycombe Abbey*.

**New Kinds of Potatoes.**—In a note on "New Potatoes" at p. 186 reference is made to some varieties which I had the honour to raise. Chancellor is spoken of as resisting the disease well, and Prime Minister as being much diseased. I should like to say that in my efforts to produce kinds that had disease-resisting qualities I employed several parents, and notably the famous Magnum Bonum. That kind was the seed-parent to both the varieties above-named, but whilst the first had for its pollen parent the old and once popular King of Potatoes—a sort I always found fairly disease-resisting—the second one had for pollen parents Woodstock Kidney, a grand Potato when sound, but in disease very bad indeed. It may be that both kinds thus partake of the properties of their pollen or male parents in the matter of disease-resistance or otherwise. Both kinds possess the robust health of Magnum Bonum, both are great croppers, yet there exists the dissimilarity mentioned, although my experience here has been to find very little disease indeed in Prime Minister. I may point out, and it is a matter that needs attention with some other good kinds also, that whilst Chancellor seems to bury its tubers well in the soil, Prime Minister, which throws large flattish tubers, pushes them to the surface; hence it is needful with that kind to mould higher than with the former. Again, being a producer of big tubers it should never be grown in rich soil. Perhaps, if the Jensonian experiments are continued at Chiswick this year, Prime Minister may be one of the kinds selected for planting and protective earthing. *A. Dean*.

**Pearson's New Zonal Pelargoniums.**—For years past Messrs. J. R. Pearson & Sons, of the Chilwell Nurseries, Notts, have taken the undoubted lead in raising and introducing new varieties, and this spring they announce a list of ten new ones as follows:—Othello, dark scarlet with white eye, large, stout, well formed pip; Nerissa, salmon-scarlet, a pleasing shade of colour, extra fine; Lucy Mason, salmon, suffused with orange, large and stout; Miranda, scarlet suffused with magenta, extra fine; Ruby, rosy-scarlet, with white eye; C. II. Swin-stead, rich vermilion, fine and striking; Mary Caswell, white, flushed with pink, delicate and pleasing; Viola, magenta, blotched with red upon the petals, white eye, distinct and novel; Raphael, scarlet, shaded with magenta and flushed also with rose; and Zeno, scarlet suffused with magenta, which deepens to a pleasing shade of purple. Those who cultivate Messrs. Pearson & Sons' new varieties of zonals know that they are characterised by three important characteristics:—a good habit of growth, freedom of bloom, and bold and striking trusses of flowers. That some of these varieties make excellent exhibition specimens is not to be wondered at; they are also useful for bedding purposes and decorative work. But it is curious to note how slowly new and greatly improved varieties find their way into some parts of the country. In some exhibitions can be seen specimens fifteen and twenty years old that should have been long since thrown away. It is perhaps not to be wondered at that exhibitions where such ancient varieties are seen appear to exist in a dull stage of mediocrity, and there is but little change in their aspects. The same tents are seen in the same field; the staging is as it was years ago; the exhibits appear the same also, and they occupy a certain portion in the tents just as if they had not been removed from one year's end to the



other. Exhibitions should—and many undoubtedly do—exhibit in smaller or larger degree the progressive aspects of horticulture, and this should be one of their leading functions. It may be said with much truth that those which display this in the greatest degree are among the most successful financially, as well as from an educational point of view. *R. D.*

**Vegetable Culture.**—Your correspondent, "S. W. R.," at p. 275, has ably defended the fraternity of gardeners against what he evidently thinks was an attack made by me upon their practices in a recent paper on "Market Gardening." I felt the difficulty I had to face at the time I wrote those remarks, viz., how to speak out without injuring many susceptibilities, and am glad to encounter such an able spokesman. I do not blame gardeners, but hope to show that much in market garden practice might be copied advantageously by many of them; and am convinced a year or two spent by young gardeners in a well managed market garden farm would prove of much benefit to them in carrying on vegetable growing sometimes under the difficulties of various kinds, which "S. W. R." refers to, &c. I am versed in vegetable culture on both systems, and if I regret one thing more than another, it is that I did not know sooner—and when the knowledge would have been of much use to me—the various methods market growers employ to secure the fine results they do. "S. W. R." is wrong when he imagines I am opposed to trenching as such. What I do object to is trenching, and too minute manipulation of soils, too late in the season, or so soon before the seeds are sown and plants set out as not to allow time for the soil to become again somewhat solidified—a state of tilth in which roots delight. As regards Carrots and Parsnips, where do we see, bulk for bulk, such examples as our markets are overloaded with? I cannot accept occasional exhibition examples as any criterion of universal goodness. Assuredly selected soils have much to do with this, but not all. In conclusion, I may say that long roots are not so tender as such as have the greater bulk near to the surface, and market Parsnips are of this latter form. Why do not gardeners endeavour to do more justice to artificial manures? *William Earley.*

**Herbaceous Phloxes.**—Having last autumn saved a quantity of seed from several good kinds of herbaceous Phloxes, and having from previous experience some doubts as to its germinating powers, I took the liberty in these pages to ask information as to the best method of raising plants from it, as previous sowings had failed. No such information was afforded, but in the meantime I learned incidentally that it was a good plan to sow the seed as soon as saved, and that I did in a frame, but still not giving it any shelter. I think I must have sowed the seed early in December. In any case in the open frame it quickly germinated, and I anticipated that a large number of seedlings will bloom next autumn, and the opening of which will surely afford very much interest, although little new or varied may result. Perhaps if Phloxes were thus more commonly raised from seed they would be much more largely grown than they are now, but it is to be regretted that there are many gardens in which respectable kinds are not seen. The roots are just now sending up young shoots, and these, if taken off carefully with a bit of heel, and put in under glass, as ordinary cuttings, will soon make root and develop into robust plants. Such plants always produce the finest heads of bloom; and if well grown in pots make fine decorative plants. In all our autumn shows classes should be formed to encourage the culture of this fine hardy border flower. The plants turned out of pots into borders the second year would make a brave show, whilst others could be soon produced for the annual pot supply. Very many who have gardens little know what beautiful things are now to be had under the designation of herbaceous Phloxes. *A. D.*

**Narcissus calathinus.**—Referring to my note on this subject on p. 347 I ask to be allowed, first to apologise to Mr. Baker for having said that we might "follow him in dropping the name calathinus," for on turning again to his "Review of the Genus Narcissus" I find I was mistaken in thinking that he proposed to do so. In the second place I send *verbatim* an extract from a letter received from Portugal since writing my former note:—"I have succeeded

in collecting roots of the *N. triandrus*, which are being dried in sand and loam, and I suppose they will be ready to send to you about May. In collecting these I have noticed that they vary in the most remarkable manner in size, shape of cup and perianth, colour, &c. Some are very large: by to-day's post I send a plant of triandrus which measures 26 inches in length of leaf, and 19 inches of flower-stalk. Surely this is very large? Of these I found a considerable quantity—may not this be the calathinus of some authors? In some the cup is crenulated, in others quite smooth-edged: the perianth in some is twice the length of the cup, in others it is shorter than the cup; and yet all these are found near each other. No wonder that there seems to be so much confusion and uncertainty as to the classification of this family." *C. Wolley Dod, Edge Hall, March 16.*

**Spirea rotundifolia alba.**—In reference to your excellent plate of the above (p. 283), allow me to say that the plant referred to is a most useful one either for vase decoration or for florists' work in wreaths, &c., the blue-green foliage being very elegant when forced. I first met with it in a private garden, and the gardener said, "Our lady brought it from the mountains of Austria." I could not find the proper name, and bought a host of Spireas to try for this kind, but at last I found it under the name of Van Houttei, and we now annually force a batch or two. This same plant was also shown at Kensington under the name "confusa" by Messrs. Stuart & Mein, of Kelso, in 1884. It is, as you suggest, most easily forced. The plants are merely lifted, well watered, and brought on as required. Its graceful pendent habit and Hawthorn-like flowers render it an attractive plant for the conservatory. After forcing the plants are quartered in some rich soil and cut to the ground, when they throw out a quantity of shoots, and may again be forced the next year. The foliage has the glaucous appearance of that carried by *Dielytra spectabilis*, and is thus a useful foil for other subjects. *George Bunyard, Maidstone.*

**Brugmansia sanguinea.**—We are quite losing sight of this species and others of the genus. It used to be much more common, especially as a big half tree in a tub that was wintered in some half light place, as an orangery, and stood out in the garden during the whole summer. The leaves are sinuately lobed, and the branches somewhat tomentose. The flowers are pendulous, 7 inches long, and trumpet-shaped, the colours being orange-yellow with a rich orange-red. The base of the tube is greenish. *B. suaveolens* has trumpet-shaped flowers of the purest white, whilst the foliage is oblong, entire, smooth, and dark green in colour. It will flower through the summer and autumn months. *M. W.*

**White Lily.**—Gavin Douglas, a Scotch poet, a son of the fifth Earl of Angus, who died 1475, mentions the Lily in one of his poems, but I imagine he alluded, not to the white Water Lily, about which your correspondent inquires, but to the *Lilium candidum*, for he says:—

"Queen of the field, in milk-white mantle drest,  
The lovely Lily waved her curling crest."

*Helen Watney.*

## Reports of Societies.

### EDINBURGH BOTANICAL: March 12.

THE Society met at 5, St. Andrew's Square, Mr. Alex. Buchan, F.R.S.E., in the chair.

#### A TRAVELLING CAMP.

A report was submitted suggesting that the Society should have this year a botanical travelling camp. The idea was cordially taken up by the members, and the matter was remitted to the Council to elaborate details. It was mentioned that if the camp was formed in spring they might associate with the Geological Survey, and that if they delayed till after the first week in August there might be some difficulty in getting access to the deer forests. We understand that the idea of having such a camp originated with Mr. Symington Grieve, and that it will be the first of the kind in this country. The camp will probably be formed for a whole month, members joining and leaving at different periods to suit their own convenience.

#### NORTH AMERICAN FLORA.

Mr. W. Caldwell Crawford gave notes of a visit as the Society's delegate to the British Association meeting

at Montreal and to the meeting of the American Association at Philadelphia. In the course of his tour he passed through Arizona and New Mexico, where he was in a partial desert amongst Yuccas which skirted the railway as Gorse frequently did in Scotland. Then the country became mere desert, and there were Cacti for a hundred miles or more—enormous plants, frequently 20 and now and again 40 or 50 feet high. Americans were always devising means of developing the natural resources of their great country, and the last notion he heard was to turn these enormous Cacti to some useful dollar-producing purpose. Nothing else would grow in Arizona, so it was proposed to graft Vines on these great succulent masses.

#### MISCELLANEOUS.

Mr. John Rattray, Marine Station, Granton, gave some interesting notes on new cases of epiphytism among algae, and exhibited forty-seven specimens, some of which had been dredged in 5 to 7 fathoms of water south of Inchkeith, and others in 30 to 35 fathoms of water off St. Abb's Head. He promised further communications on the same subject. Dr. Macfarlane exhibited curious specimens of Nephentes, and explained exhibits of rare British mosses from Mr. E. M. Holmes, and varieties of *Ling* (*Calluna vulgaris*) forwarded by Professor Dickson.

**The Royal Botanic Garden.**—Mr. Robert Lindsay, Curator, submitted his report on the progress of vegetation at the Royal Botanic Garden for February.

During February the thermometer was at or below the freezing-point on sixteen occasions, indicating collectively 67° of frost, as against 24° for the corresponding month last year. The lowest readings were registered on the 15th, 25°; 18th, 24°; 19th, 24°; 20th, 23°; 21st, 19°. The highest morning readings were on the 8th, 44°; 12th, 48°; 22d, 44°; 24th, 49°; 27th, 47°. The lowest day temperature was 35°, which occurred on the 16th and 17th, and the highest day temperature was 57° on the 24th. A good deal of rain fell throughout the month, but hardly any snow. Vegetation is making slow progress. Ribes, Thorns, Lilacs, Roses, and other deciduous trees and shrubs, are late in developing leaf and flower-buds. They are from three weeks to a month later than last season; the buds, however, are remarkably strong and vigorous, and with more genial weather will make rapid progress. The Hazel, Alder, Rhododendron atrovirens, and *Daphne mezereum* came into flower and were well covered with bloom during the month. Early flowering hybrid Rhododendrons are well set with flower-buds, and, along with most other hardy plants which are used for forcing purposes, are much more readily induced to flower when put into heat than is usual, mainly owing to their having been so well ripened during the fine dry summer last year. Spring flowers are also late in coming into bloom, but they promise to be very fine ere long—those that have already flowered are strong and richly coloured. On the rock garden twenty-four species and varieties of hardy plants came into flower during the month, while at the same date last year forty-one were recorded as having flowered. At the end of February, 1881, no less than ninety different species were counted in flower. At the end of the past month only thirty-eight could be found.

Mr. Taylor submitted Mr. Robert Bullen's report on *The Temperature and Vegetation at the Botanic Institution, Glasgow.*—The thermometer during February has been at or below the freezing-point fifteen times during the month, the lowest reading being 22° during the night of the 18th. Total frost, 73°. The highest day temperature was 53° on the 27th; the lowest 31°, on the 20th. Sharp frosty nights were continuous from the 13th to the 21st, both inclusive, after which mild weather prevailed until the night of the 28th, when 24°, or 8° of frost, were registered. The frosty nights were succeeded by fine days, but the snow which fell during the night of the 17th gave the country a wintry look. A severe gale of wind was experienced during the night of the 21st, but no serious damage resulted. Although showers were frequent during the early and latter part of the month, the rainfall was not heavy. Vegetation is still dormant, the only plants in bloom in the open ground being *Daphne mezereum* and *D. m. album*, *Crocus vernus* and *biflorus*, and *Petasites vulgaris* and *lobata*.

### MASSACHUSETTS HORTICULTURAL.

BOSTON: February 28.—Vice-President Moore in the chair. Dr. G. Austin Bowen, of Woodstock, Connecticut, read a paper on "Leaf as a Study."

The exhibition of flowers, fruit, and vegetables, was much the finest of the season. There were sixteen magnificent *Maréchal Niel* Roses from E. M. Wood & Co., for which a gratuity was awarded, and, in addition, a Bronze Medal for skill in cultivation. John B. Moore & Son sent splendid hybrid perpetual Roses, William H. Spooner, hybrid perpetual Roses, including a plant in flower of the new Queen of Queens; and Delay & Meade a variety of tender Roses. E. L. Beard brought two plants of *Primula obconica*. Edwin Sheppard showed the odoratissima Violet, a new single variety, very large, deep-coloured, and fragrant. Mrs. Francis B. Hayes sent the beautiful and fragrant *Rhododendron Veitchianum*, and a large collection of *Camellias*. C. M. Hovey exhibited a plant of *Clivia Van Houttei*, a large collection of *Camellias*, and other flowers. W. K. Wood had two vases of Roses and one of other flowers. Stillman S. Hovey showed a stand of Pansies and a variety of other flowers, and Miss S. W. Story a collection of cut flowers. A First-class Certificate of Merit was awarded to Mr. Beard for his new *Primula*, and one to Mr. Spooner for his new Rose, and a gratuity to the latter for other Roses. Gratuities were awarded to all the other contributors of flowers.



The Maine Pomological Society sent a collection of forty-three varieties of Apples grown in that State, some of which were fine specimens. H. Brackett exhibited fine Mushrooms and Cucumbers; G. F. Stone, fine Tennisball Lettuce; Josiah Crosby, Tennisball Lettuce; Mrs. Francis B. Hayes, three varieties of seedling Rhubarb; and C. M. Hovey, Mushrooms.

## Variorum.

JARRAH WOOD.—The Jarrah wood (*Eucalyptus marginata*), of Western Australia, is acknowledged by those who know its qualities to be about the next thing to everlasting. Almost everything in Western Australia is made of this timber—work-boxes, pianofortes, buildings, wharves, and jetties. It seems to defy all known forms of decay, and is untouched by white ants and all other insects, so that ships built of it do not require to be coppered. It has been used above-ground and below, in almost every situation in which timber could be placed, and was durable in all. On the table was a specimen from a tree cut thirty-two years ago, which had lain on the surface nearly all that time. It had been exposed to bush-fires every two or three years; to the sun during the summer; to wind and rain during the wet season; and was as sound now as the day it was felled. Another piece had been cut from a small sapling used in a bridge at Banbury, and so certified by the Government Resident, which had been thirty-six years in use, and this piece had been taken just between wind and water. There were about fifteen varieties of the timber, and it could be obtained of any reasonable length up to 60 or 80 feet, the trunk of the tree having no branches whatever. Another advantage is that it does not burn freely, but only charred, which made it additionally valuable for building. It is poisonous to all insects, and when put into a white ants' nest they will not touch it. If a sheet of glass and a piece of this timber are put into such a nest, the ants will bore through the glass rather than touch the Jarrah. The fresh sawdust put at the roots of a fruit tree would kill it, and it is stated by Baron von Mueller to contain, not only tannic acid, but also sulphate of copper. Some of the wood was put into the Suez Canal seven years ago, and when examined lately was found as perfect as on the day it was laid. *Journal of the Society of Arts.*

## A DISASTROUS STORM AT TOOWOOMBA, QUEENSLAND.

The old year closed disastrously for Toowoomba. After a close sultry morning a heavy storm burst over the town at half-past 3 in the afternoon, preceded by vivid lightning and heavy thunder. Rain fell in torrents, and was followed by a fall of hail unprecedented in severity in the memory of the oldest inhabitant. For the space of twenty minutes the hail fell, the stones at first being small, then increasing in size until lumps of ice larger than hens' eggs fell, and the whole town presented a mantle of white, while the Main Range looked as if covered with snow. The destruction of property is very great. Vineyards have been cut down and completely stripped of fruit and leaves; and hundreds of fruit trees have been denuded of fruit. The gardens of Messrs. Taylor and Groom, and other private gentlemen, have been terribly injured; but the Botanical Gardens, which were more exposed, have become a complete wreck; the large conservatory is completely smashed, and the valuable plants and Ferns destroyed. In the vicinity of the Main Range the Maize and Potato crops were cut to pieces.

## Obituary.

WE regret to announce the death of Mr. ANDREW SINCLAIR, of the firm of Messrs. W. P. Laird & Sinclair, nurserymen and seedsmen, Dundee, which took place recently at his residence, Fountainbrae, Monifieth. The deceased gentleman, who was a native of Edinburgh, learned his business with Messrs. Dickson & Co., Waterloo Place, and thereafter held an important position with Messrs. Lawson & Son, Edinburgh. He subsequently joined Mr. W. P. Laird in the business which that gentleman established in Dundee fifty-one years ago, and he had been connected with the firm for upwards of a quarter of a century. He was an active, energetic man, thoroughly acquainted with all the branches of his business, and

he bestowed great care and attention to the nursery at Monifieth, which had been under his personal superintendence since the death of Mr. W. P. Laird in 1872. Mr. Sinclair had been suffering from heart disease for several years, and it is somewhat singular that only the day preceding his death he completed the arrangements for retiring from the firm and transferring the business to Mr. R. B. Laird (of Messrs. R. B. Laird & Sons, Edinburgh), brother of the founder of the firm. The death of Mr. Sinclair will be felt as a serious loss to his numerous friends in all parts of the country. He was in his 51st year, and unmarried.



STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MARCH 18, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 10 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure from Average of 10 years.	Dew Point.	Degrees of Humidity. Sat. = 100.		
Mar. 12	30.38	+0.37	48.5	29.3	19.2	33.0	-1.8	35.3	87	E.N.E.	0.00
13	30.30	+0.40	48.0	36.0	12.0	40.6	-0.4	36.3	86	N.W.	0.00
14	30.41	+0.52	48.2	36.3	11.9	40.9	-0.3	38.9	93	N.E.	0.00
15	30.29	+0.41	48.1	26.0	22.1	37.3	-4.1	32.3	83	N.N.E.	0.00
16	30.28	+0.42	49.5	27.5	22.0	39.4	-2.1	35.6	88	S.W.	0.00
17	29.89	+0.04	52.5	31.5	21.0	42.3	+0.7	35.0	74	S.W.	0.00
18	29.44	-0.40	50.9	37.5	13.4	41.5	-0.2	35.2	80	S.W.	0.05
Mean	30.13	+0.25	49.4	32.0	17.4	40.1	-1.2	35.5	84	S.W.	0.05

March 12.—Fine day and night; partially cloudy in afternoon.

- 13.—Fine day and night; dull.
- 14.—Dull day, and fine clear night.
- 15.—Misty morning; very fine day and night.
- 16.—Very fine morning; dull afternoon.
- 17.—Very fine day and night.
- 18.—Fine dull day; fine clear night.

LONDON: *Atmospheric Pressure.*—During the week ending March 14, the reading of the barometer at the level of the sea decreased from 30.04 inches at the beginning of the week to 29.86 inches by 1 P.M. on the 8th, increased to 30.52 inches by 9 A.M. on the 11th, decreased to 30.46 inches by 9 A.M. increased to 30.49 inches by 1 P.M., decreased to 30.45 inches by 5 P.M. on the 12th, increased to 30.50 inches by 9 A.M. on the 13th, decreased to 30.46 inches by 1 P.M. on the same day, increased to 30.64 inches by 1 P.M. on the 14th, and was 30.54 inches by the end of the week.

The mean reading of the barometer for the week was 30.33 inches, being 0.59 inch higher than last week, and 0.24 inch above the average of the week.

*Temperature.*—The highest temperature was 48° 5, on the 12th; the highest on the 8th was 38° 2. The mean of the seven high day temperatures was 44° 5.

The lowest temperature was 26° 5, on the 8th; on the 14th the lowest temperature was 36° 3. The mean of the seven low night temperatures was 31° 5.

The greatest range of temperature in one day was 19° 2, on the 12th; the smallest was 9° 5, on the 9th. The mean of the seven daily ranges was 13°.

The mean temperatures were—on the 8th, 32°; on the 9th, 36° 9; on the 10th, 35° 2; on the 11th, 36° 7; on the 12th, 39; on the 13th, 40° 6; on the 14th, 40° 9; and these were all below their averages by 8° 5, 3° 6, 5° 4, 4°, 1° 8, 0° 4, and 0° 3 respectively.

The mean temperature of the week was 37° 3, being 2° 3 lower than last week, and 3° 4 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 107°, on the 14th. The mean of the seven readings was 87° 5.

The lowest reading of a minimum thermometer placed on grass was 20° 5, on the 8th. The mean of the seven readings was 25° 3.

No rain fell during the week.

ENGLAND: *Temperature.*—During the week ending March 14, the highest temperatures were 56° at Truro, 52° 8 at Plymouth, 51° 8 at Bristol; the highest at Wolverhampton was 48°, at Blackheath 48° 5, at Brighton 48° 6. The general mean was 50° 1.

The lowest temperatures were 26° 2 at Cambridge and Wolverhampton, 26° 5 at Blackheath; the lowest at Plymouth 33°, at Leeds 32°, at Liverpool 31° 7. The general mean was 29° 6.

The greatest ranges were 26° at Truro, 24° 8 at Bristol, 24° 7 at Cambridge; the smallest ranges were Liverpool 17° 3, at Brighton and Leeds 18°. The general mean was 20° 5.

The mean of the seven high day temperatures was highest at Truro, 51°, at Plymouth 47° 7, at Cambridge 47° 2; and was lowest at Bradford, 43° 8, at Wolverhampton 44°, at Liverpool 44° 1. The general mean was 45° 7.

The mean of the seven low night temperatures was highest at Plymouth, 35° 7; at Nottingham and Newcastle 34° 6; and was lowest at Wolverhampton, 30° 3, at Hull 31° 1, at Bolton 31° 3. The general mean was 33°.

The mean daily range was greatest at Truro, 18°, at Cambridge 15° 4, at Bristol 15°; and was least at Liverpool, 9° 1, at Brighton 10° 5, at Nottingham 10° 7. The general mean was 12° 7.

The mean temperature was highest at Truro, 41° 1, at Plymouth 40° 8, at Newcastle 39° 7; and was lowest at Wolverhampton, 36° 2, at Bolton 36° 9, at Bradford 37° 1. The general mean was 38° 5.

*Rain.*—The largest falls were 0.27 inch at Sheffield, 0.21 inch at Hull, 0.18 inch at Nottingham; the smallest fall was 0.01 inch at Newcastle, 0.04 inch at Bristol and Wolverhampton. No rain fell at Truro, Plymouth, or Blackheath. The general mean fall was 0.09 inch.

SCOTLAND: *Temperature.*—During the week ending March 14, the highest temperature was 53° 8, at Aberdeen; at Greenock the highest temperature was 49°. The general mean was 51° 4.

The lowest temperature in the week was 27°, at Glasgow; at Aberdeen the lowest temperature was 30° 8. The general mean was 28° 7.

The mean temperature was highest at Paisley, 41° 8; and lowest at Glasgow, 38° 9. The general mean was 40° 4.

*Rain.*—The largest fall was 0.04 inch, at Aberdeen; the smallest fall was 0.01 inch, at Edinburgh. No rain fell at Glasgow, Dundee, Leith, or Paisley. The general mean fall was 0.01 inch.

JAMES GLAISHER, F.R.S.

## Enquiries.

"He that questioneth much shall learn much."—BACON.

"FLORAL CALENDAR," OR "REGISTER."—Your correspondent, Mr. Andrew Taylor, Edinburgh (*Gardeners' Chronicle*, vol. xxi., 553), informs us that the *Transactions of the Botanical Society of Edinburgh*, vol. xiv., part 3, gives the Calendar for the fourteen years preceding 1883. My bookseller, having made inquiry of his London correspondent, informs me that they cannot find the price in London of this part. Can any of your correspondents oblige me? *Diss.*

## Answers to Correspondents.

ADVERTISEMENT: E. T. No; it did not appear.

ANTHURIUM SCHERZERIANUM: Mrs. Brightwen. It is a very fine bloom.

APPLE: C. B. Son. Not known.

ARISTOLOCHIA SIPHO: C. W. S. The colour of the flower is purplish-green, and they are sometimes found measuring 2 inches in depth of pitcher. The leaves are cordate, and have a width of 7 or 8 inches.

BEEES.—Apply to Mr. Fox Kenworthy, 55, Coleman Street, E.C., Secretary of the Middlesex Beekeepers' Association.

BEGONIAS: E. W. T. Dreggi is a winter blooming white, small, but very free. B. manicata is also of the same colour, but more graceful—both are easily grown.

BOOK ON LAYING OUT: A Young Gardener. Kemp's *Practical Gardener* will give you all the information you require.

BOOKS: B. Vinc. *Vines and Vine Culture* (by Barron). Published at 171, Fleet Street, E.C.



**CATTLEYA BLOOM:** *P. Hillat*. Fine in form and substance, but in no respect better than many others.

**CORRIGENDUM.**—In our report of the last meeting of the Royal Horticultural Society Messrs. W. Paul & Sons' address was given at Waltham Cross, instead of the "Old" Nurseries, Cheshunt.

**CROWEA SALIGNA AND OTHER FINE NEW HOLLAND PLANTS:** *B.* These are still to be obtained at the leading nurseries, although but few make a specialty of them at the present time. We believe Messrs. Cutbush, of Highgate, are paying some attention to this class of plants.

**DRESSING FOR PEAT LAND:** *H. H., Bournemouth.* Use stone lime, but not slacked.

**FRENCH BEAN:** *J. S.* You should send Beans and haulm, when in season, to our office, and ripe seed, if you have any.

**INSECTS:** *B.* The small beetles are Aphodius scybalarius; a common dung-feeding insect. *H.*

**INSECTS ON GOOSEBERRY SHOOT:** *C. W. D.* The extremely minute mites infesting the base of the buds are in a very juvenile condition, with only six legs, and are consequently not accurately determinable. They appear to belong to a species of Tetranychus, like *T. Salicis*, Koch, *Cont. Panzer, F. I. G. H., 155, No. 18. I. O. W.*

**NAMES OF PLANTS:** *R. P. 1.* Cupressus Lawsoniana aurea; 2, Juniperus tamiscifolia; 3, Biota orientalis aurea; 4, Cephalotaxus pedunculata; 5, Retinospora lycopodioides; 6, Juniperus chinensis aurea.—*W. J. Mitchison.* Polygala Dalmaniana and Doronicum deotatum.—*Charles Sharpe & Co.* Trifolium ochroleucum (but not an Egyptian species).—*H. T. S.* Populus tremula, the Aspen.—*J. O. B. 1.* Dendrobium transparens, approaching Dendrobium litiflorum; 2, D. fimbriatum.—*C. C. E.* Dendrobium Pierardi.—*H. Woodmansey.* 1, Pachyphyllum bracteosum; 2, Echeveria acutifolia; 3, Bryophyllum calycinum; 4, Onychium lucidum; 5, Gaultheria Shalloon.

**SULPHIDE OF POTASSIUM.**—See our advertisement columns in this number.

## CATALOGUES RECEIVED.

**KEYNES, WILLIAMS & Co., Salisbury.**—List of New Roses for 1885.

**CARRON COMPANY.**—Garden Furnishings.

**LUCOMBE, PINCE & Co., Bedford Street, Exeter.**—Farm Seeds.

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## Markets.

### COVENT GARDEN, March 19.

TRADE stagnant, with a fair supply of all classes of goods, both home-grown and foreign. *James Webber, Wholesale Apple Market.*

### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilon, 12 bunches .. 2 0 4 0	Marguerites, 12 bun. 3 0 6 0
Acacia, Fr., basket .. 4 0 5 0	Mignonette, 12 bun. 3 0 9 0
Anemone, 12 bunch .. 3 0 9 0	Narcissus, Paper .. 1 0 1 0
Arum Lilies, 12 blms. 3 0 6 0	white, 12 sprays .. 0 9 1 0
Azalea, 12 sprays .. 0 6 1 0	French, 12 bun. 2 0 6 0
Bouvardias, per bun. 1 0 1 6	Pelargoniums, per 12 .. 1 0 1 6
Camellias, per doz. 1 0 4 0	— scarlet, 12 sprays 0 6 1 0
Carnations, 12 blms. 1 0 3 0	Primroses, 12 bunch. 0 9 1 0
Cinerarias, per bun. 0 9 1 0	Primula, double, bun. 0 9 1 0
Cyclamen, 12 blooms 0 3 0 6	— sinensis, 12 bun. 4 0 6 0
Epiphyllum, 12 blms. 0 4 0 6	Roses (indoor), doz. 2 0 6 0
Eucharis, per doz. 4 0 6 0	— coloured, doz. 4 0 8 0
Euphorbia jacquini- .. 3 0 6 0	— French, per doz. 1 0 2 0
flora, 12 sprays .. 3 0 6 0	Spiraea, 12 bunches .. 6 0 9 0
Gardenias, 12 blms. 4 0 8 0	Tropaeolum, 12 bun. 2 0 4 0
Heliotropes, 12 sp. 0 6 2 0	Tulips, 12 blooms .. 0 9 1 0
Hyacinths, Roman, 12 bunches .. 3 0 9 0	Violets, 12 bun. 0 4 0 9
Lapageria, white, 12 .. 2 0 3 0	— French, bunch .. 0 3 1 0
blooms .. 2 0 3 0	— Parme, French .. 3 0 5 0
— red, 12 .. 2 0 2 0	per bunch .. 3 0 5 0
blooms .. 2 0 2 0	Wallflower, 12 bun. 4 0 6 0
Lily-of-Val., 12 sprays 0 9 2 6	White Jasmine, bun. 0 6 1 0

### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0 24 0	Ferns, in var., dozen 4 0 18 0
Arbor-vitæ (golden), .. 6 0 18 0	Ficus elastica, each 1 6 7 0
— (common), dozen 6 0 12 0	Foliage Plants, vari- .. 2 0 10 0
Arum Lilies, dozen 9 0 15 0	— let, per dozen .. 9 0 18 0
Azaleas, per dozen .. 18 0 12 0	Hyacinths, per doz. 6 0 9 0
Begonias, per doz. 6 0 12 0	Lily-of-the-Valley, 12 .. 15 0 24 0
Bouvardia, dozen .. 9 0 18 0	pots .. 15 0 24 0
Cinerarias, per doz. 9 0 12 0	Marguerite Daisy, .. 8 0 15 0
Cyclamens, per doz. 9 0 24 0	Myrtles, per doz. 6 0 12 0
Cyperus, per dozen 4 0 12 0	Narcissus, 12 pots .. 12 0 18 0
Dracæna terminalis, .. 30 0 60 0	Palms in variety, .. 2 6 21 0
— viridis, per doz. 12 0 24 0	Pelargoniums, scar- .. 4 0 9 0
Epiphyllum, doz. 18 0 24 0	— let, per dozen .. 4 0 9 0
Erica, various, doz. 9 0 18 0	Primula sinensis, per .. 4 0 6 0
— Cavendishii, per .. 42 0 48 0	Solanums, dozen .. 9 0 12 0
— ventricosa, doz. 42 0 60 0	Spiraea, per dozen .. 9 0 18 0
Enonym, in var., doz. 6 0 18 0	Tulips, dozen pots .. 9 0 18 0
Evergreens, in var., .. 6 0 24 0	

### FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 1/2-sieve .. 1 6 5 0	Lemons, per case .. 12 0 18 0
— Nova Scotia and .. 12 0 21 0	Pine-apples, Eng., lb. 1 0 2 0
Canadian, barrel 12 0 21 0	— St. Michael, each 2 0 8 0
Cobs, per 100 lb. 50 0 55 0	Strawberries, per oz. 0 6 0 9
Grapes, per lb. 5 0 8 0	

### VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, .. 4 0 6 0	Horse Radish, bun. 3 0 4 0
per doz. 4 0 6 0	Lettuces, Cab., doz. 1 6 1 0
Asparagus, English, .. 3 6 10 0	— French Cos, each 0 9 1 0
per bundle 15 0 20 0	Mint, green, bunch. 0 9 1 0
— French, bundle 15 0 20 0	Mushrooms, p. basket 1 0 1 6
— Perpignan, nat., .. 3 6 1 0	Onions, per bushel 4 0 1 0
per bundle 3 6 1 0	— Spring, per bun. 0 6 1 0
Beans, Eng., per 100 2 0 1 0	Parsley, per bunch. 0 4 1 0
Beet, per doz. 1 0 1 0	Peas, per lb. 1 0 1 0
Cabbages, per doz. 1 6 2 0	Potatoes, new, per lb. 0 9 1 0
Carrots, per bun. 0 6 1 0	Radishes, per doz. 1 0 1 0
Cauliflowers, Eng- .. 2 0 4 0	Rhubarb, bundle 0 6 1 0
lish, dozen .. 2 0 4 0	Salsify, per bund. 1 0 1 0
Celeriac, per root 0 4 1 0	Seakale, per punnet 2 0 2 6
Celery, per bundle 1 6 2 0	Small salad, per .. 0 4 1 0
Cucumbers, each 0 9 1 6	punnet .. 0 4 1 0
Endive, per dozen 2 0 1 0	Spinach, per bushel 4 0 1 0
Garlic, per lb. 0 6 1 0	Tomatoes, per lb. 2 0 2 6
Herbs, per bunch 2 0 2 4	Turnips, bun. 0 5 1 0

**POTATOS.**—Magnum Bonums, 40s. to 70s.; Regents, 70s. to 90s. Champions, 45s. to 60s. per ton. Markets have a downward tendency.

### SEEDS.

**LONDON:** March 18.—The seed markets are now characterised by a moderate amount of activity, and all varieties are offered somewhat less freely, without, however, any notable advance in values, extreme cheapness all round being still the order of the day. Some further fresh shipments of American Clover seed have been made to New York. Alsike, White, and Trefoil all keep steady; more money is asked for imported Italian. Spring Tares meet a fair inquiry. There is not much passing in either Canary or Hemp seed. In Linseed the tendency is downwards. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

### CORN.

At Mark Lane on Monday English Wheat showed an advance of 1s. per quarter, mainly attributable to the improved condition of the samples offered. Foreign Wheats in most cases lost the advance obtained in the course of last week, and went back to the rates of Monday's night. Flour rates were quite up to those of the previous Monday. Barley, Beans, and Peas were without notable change. Maize upheld an advance of 3d., and Oats 3d. to 6d. advance on the week.—On Wednesday the Wheat trade was almost at a standstill, and quotations nominal. No notable change occurred in Maize, and Barley, Beans, Peas, and Oats also remained at Monday's rates.—Average prices of corn for the week ending March 14:—Wheat, 31s. 4d.; Barley, 31s. 8d.; Oats, 20s. 9d. For the corresponding period last year:—Wheat, 37s. 7d.; Barley, 31s. 3d.; Oats, 19s. 8d.

### CATTLE.

At Copenhagen Fields on Monday supplies of beasts were not so heavy as on the previous Monday, but trade was no better. With a heavy supply, sheep declined 2d. per 8 lb., and sales moved slowly. The assortment of calves was not very good, and the trade was slack. Quotations:—Beasts, 3s. 6d. to 4s. 6d., and 4s. 8d. to 5s. 2d.; calves, 3s. 8d. to 5s. 10d.; sheep, 4s. 6d. to 5s., and 5s. 2d. to 5s. 8d.; pigs, 3s. 8d. to 4s. 4d.—On Thursday there was no trade either for beef or sheep, and prices tend in favour of buyers. Calves were steady, and Pigs sold at late prices.

### HAY.

Tuesday's Whitechapel market report states that trade was fairly brisk for prime sorts of Clover and hay, some of the top qualities of which, specially picked, were worth 2s. per load more, at 107s. and 94s. respectively. Supplies short. Quotations:—Clover, prime, 85s. to 107s.; prime second cut, 85s. to 105s.; inferior, 48s. to 75s.; hay, prime, 76s. to 94s.; inferior, 25s. to 60s.; and straw, 22s. to 35s. per load.—On Thursday there was a short supply, and trade steady.—Cumberland Market quotations:—Clover, best, 90s. to 105s.; inferior, 60s. to 84s.; meadow hay, best, 80s. to 90s.; inferior, 60s. to 14s.; and straw, 29s. to 34s. per load.

### POTATOS.

The Borough and Spitalfields Markets reports state that the demand continues limited, but prices are supported. Quotations:—Scotch Regents, 40s. to 95s.; Kent ditto, 75s. to 85s.; Champions, 40s. to 60s.; Magnum Bonums, 60s. to 80s.; Victorias, 70s. to 90s. per ton.—The imports into London last week consisted of 755 bags from Hamburg, 3 Rotterdam, 126 Malta, and 20 from Harlingen.

**Government Stock.**—Consols closed on Monday at 97½ to 97½ for delivery, and 97½ to 97½ for the account. Tuesday's prices were 98 to 98½ for delivery, and 98½ to 98½ for the account. The closing figures for Wednesday were 98½ to 98½ for delivery, and 98½ to 98½ for the account.—Thursday's final quotations were 98 to 98½ for both delivery and the account.

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### LIST of CHOICE

## FLORISTS' FLOWERS

SPRING 1885.

We have much pleasure in offering the following choice Florists' Flowers in strong healthy young plants, mostly from single pots, and guaranteed true to name.

Carriage Free on receipt of Cheque or P.O.O.

*N.B.*—Orders will not be accepted at these prices after April 30. Per dozen—s. d.

ABUTILONS.—In choice variety. Six for 2s. ..	3 6
AGATHÆA coelestis (The Blue Marguerite) ..	5 0
BOUVARDIAS.—Beautiful varieties, our own selection to name ..	3 6
CHRYSANTHEMUMS, Japanese.—Superb new varieties of 1884, six for 3s. 6d. ..	6 0
" " Fine exhibition varieties ..	4 0
" " Popular sorts to name ..	2 0
CHRYSANTHEMUMS, large-flowered incurved and reflexed.—Splendid exhibition varieties ..	4 0
" " Good standard varieties ..	2 0
CHRYSANTHEMUMS, Pompon.—In beautiful variety ..	2 6
COLEUS.—New and select varieties. Six for 2s. ..	3 6
DAHLIAS, Single-flowered.—Very choice sorts, including new varieties of 1884 ..	6 0
" " Beautiful sorts, in splendid variety, to name ..	3 6
DAHLIAS, Double-flowered.—Show and Fancy. Very choice sorts, including new varieties of 1884 ..	6 0
" " Choice sorts, our selection ..	3 6
DAHLIAS, Bouquet.—Our own selection, including new varieties of 1884 ..	3 6
DAHLIA JUAREZI (The Cactus Dahlia).—Brilliant scarlet, splendid, each 9d., three for 2s. ..	3 6
DAHLIA, Constance (White Cactus Dahlia).—Pure white, splendid for cut flowers ..	5 0
DAHLIA, Glare of the Garden.—A dwarf growing, double-flowered variety, producing a wonderful profusion of its intensely brilliant, neat, scarlet blooms, each 9d., three for 2s. ..	3 6
FUCHSIAS.—Very choice sorts from our fine collection, including the most beautiful varieties ..	4 6
" " Good sorts, to name ..	2 0
FUCHSIA corymbiflora.—Splendid species, with immense clusters of handsome scarlet flowers, three for 2s. 6d., each 1s. ..	4 6
GERANIUMS, Single-flowered Zonal.—Twelve new varieties of 1884 (Pearson's) magnificent set ..	10 6
" " Superb exhibition sorts, our own selection, six for 2s. 6d. ..	4 6
" " Choice sorts, to name ..	2 6
GERANIUMS, Double-flowered Zonal.—New varieties of 1884, superb, six for 5s. ..	9 0
" " Beautiful sorts for pot culture ..	4 6
" " Choice sorts, to name ..	2 6
GERANIUMS, Ivy-leaved.—Splendid for hanging-baskets, stumps, &c., six new varieties of 1884, 5s. ..	3 6
" " Single and Double, our own selection, in beautiful variety ..	3 6
HELIOTROPE, White Lady.—Fine for bouquets, deliciously scented, each 4d. ..	3 0
" " In variety, good sorts ..	2 6
MARGUERITES, or Parisian Daisies.—In variety ..	3 6
IMPATIENS Sultan.—Splendid for greenhouse, perpetual bloomer, each 9d., three for 2s. ..	3 6
MUSK, Harrison's Giant.—Finely scented ..	2 6
PHLOX, Herbaceous.—A highly improved and splendid race of hardy plants. Our own selection, including the most beautiful sorts ..	3 6
PENTSTEMONS.—In beautiful variety ..	3 6
PETUNIAS.—Double-flowered, beautiful sorts ..	3 6

**DANIELS BROS.,**  
NURSERYMEN AND FLORISTS,  
NORWICH.



# THE FRUIT OF THE FUTURE.



## NEW MAGNIFICENT BLACKBERRY, "THE WILSON JUNR."

In spite of the fact that Blackberries will grow "anywhere" in reason, and everybody likes them, it is yet a puzzling reality that it is only with great difficulty and at a high figure that we can purchase them in our markets.

Surely, then, it must be apparent to all farseeing "fruit growers" that instead of glutting the markets with Gooseberries, Currants, &c., they have here a fruit which, if planted upon any given area of land, will prove far more profitable than any other hardy fruit that could be grown. And why? Simply because for half-a-dozen years ahead, at least, the stock throughout the country will not have time to become so great as to exceed the demand.

Landowners, Stewards, and Gardeners, who have each year to show a balance-sheet "of profits," have here a very simple, safe method of for some years obtaining highly profitable results. Planted 3 feet by 8 feet requires at the rate of 18½ plants to an acre.

Gardeners also who grow for house consumption will find this fruit a valuable assistant. It will stand any treatment, and do well where other fruits would fail.

Whilst, however, we have the matter under consideration, do not let us fall into the mistake of planting any variety so long as it is a "Blackberry." Why not, for the sake of a slightly additional first expense, obtain the very "cream" of the family; or in other words, procure stocks of the hardiest, largest, most delicious, and most productive?

By pursuing this procedure the result repays the grower tenfold for the slightly additional first expense incurred.

It was this reasoning that caused us to give the subject our most careful study; the result of which is, we offer a variety, the grandest of the group, producing enormous berries, measuring on an average 3¼ inches around, lengthwise, and the same dimensions crosswise. (This will give an idea of the profit to be derived from its culture as a market commodity.) The berries are also glossy black, very early, of exquisite flavour, and enormously productive—the heavy load of fruit often bending the canes to the very ground.

We can offer plants of this grand variety at 1s. 3d. each, 12s. per dozen, 85s. per 100, carriage paid.

We can offer other varieties as follows:—"LAWTON," "KITTA-TINNY," "PARSLEY-LEAVED" (*Rubus fruticosus laciniatus*), "WILSON'S EARLY," at 9d. each, 8s. 6d. per dozen, 63s. per 100.

After this date (March 12) we advise our numerous Patrons for the "Wilson Junior Blackberry" to give us the option of Autumn Delivery. We have, however, every reason to believe that there is a certainty of delivery in time this spring.

**VICCARS COLLYER & CO.,**

NURSEYMEN, SEEDSMEN, &c.,

CENTRAL HALL, LEICESTER (where all Letters are to be addressed), and  
CENTRAL NURSERIES, GLENFIELD, near  
LEICESTER.

A. W. CREWS, Manager.

Price 1s. stitched.

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By WILLIAM EARLEY.

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AT REDUCED PRICES. FROM FORMER LISTS  
SINGLE CYLINDER ROLLERS, 16x16, 20x20 AND 24x24 DOUBLE DO SAME SIZES.

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**CARRON WORKS, FALKIRK, N.B. DAVID COWAN, MANAGER**

Special Quotation for Quantities.

Special Quotation for Quantities.



**A**SH, common, 2 to 3 feet, clean, 17s. per 1000. ELMS, 1½ to 2 feet, 14s. per 1000; 2 to 3 feet, 17s. per 1000; English, 3 feet, 25s. per 1000. LARCH, 14 to 24 inches, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 4 feet, 18s. per 1000; 4 to 5 feet, 24s. per 1000. SPRUCE FIR, 1 to 1½ foot, 12s. per 1000; 1½ to 2 feet, 13s. per 1000; 2 to 2½ feet, bushy, 16s. per 1000. SILVER FIR, 4-yr. transplanted, 22s. per 1000. HAZEL, 2 to 3 feet, 20s. per 1000. OAKS, 18 to 20 inches, 16s. per 1000; 2 feet, 20s. per 1000. PRIVET, Evergreen, 2 feet, 15s. per 1000; 1 to 1½ foot, 12s. per 1000; OVALIFOLIUM, 2 to 2½ feet, 30s. per 1000; Oval, 1 foot, 20s. per 1000. SYCAMORE, 1½ to 2 feet, 14s. per 1000. THORNS, 1½ to 2 feet, 12s. 6d. per 1000; 2 to 2½ feet, 16s. per 1000; 3 to 3½ feet, 18s. per 1000. APPLE, Crab, 2-yr., fine, 3s. per 1000. DOG ROSE, 1-yr., fine, 6s. per 1000. MANETTI STOCKS, 20s. per 1000. IVY, Irish, strong, 60s. per 1000. HONEYSUCKLE, sempervirens, yellow, 25s. per 100. LAURELS, Common, 2-yr., fine, 25s. per 1000. SEA BUCKTHORN, 2 feet, 20s. per 100. HYPERICUM CALYCINUM, 1 foot, 40s. per 100.

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"Emperor William" (from cuttings), bushy plants, 2s. 6d. per 100, or 25s. per 1000, carriage paid for cash with order from  
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**MAGNUM BONUM POTATO SEED** at Reduced Prices. About 200 Tons (Sutton's Stock), true to name, sound, bright, and hand-picked to one uniform size. Price from 5 cwt. upwards, carriage paid to any station in England or Wales, sent on application. A change of seed generally produces 2 to 3 tons per acre more than home-grown.  
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Sample collections, with directions for growing.  
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List gratis.  
Sample No. 1 contains 20 packets of Flower Seeds, Hardy Annuals, easily grown.  
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**ILLUSTRATED LIST**  
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THE HOME OF FLOWERS  
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**R. OWEN** begs to call attention to his choice collection, which comprises only the best new and old varieties. Strong rooted cuttings, twelve varieties for 18s. 7s. 6d.; ditto for 1884, 3s. 6d.; best old varieties, 2s. 6d. per dozen cuttings, 6d. per dozen less, post-free for cash. **CATALOGUE** (one stamp). **Mr. BOWERMAN, Hackwood Park Gardens**, says:—"They are the best cuttings I ever had sent me." The Floral Nursery, Maidenhead.

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**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the **FORMATION** and **PLANTING** of **NEW GARDEN** and **PARK GROUNDS** and **REMODELLING** existing **GARDENS**. Plans prepared, 115, Listra Park, Stamford Hill, N.

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1885.

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**HUGH LOW AND CO.** offer, of fine quality, **HAZELA INDICA**, in variety, in 4 sizes: **ACACIA ARMATA**, **CRASSULA JASMINA**, white, deliciously fragrant, finely budded on 40 to 50 shoots; **DEUTZIA GRACILIS**, in flower; **ERICA MELANTHERA**, **ERICA CANDIDISSIMA**, **ERICA PERCULATA ALBA**; **HV. DRANGEDIA THOMAS HOGG**, white; **LAURUSTINUS**, French-white; **FAIRY ROSES**, red; **GARDENIAS INTERMEDIA** and **RADICANS**, **ROSE PAQUERETTE**, blooms in clusters; **ROSES**, Hybrid Perpetual, in bud; **PELARGONIUMS**, Zonal, Single, and Double. Prices, each, per dozen or 100, on application.

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**COCOA-NUT FIBRE REFUSE.**

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

**LIGHT BROWN FIBROUS PEAT**, 5s. 6d. per sack; 5 sacks, 25s.; sacks, 4d. each.

**BLACK FIBROUS PEAT**, 5s. per sack, 5 sacks 22s.; sacks, 4d. each.

**COARSE SILVER SAND**, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton, in 2-bushel bags, 4d. each.

**YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD**, 1s. per bushel.

**SPHAGNUM MOSS**, 8s. 6d. per sack.

**MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c.** Write for Free Price LIST.—**H. G. SMYTH**, 21, Goldsmith's Street, Drury Lane (late called 17A, Coal Yard), W.C.

**GENUINE GARDEN REQUISITES**, as supplied to the Royal Gardens.—Fresh Cocoa-Nut Fibre Refuse, 4 bushel bags, 1s. each; 30 for 25s.—bags included.

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12-oz. Sample Packets, free by post, 12 stamps.

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**BROWN FIBROUS PEAT**, best quality for Orchids, Stove Plants, &c., 466s. per Truck. **BLACK FIBROUS PEAT**, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bag, 5s.; 5 Bags, 22s. 6d.; 10 Bags, 45s. Bags included. Fresh **SPHAGNUM**, 10s. 6d. per Bag.

**SILVER SAND**, Coarse or Fine, 5s. per Truck of 4 tons. **WALKER AND CO.**, Farnborough Station, Hants.

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Is the best for all Horticultural Purposes.

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The 10s. 6d. Tins serve as a strong substantial receptacle to refill from the 1 cwt. bags.

Supplies can be obtained through all respectable Nurserymen, Seedsmen, and Florists in the Kingdom; or, in districts where no Agents reside—Carriage Paid for Cash with Order—direct from the MANUFACTURER.

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Testimonials from the Rev. Canon Hole, and most of the leading Gardeners, free on application.

Pure Crushed Unboiled BONES, any size, for Vine Borders, &c.

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Quality, THE BEST in the Market. (All sacks included.)

PEAT, best brown fibrous .. 4s. 6d. per sack; 5 sacks for 20s.

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PEAT, extra selected Orchard .. 5s. 0d. " "

LOAM, best yellow fibrous .. " " " "

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SILVER SAND, coarse, 1s. 3d. per bush., 12s. half ton, 22s. ton

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TOBACCO CLOTH, finest imported .. 8d. lb., 28 lb. 18s.

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SPHAGNUM MOSS, all selected .. 2s. per bush., 6s. per sack.

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Prepared by

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"Clovenfords, by Galashiels, N.B., July 25, 1883.  
"MR. SMITH.—Dear Sir,—We have now tried your Insecticide on all the Insects we can find on any of our Plants, including Orchids, and used as directed by you we find it instant destruction to them all, while it neither stains nor injures the tenderest leaf. We shall in future use no Fire-tree Oil, or other Insecticide but yours.—We are, yours truly,  
"WILLIAM THOMSON AND SONS."

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**COCOA NUT FIBRE REFUSE**—Best

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**LEMON OIL INSECTICIDE (Registered).**

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Instant death to Mealy Bug, Scale, Thrips, Red Spider, Green and Black Fly, American Blight, Mildew, Aunts, &c. As a winter dressing unequalled. See circulars, with testimonials, from many of the leading Gardeners on its behalf.

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14s. per ton, not less than four tons; sample sack, 2s. 6d.

LOAM, SAND, LEAF-MOULD, SPHAGNUM, &c.

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Mildew and Other Hurtful Fungi, Red Spider, &c.,

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Effectually Removes all Weeds, Moss, Worms, and Insects on Gravel Walks, Lawns, &c.

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**GISHURST COMPOUND**, used by leading

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**GISHURSTINE** keeps Boots dry and soft on

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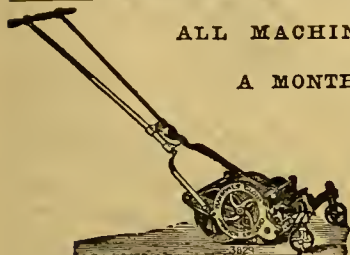
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They are made in nine sizes, 8 to 24 inches.

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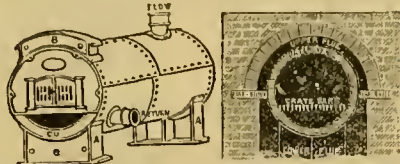
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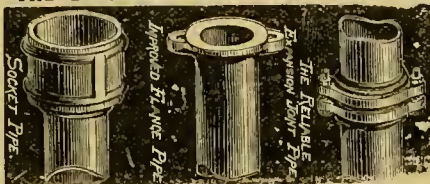
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FOR  
VINE BORDERS, FRUIT TREES, STRAWBERRIES,  
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Any Gardener can use it with ease.

The only really practical Edge Cutter yet brought out.

THIS Machine is a light, simple, strong, and useful substitute for Hand Shears, for trimming the edges of Lawns.

It can be guided with the greatest ease either in a straight line or round the edges of flower beds, &c. The depth of cut can be varied to suit the depth of the edge by simply tilting the conical roller more or less. The knives can be adjusted to the fixed blade as they wear, and can be readily removed for sharpening.

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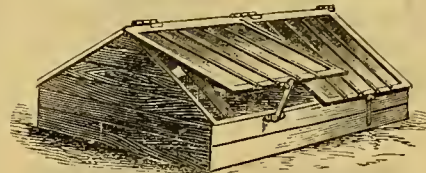
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The above are without exception the most useful kind of Frame for Plant Growing, and every one with a garden should possess one. The sashes turn right over one on the other, and the boxes are put together with wedges, and can be taken apart in a few minutes. Sizes and prices, carriage paid to any station in England, ready glazed and painted:—

6 feet long, 4 feet wide, packing cases free	£2 15 0
12 feet long, 4 feet wide, " " "	4 15 0
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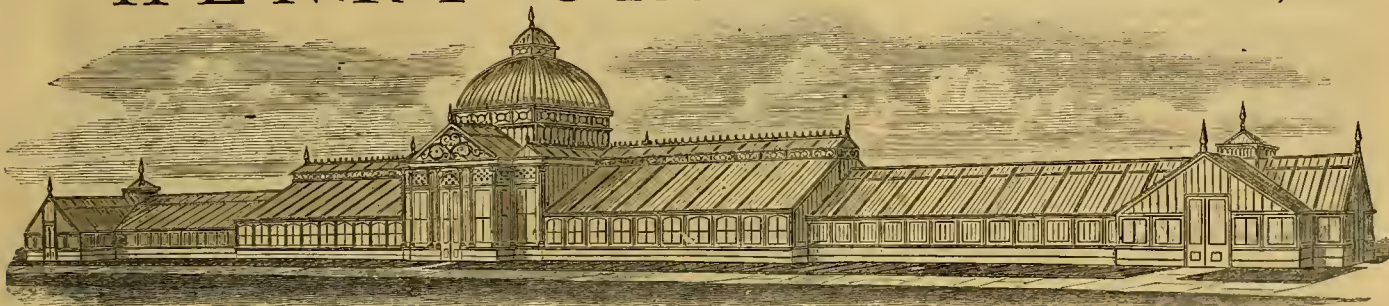
The glass is nailed and puttied in.

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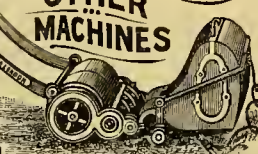


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**Lawn Mower**  
THE ONLY LAWN MOWER FITTED WITH  
**DOUBLE EDGED SOLE PLATE**  
ENABLING THE CUTTING PARTS  
TO LAST TWICE THOSE OF  
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**HAND MACHINE**

Easily worked  
Making the Lawn like Velvet  
Does not get out of order

**PRICES.**

To CUT 10 INCHES WIDE, £3 10 0	To CUT 19 INCHES WIDE, £8 0 0
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ILLUSTRATED LISTS OF  
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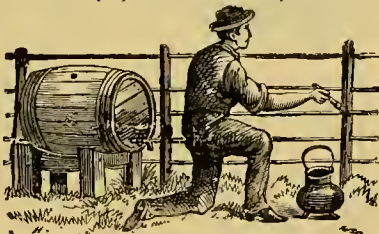
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OF ALL SIZES

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A large Stock of Machines of all sizes always kept  
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**SMALL LAWN MOWERS**  
6 INCH 25/-, 7 INCH 35/-, 8 INCH 45/-

**HILL AND SMITH'S BLACK VARNISH**,  
for Preserving Ironwork, Wood, or Stone.  
(Registered Trade Mark.)



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the Advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used to the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 15. 6d. per gallon, at the Manufactory, or 15. 8d. per gallon carriage paid to any Station in the Kingdom.

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**CAUTION.**—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive, stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

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MATS, of all qualities and sizes, RAFFIA FIBRE, TOBACCO CLOTH and PAPER, &c. For Wholesale Prices apply to the largest Importers and Manufacturers—MARENDAZ AND FISHER, 9, James Street, Covent Garden, W. C.

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Before buying for the season send for Samples and Prices to  
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Fishermen always buy new Netting, wear it very hard for six years, then sell it to the Gardener for half its original cost, thus wearing a good article six years at the same price the Gardener pays for the old nets that only last two years.

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**GARDEN NETTING.**

**S. A. SANDS**

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**MANUFACTURER OF HEXAGON AND CHISWICK GARDEN NETS.**

Warranted to Protect Bloom from Frost, Winds, Hail, and Fruit from Birds, Wasps, &c.

Pattern and Prices Free per Post.

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**TANNED GARDEN NETTING.**  
1 yard wide... 3/4d. per yard | 3 yards wide... 2 1/4d. per yard  
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500 yards and upwards delivered free to any part.

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**SCRIM, TIFFANY and COTTON NETTING.**  
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**RUSSIA MATS, RAFFIA, TOBACCO PAPER, FEAT, SILVER SAND, COCOA FIBRE REFUSE, GARDEN TOOLS, &c.,** at the lowest possible prices.

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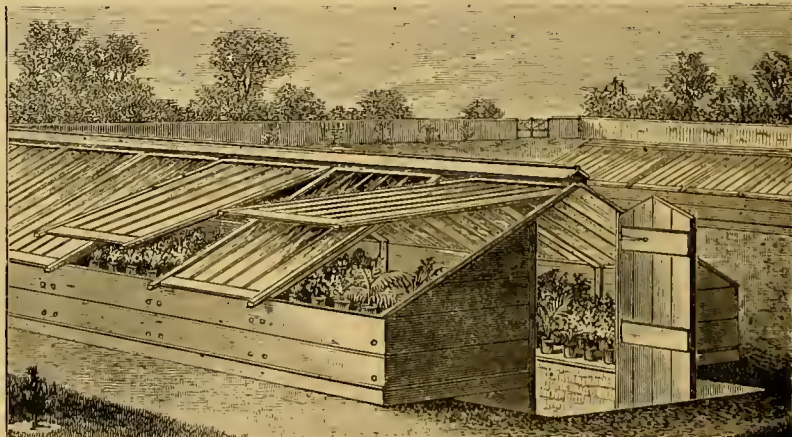
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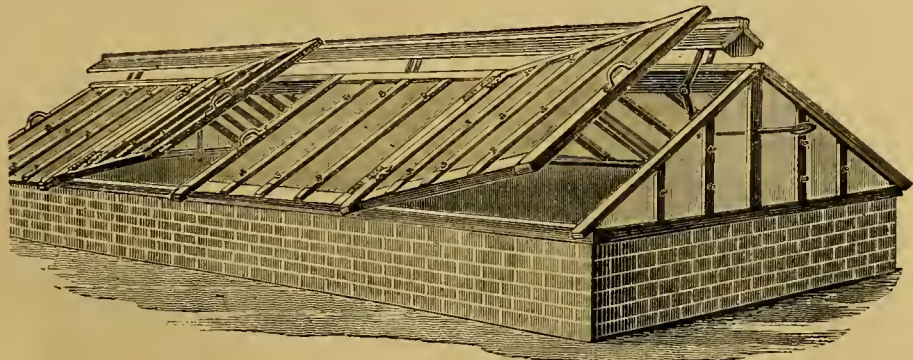
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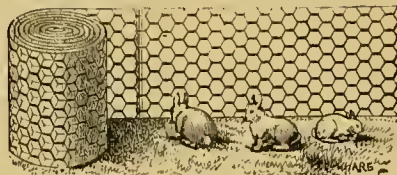


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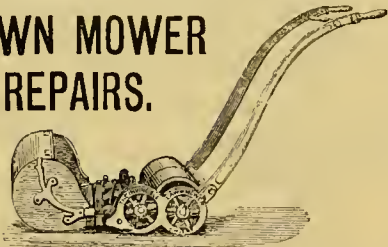
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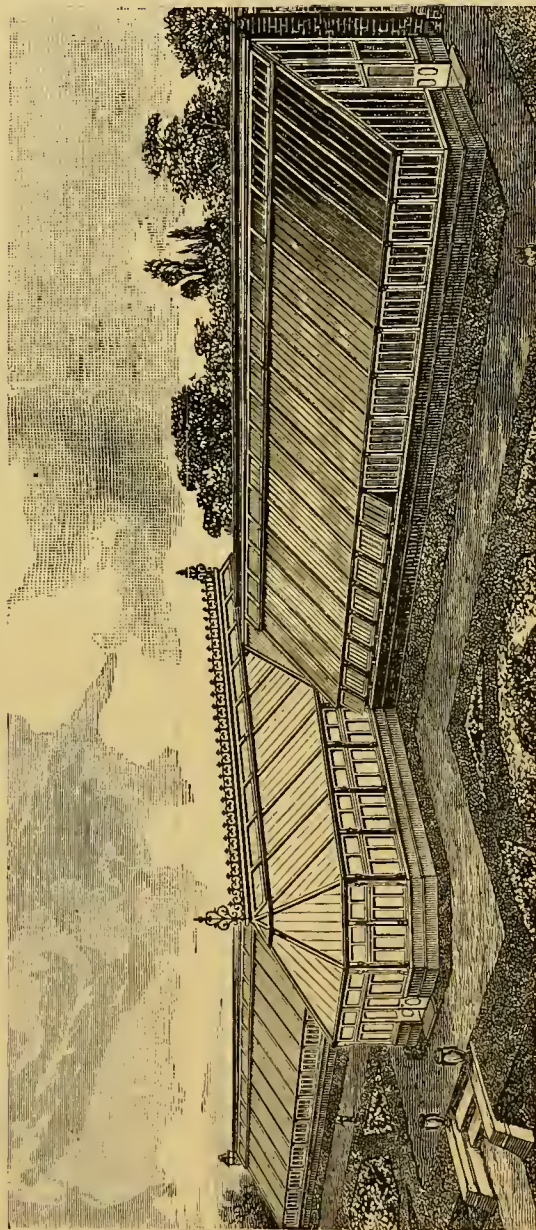
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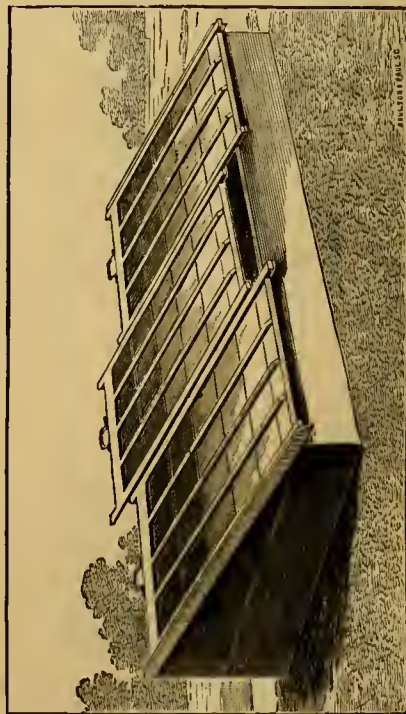
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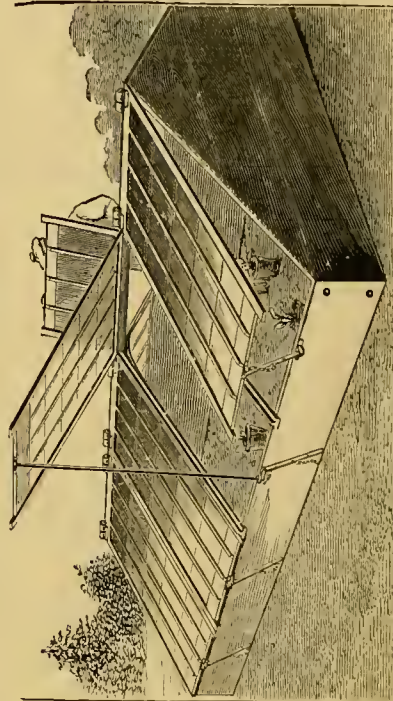
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Established 1841.

No. 587.—VOL. XXIII. { NEW SERIES }

SATURDAY, MARCH 28, 1885.

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## NOTICE to ADVERTISERS.

FRIDAY NEXT, April 3, being GOOD FRIDAY, the "GARDENERS' CHRONICLE" will be published on THURSDAY, April 2, at 2 p.m.

ADVERTISEMENTS for NEXT WEEK must therefore reach the Office not LATER than WEDNESDAY MORNING, April 1.

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THE ZEWINNER'S PEA, LAXTON'S described by Mr. H. Marriott, the chief prizewinner, as "The Everlasting." Sealed half-pints, 3s. 6d. T. LAXTON, Seed Grower, Bedford.

GRAPES THIS YEAR FRUITING CANES. PLANTING CANES. Leading kinds, perfectly ripened without bottom-heat. JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

SPARAGUS.—A large quantity to offer, of very fine transplanted stuff, 2-yr. and 3-yr., 2s. 6d. and 3s. per 100, 20s. and 25s. per 1000. Also 2-yr. from drills, 10s. per 1000. All packages free on rail. S. BIDE, Alma Nursery, Farnham, Surrey.

SPARAGUS.—True Giant, 2, 3, and 4-yr. Fine sample 100 or 1000, with price, on application. JAMES BIRD, Nurseryman, Downham.

EARLY PURPLE ARGENTEUIL ASPARAGUS.—The earliest and finest which comes into Covent Garden. Strong plants, 7s. 6d. per 100; Seed, 1s. 6d. per packet. T. LAXTON, Seed Grower, Bedford.

SPARAGUS.—A large quantity of strong plants, 2, 3, and 4-yr. old. Prices on application to J. CHEAL AND SONS, Lowfield Nurseries, Crawley.

SPARAGUS.—Strong 2-yr. and 3-yr. Conover's Colossal, 2s. and 2s. 6d. per 100, 15s. and 20s. per 1000. Bags included. Special quotations for large quantities. E. QUINCEY, Fulney, Spalding.



## SALES BY AUCTION.

**Important Sale of a Choice Collection of Carnations, PICOTEES and PINKS** of fine growth, 500 Standard and other ROSES, selected FRUIT TREES, HARDY CONIFERÆ, SHRUBS and AMERICAN PLANTS, GREENHOUSE PLANTS in variety, old dark CLOVES, white laced PINKS, Double PÆONIES, CHOICE SEEDS, DAHLIAS, LILIUms, &c.

**MESSRS. PROTHEROE and MORRIS** will SELL by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on **TUESDAY, March 31, at 12 o'clock precisely.**  
On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

## Tuesday Next.

## ORCHIDS IN FLOWER.—SPECIAL SALE.

**MESSRS. PROTHEROE and MORRIS** will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY, March 31, at half-past 12 o'clock precisely**, 300 lots of ORCHIDS in FLOWER from various well known collections, including Cattleya Trianae, fine dark lip variety, with over 100 bulbs; Dendrobium Ainsworthii, on Falconer (rare), Oncidium Marshallianum, fine plant; Lælia anceps, splendid variety; Odontoglossum Ruckeraum, Dendrobium chrysotomum or suavisimum, grand mass, with 15 spikes; Odontoglossum Alexandræ, and Cattleya Trianae, many fine varieties, &c.  
On view morning of Sale, and Catalogues had.

## Wednesday Next.—To the Trade.

## 5000 LILIUM AURATUM.

**MESSRS. PROTHEROE and MORRIS** will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT, 5000 exceedingly fine BULBS**, just received from Japan.  
On view morning of Sale, and Catalogues had.

## Wednesday Next.

## LILIUM AURATUM, ROSES, and BULBS.

**MESSRS. PROTHEROE and MORRIS** will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT, April 1, at half-past 12 o'clock precisely**, 5000 very fine BULBS of LILIUM AURATUM, just received from Japan in splendid condition, and 30 lots of Japanese IRIS; a consignment of PANCRATIUM and AMARYLLIS from the West Indies, CAMELLIAS, AZALEAS, PALMS, and FICUS from Belgium; English-grown AZALEAS and LILY of the VALLEY, all in bloom, for Easter decoration; 1000 Standard and Dwarf ROSES from an English Nursery; 2000 Double African TUBEROSES, 2000 GLADIOLUS BRENCHELY-ENSIS, 2000 Berlin Crowns LILY of the VALLEY, and an assortment of Hardy LILIES and BULBS.  
On view morning of Sale, and Catalogues had.

## Odontoglossum Rossi majus.

**MESSRS. PROTHEROE and MORRIS** are instructed by Messrs. F. Horsman & Co. to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., the **SECOND WEEK IN APRIL**, an importation of ODONTOGLOSSUM ROSSI MAJUS. Messrs. Fred. Horsman & Co. have at great expense succeeded in getting another importation of their superb strain (acknowledged to be the finest in Europe). All are in extra large masses.

## Ewell, Surrey.

Preliminary announcement of the Sale of the celebrated Garbrand Hall COLLECTION of EXHIBITION PLANTS, which have won such high honours at the leading shows.

**MESSRS. PROTHEROE and MORRIS** are favoured with instructions to SELL by AUCTION, on the Premises, as above, on **WEDNESDAY, April 22, at 11 for 12 o'clock precisely**, this unrivalled Collection of Exhibition Stove and Greenhouse Plants, which are all to the most perfect health.

Also a small but very valuable COLLECTION of ESTABLISHED ORCHIDS, amongst which will be found some specimens which are perfectly unique. More detailed particulars will appear next week. No plants will be sold prior to the Auction.

## 67 and 68, Cheapside, E.C.

## Osborn's Nursery, Sunbury.

## Comprising 17 Acres of Land and several Greenhouses.

**MESSRS. PROTHEROE and MORRIS** beg to announce that they have now DISPOSED of the FREEHOLD of this Property, with the Glass Erections and Stock, all in one lot.

## Choice Established Orchids.

**MR. J. C. STEVENS** has received instructions from Mr. H. James, in consequence of his large boiler giving out, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY, April 1, at half-past 12 o'clock precisely**, almost without reserve, a fine collection of ESTABLISHED ORCHIDS, including, amongst many other fine things:—

Aërides Larpentæ, fourteen leaves	Dendrobium roseum	Aisoworthii
" suavisimum, thirty leaves	Oncidium zebrium	
Angræcum sesquipedale	Odontoglossum pardinum	
Dendrobium Ainsworthii	Cattleya Warscewiczii delicata	
" nobile nobiliss	Masdevallia tovarensis, seventy leaves	
Aërides Medellii, fourteen leaves	" Chelsoni, sixty leaves	
Phaius tuberculatus	Cypripedium hirsutissimum	
Cattleya Mendelii Selbornensis	Dendrobium Pierardi giganteum	
" Mossiæ alba	Lycaste Lawrencei (scarce)	
Miltonia bicolor	Schomburgkia tibiciana	
Oncidium lameligerum	Phalenopsis Luddemanniana	
Cypripedium cordatum roseum	Sobralia macroantha	
Disa grandiflora, fine health	Masdevallia trochilus, twenty leaves	
Grammatophyllum Ellisi	Cymbidium giganteum	
Cattleya Trianae Jamesianum	Cypripedium grandis, &c.	

## On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6886.)

## 5000 LILIUM AURATUM, &amp;c.

**MR. J. C. STEVENS** will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT, April 2, a consignment of 5000 LILIUM AURATUM, and 200 LILIUM LANCIFOLIUM (SPECIOSUM)**, just received from Japan; also a few Home-grown LILIES, FREESIAS, DISAS, and other Hardy ROOTS, from the New Plant and Bulb Company.  
On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6886.)

## ESTABLISHED ORCHIDS.

**MR. J. C. STEVENS** will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT, April 2, about 50 lots of good ESTABLISHED ORCHIDS**, including many fine things.

On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6886.)

## VALUABLE IMPORTED ORCHIDS.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on **THURSDAY NEXT, April 2, at half-past 12 o'clock precisely**, grand importations of CATTLEYA MOSSIÆ, and other ORCHIDS, in fine condition.

On view morning of Sale, and Catalogues had.

## Market Gardeners or Retired Farmers.

**TO LET, or to be SOLD, compact and small** ESTATE, at Bracebridge, about a mile from Lincoln, consisting of House, Garden, Barn, Cowsheds, Stable, &c., and 10 Acres of fertile Land.  
**SMYTH BROTHERS**, New Exchange Chambers, Lincoln.

## To Florists, Market Gardeners and Others.

**TO LET, at Fulham, S.W., 1½ Acre of GARDEN GROUND** with Ten Glass-houses suitable for the Business of a Florist or Seedsman.  
For particulars apply to Messrs ROSE and JOHNSON, 25, Great George Street, Westminster, S.W., Solicitors.

**TO LET, from March 25 next, THE NURSERY**, Mill Hill, near Hendon, Middlesex, late in the occupation of Mr. James Wright. There is a fair amount of Stock, &c., which would be offered on easy terms to a respectable Tenant. There is a cottage and about 5 Acres of Land. Application for terms, &c., to be made to **C. DRUMMOND**, Estate Agent, Hertford, Herts.

## Proposed Gardeners' and Foresters'

## BENEVOLENT INSTITUTION for SCOTLAND.

At a Meeting of the Scottish Horticultural Association, held at Edinburgh, on the 6th of February, it was Proposed by Mr. JOHN DOWDIE, and Seconded by Mr. JOHN METHVEN, and unanimously agreed to, that an endeavour should be made to start such an Institution. Gardeners' and Foresters' opinions for or against the above are solicited.—(Signed) **JOHN DOWDIE, JOHN METHVEN.**

**THE GATESHEAD PARK COMMITTEE** invite TENDERS for the ERECTION of a CONSERVATORY and PROPAGATING HOUSE in Saltwell Park.

Persons tendering are expected to furnish their own Designs, which must include the means of Heating and all other details. The Conservatory will front the West, on a nearly level frontage, and to the South on a slight inclination. A Plan showing the proposed site, with particulars as to level and inclination of ground, will be furnished on application to the TOWN SURVEYOR, Town Hall, Gateshead. Tenderers must be sent to the Town Clerk not later than APRIL 24. The Town Council do not bind themselves to accept the lowest or any tender, or will they pay any expenses which any person tendering may incur in the preparation of his design.—By order, **J. W. SWINBURNE**, Town Clerk.

**T. HARPHAM, PRACTICAL ROCK BUILDER and GENERAL HORTICULTURAL DECORATOR** (for many years leading head with Dick Raddcliffe & Co., London), 107, Church Street, Edgware Road, London, W.

**JOHN KENNARD'S HORTICULTURAL** Sundries, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

## To Landed Proprietors, &amp;c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS. Plans prepared. 115, Listria Park, Stamford Hill, N.

**PROTHEROE and MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS**, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

**EIGHTY THOUSAND CLEMATIS** in Pots, of all the finest double and single varieties (some of the flowers of which become to inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 1/2s. to 2/4s. per dozen, strong plants. Descriptive LIST on application.

**RICHARD SMITH and CO.**, Nurserymen and Seed Merchants, Worcester.

## Flowering Plants.

**HUGH LOW and CO.** offer, of fine quality:—

**AZALEA**, single White.  
" **MADAME VAN DER CRYSEN**, semi-double Rose.  
" **INDICA**, in variety, three sizes.  
**DEUTZIA GRACILIS**.  
**EPACRIS**, in variety.  
**ERICA MELANTHERA**, E. CANDIDISSIMA, E. PER-  
**GENISTAS**.  
**LAURUSTINUS**, French White.  
Clapton Nursery, London, E.

**LILIUM AURATUM**.—Special Offer.—Now is the best time to plant. Splendid firm sound bulbs, just arrived, 6 to 8 and 8 to 10 inches in circumference, 28s. and 35s. per 100, 4s. and 6s. per dozen. The cheapest for quality ever offered. Samples 12 stamps.

**SEED POTATOS**.—For Special Prices see former advertisements.

**MORLE and CO.**, 1 and 2, and 162, Fenchurch Street, E.C.

**YENARCISSUS or DAFFODIL**, containing its History, Poetry, and Culture, with Notes on Hybridisation, and Illustrated with many Woodcuts. Price 1s. **BARR and SON**, King Street, Covent Garden, W.C.

## NEW ROSES of 1885.

The whole of those raised in England, including:—  
**Mrs. CAROLINE SWALES** (H.P.),  
**ELLA GORDON** (H.P.),  
**BEDFORD BELLE** (Hybrid Tea);  
And all the best of those raised abroad, including:—  
**GLOIRE LYONNAISE** (the yellow H.P.),  
**ETENDARD DE LYON** (H.P.),  
**SOUVENIR DE MAD. GABRIEL DREVET** (Tea);  
can now be supplied in very fine plants, fit for immediate working or for summer budding.  
CATALOGUES, giving raisers' descriptions of each variety, post-free on application to  
**KEYNES, WILLIAMS and CO.**, Salisbury.

## Cheap Plants.—Special Offer.

**WILLIAM BADMAN** offers as under from store pots, all healthy, well-rooted, and fit for present potting:—

**TRICOLORS**.—Mrs. Pollock, one of the best, 2s. per dozen, 15s. per 100; Lady Cullum, S. Dumaresque, Sir R. Napier, 2s. 6d. per dozen, 18s. per 100. Twelve choice varieties Tricolors, for 5s.  
**SILVERS**.—May Queen (Turner's), Flower of Spring, Prince Silverwings, Little Toot and Bijou, 2s. per doz., 10s. per 100.  
**GOLD LIPS**.—Crystal Palace Gem, 2s. per dozen, 10s. per 100; Happy Thought, 2s. 6d. per dozen.  
**BRONZE**.—McMahon, Black Douglas, Cast (best bedders), 2s. per dozen, 15s. per 100.  
**SCARLET**.—Vesuvius, Jean Sisley, Col. Seely, 1s. 6d. per dozen, 8s. per 100.  
**PINK**.—Master Christine, Mrs. Levers (fine), 1s. 6d. per dozen, 10s. per 100.  
**WHITE**.—Madame Vaucher and Virgo Marie, 1s. 6d. per dozen, 10s. per 100.  
**CRIMSON**.—Henry Jacoby, 2s. per dozen, 15s. per 100; Waltham Seedling, 1s. 6d. per dozen, 8s. per 100.  
**LOBELIA**.—Brighton, Blue Stone, Puntia magnifica, 3s. per 100, 20s. per 1000.  
**HELIOTROPE**.—Jean d'Amour, Miss Nightingale and Light, 6. per 100.  
**AGERATUM**.—Imperial Dwarf Blue, 5s. per 100, 40s. per 1000.  
**CALCEOLARIA**.—Golden Gem and Dark Camden Hero, 5s. per 100, 40s. per 1000.  
**COLEUS** Verschaffelti and IRESINE Lindenii, 5s. per 100.  
**TROPÆOLUM**.—Vesuvius, dwarf, good bedded, 8s. per 100.  
**PELAGONIUMS**.—Show and Fancy, in single pots, 3s. per dozen, 20s. per 100.

## Packing included. Terms Cash.

## Cemetery Nursery, Gravesend.

## Hollyhocks.—Hollyhocks.

**CATALOGUE** containing a splendid collection of finest named Hollyhocks, all fully described and priced, also probably the largest, most select, and best collections of all other Florists' Flowers, Perennials, &c., ever brought together, is now ready, and will be posted on application. It consists of eighty pages of closely printed matter, and forms a very handy reference book on flowers, which should be in the hands of all who cultivate a Garden or Greenhouse.  
**JOHN FORBES**, Nurseryman, Hawick, N.B.

## SPECIAL OFFER.

**ASPARAGUS ROOTS**, strong, two years in drills, 1s. 6d. per 100, 10s. per 1000.  
**CURRANTS**, white, strong, 8s. per 100, 6s. per 1000.  
**BROOM**, common, one year in drills, 2s. 6d. per 1000.  
**GORSE** or **FURZE**, common, 1-yr., 2s. 6d. per 1000.  
2-yr., 4s. per 1000.  
**CABBAGE PLANTS**, Drumhead Ox, 2s. 6d. per 1000.  
**THOMAS PERKINS and SONS**, 24, Drapery, Northampton.

## Special Offer for Cash.

**JOHN STANDISH and CO.** beg to offer the under-mentioned finely grown and well-rooted shrubs:—  
**LAUREL**, caucasicum, 2 to 2½ feet, 30s. per 100.  
Common, 2 to 2½ feet, 20s. per 100.  
**HULLY**, Common, 2 to 2½ feet, 42s. per 100.  
Golden and Silver, 2 to 2½ feet, 30s. per dozen.  
**PRIVET**, Oval leaved, 2 to 3 feet, 7s. 6d. per 100.  
**BERBERIS DARWINII**, 2 to 2½ feet, 25s. per 100.  
**YEW**, English, 2 to 2½ feet, 50s. per 100.  
**AUCUBA**, Green, 2 to 2½ feet, 63s. per 100.  
**LINES**, Standard, stout, 5 to 7 feet stems, 18s. per dozen.  
**SPRUCE**, fine stout stuff, 2 to 3 feet, 40s. per 100.  
Royal Nurseries, Ascot.

## GUINEA BOX of SPECIALITIES.

We again offer a choice Collection of CARNATIONS and other POPULAR PLANTS, package and carriage free, for One Guinea, consisting of Six Pairs each choice Show Carnations, Picotee, and Pinks to name; twelve true old Crimson Cloves, twelve border Carnations, twelve Pyrethrum, double, named; twelve Show and Fancy Dahlias (dry roots). Half the above, 11s.

## ISAAC BRUNNING and CO., Great Varmouth Nurseries.

## NEW RUNNER BEAN.—GIRTFORD

**GIANT (Laxton)**.—The finest and most prolific Scarlet Runner, has secured the highest ecomiums and awards during the past season, including a special First-class Certificate at Shrewsbury. Should be grown by all Exhibitors, Gardeners, and Market Growers. A true selected stock of 1884, in my own sealed packets, 2s. 6d. per half pint.

## T. LAXTON. Seed Grower, Bedford.

## ANTHONY WATERER

has to offer:—  
**BIRCH**, 3, 4 and 5 feet.  
**SPRUCE**, 2½, 3, 4, and 5 feet.  
**LARCH**, 4 to 6 feet.  
All stout and well rooted.

**ANTHONY WATERER**, Knap Hill Nursery, Woking, Surrey.

## Seed Potatos.

**JOSIAH H. BATH**,  
York Street, Borough Market, S.E.,  
Offers the following varieties of SEED POTATOS:—

Rivers' Royal Ashleaf.	Fortyfold.
Myatt's Prolific Ashleaf.	Scotch Regent.
White Elephant.	York Regent.
Beauty of Hebron.	Paterson's Victoria.
Snowflake.	Redskin Flourball.
Schoolmaster.	Reading Hero.
Early Rose.	Dalmahoy.
Magnum Bonum.	Early Don.

And other leading varieties. Prices on application.

## FOR SALE, a large LATANIA BOR-

BONICA, in Tub, too large for the conservatory of present owner. Address

**GARDENER**, Clark's Library, 2, Coleherne Terrace, Earl's Court, S.W.



**CHRYSANTHEMUMS.**—Specialty. — 420 varieties, guaranteed true to name. One of the largest and cheapest Collections in the Trade. Plants, purchaser's selection, 2s. 6d. per dozen, 16s. per 100; cuttings, 1s. 6d. per dozen, 10s. per 100; W. E.'s selection, cheaper. For the new English and Cotoontal varieties see CATALOGUE, with Essay on Cultivation, one stamp.  
W. ETHERINGTON, The Manor House, Swanscombe, Kent.

#### New Kidney Potato.

**BIRD'S DOCTOR BOB.**—This is the earliest Kidney variety in existence; a very heavy cropper, as many as sixty tubers of all sizes have been counted at a root. It is a seedling from Early King. After a trial of several years it has never taken disease. Eyes very shallow; a good cooker, and fine flavour. 5s. per stone.  
JAMES BIRD, American Nurseries, Downham Market.

#### Forcing Asparagus.

**R. AND G. NEAL** beg to offer the above by the hundred or thousand (own growth, and transplanted last spring). Samples with Price on application. Also beg to call the attention of Nurserymen, Builders, and others to their exceptionally fine stock of **FRUIT, FOREST, and ORNAMENTAL TREES and SHRUBS.**  
The Nurseries, Wandsworth Common, S.W.

#### CARNATIONS, PICOTEES, and PINKS.

—Having a large stock of strong, finely rooted plants of the above, we beg to offer them at the following low prices:—Choice Show **CARNATIONS** and **PICOTEES**, in name, our selection, 12s. per dozen pairs; purchaser's selection, 15s. to 18s. ditto. **PINKS**, Show varieties, our selection, 4s. 6d. to 6s. per dozen pairs. Old Crimson **CLOVES** (True), 3s. per dozen. Mixed **CARNATIONS**, for borders, 3s. per dozen. **PYRETHRUMS**, choice Double varieties, 3s. per dozen. Carriage and package free for cash with order.  
ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

**SAMUEL SHEPPERSON, FLORIST and SEEDSMAN**, Prospect House, Belper, Derbyshire, begs to inform the readers of the *Gardeners' Chronicle* that he is prepared to execute orders for the following plants, all of which have been grown on the Derbyshire hills, and are very hardy and strong stocky plants, and sure to succeed well. They are of the very finest strains that money can buy. They are carriage free for cash with order.  
Descriptive CATALOGUE of Florists' Flowers free.  
Established 26 years.

**PANSIES a SPECIALTY.**—Probably the best collection in England. The cream only of the most noted raisers. The latest new sorts, and the winners at all the great shows. Good plants, correctly named, Show or Fancy, 12 for 3s.; 25 for 5s. 6d.; 100 varieties for 25s. Postal Orders.

**BEAUTIFUL WHITE POLYANTHUS.**—Strong Plants, full of Bloom-buds, 12 for 1s. 6d., 8 for 1s.

**CARNATIONS, PICOTEES, and CLOVES.**—Yellow, Pink, Scarlet, Dark Red, Pure White, &c., beautifully striped, Spotted, and Selfs, 12 named varieties, all strong layers, for 4s.

**CANTERBURY BELLS.**—Unrivalled Collection, grand new Colours, Double and Single Telescopes, Candelabra, and other new forms, 12 for 1s.; 12 extra strong for 1s. 6d. Postal Orders.

**CARNATIONS and PICOTEES.**—The new French Perpetual, a really grand new strain, most beautiful colours, twelve varieties, strong plants, to bloom well, for 2s., 6 for 1s. 2d.; 12 extra strong for 2s. 6d.

**AURICULAS (Alpines).**—Fine large Trusses and Blooms, most beautiful colours, strong plants, to bloom well, 12 for 2s.; 12 extra strong for 3s. Postal Orders.

**AURICULAS.**—The old-fashioned Single Yellow. Most deliciously scented. Soon bloom. 12 strong plants for 2s. 6d., 6 for 1s. 6d.

**POLYANTHUS.**—The finest strain grown; fine large Trusses and Blooms, and splendid Colours. 12 for 1s., 25 for 1s. 6d.

**BEAUTIFUL PURE WHITE GARDEN PINKS**, deliciously Scented.—Good strong Plants, to bloom well, 12 for 1s.; 25 for 1s. 6d.

**CARNATION.**—The new German Scarlet Grenadio, a really fine decorative variety, early and free bloomer. Twelve strong plants, to bloom well, for 2s., 6 for 1s. 2d.; 12 extra strong for 2s. 6d.

**HOLLYHOCKS** of Chater's very finest and most select strain, 12 varieties for 2s. 6d.; 6 for 1s. 6d.; 6 extra strong for 2s. Postal Order.

**DAISIES.**—A fine Collection, three plants each of six distinct sorts, named, for 1s.; Earl of Beaconsfield, the grand New Scotch Dark Daisy, 2 for 1s.

**CARNATIONS and PICOTEES (Seedling)**, from Carter's celebrated strain. All Colours. Strong plants, to bloom, 12 for 1s. 2d., 24 for 2s., 12 extra strong for 1s. 6d.

**FOXGLOVES**, Dean's grand new spotted varieties, very fine, 12 for 1s. 2d.; 12 extra, 2s. **FOXGLOVES**, Dean's new Golden, very extra, 12 for 2s.

**WALLFLOWERS.**—The Covent Garden Dark, the Double German Dark, Cloth of Gold, all fine stocky plants, 12 for 1s.

**STRAWBERRY PLANTS**, all Selected.—Crowns, transplanted, warranted to Fruit well this Year; Black Prince Improved, as early, as prolific, and much larger than the old sort; Brown's Wonder, Alpha, Keens' Seedling, Exquisite, Early Crimson, Fine, and others, 100 for 3s.

**CELERY, FISHER'S No. 1.**—New Pink. Warranted the largest, earliest, and best-flavoured Celery grown. Seed Packets, 1s.  
**SAMUEL SHEPPERSON, Florist and Seedsman**, Prospect House, Belper.

## EXTRACTS

from our Seed Catalogue of

# FLORAL GEMS

#### ANARRHINUM BELLIDIFOLIUM.

A rare and beautiful Biennial, which though allied to the Antirrhinum, differs nevertheless in its formation of bloom from that family. Grows 1½ foot high, and produces, June to August, most lovely blue flowers. . . . It is perfectly hardy, and may thus be sown in the open border, greatly delighting in a sandy loam. Price 6d. and 1s. per packet.

#### ANGELONIA GRANDIFLORA.

A most lovely and sweet-scented Greenhouse Annual, producing fine spikes of beautiful blue flowers. Can highly recommend this to any amateur wanting an uncommon, pretty, and easily grown pot plant. Price per packet, 3d. and 6d.

#### ANTIRRHINUM ("SNAPDRAGON").

##### Magnificent Strain.

The mixture we offer has been procured from three of the finest strains in the world, and which we have thoroughly mixed; our patrons may therefore depend upon receiving a strain such as cannot be equalled. Price per packet, 1s. 6d. and 2s. 6d.

#### ASTER TENELLUS.

This is a beautiful Biennial, and blooms in August, when it presents one dense mass of lovely blue flowers; is a splendid pot plant for greenhouse, or may be planted outdoors on a warm sunny border. Price per packet, 6d. or 1s.

#### CHRYSANTHEMUM, POMPONE.

We can now offer seed at 1s. and 2s. 6d. per packet.

#### CLEMATIS GRAVEOLENS.

A half-hardy Clematis, bearing yellow flowers, and thus contrasting most effectively with other well-known varieties. Price per packet, 1s. and 2s. 6d.

#### CONVOLVULUS MINOR, "ROSE QUEEN"

This is unquestionably a most valuable acquisition to the Annual family, being of a most enchanting soft rosy-blush, whilst each plant is smothered with bloom. Certain to create a grand impression. Price, per packet, 6d. and 1s.

#### CONVALLARIA MAJALIS,

##### "LILY OF THE VALLEY."

We can offer seed of the well-known "Lily of the Valley," Price, per packet, 3d. and 6d.

#### FORGET-ME-NOT, "PIGMY BEDDER."

If any one requires a cheap, effective, and uncommon blue edging, obtain a packet of this plant out with other bedding plants, when we can vouch that, if well grown, all visitors will say that it puts all other Myosotis or Lobelia completely into the shade. Unlike the other known varieties this new species now offered presents no straggling appearance but one line of unbroken blue. Supply limited. Price, per packet, 1s. 6d. and 2s. 6d.

#### IPOMOPSIS ELEGANS.

As the name implies (*Ipo* to strike forcibly, and *opsis* sight) this splendid biennial is extremely effective when well grown. If grown in pots, well crooked, watered carefully, and kept in any airy situation next the glass the amateur will find his labours amply repaid by an uncommon effective flower. Our collection comprises an assortment of various colours, and will produce hues of from rose, canary, yellow to dazzling scarlet. Price, per packet, 6d. and 1s.

#### MISTLETO.

It is not generally known that Mistletoe may be easily grown by rubbing the viscous seed upon the young wood of any Apple, Thorn, &c., tree, when the wood is not too hard. Many growers where the wood is hard cut off a little of the outer bark. Dust a little fine earth over to keep from view of birds. Price, per packet, 6d. and 1s.

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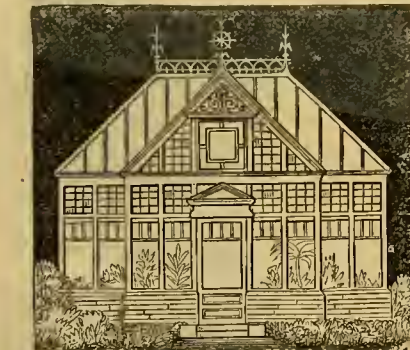
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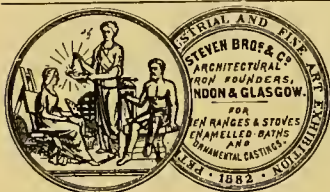
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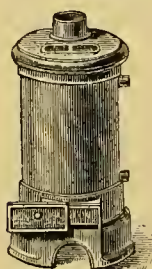


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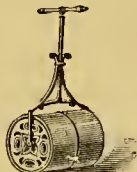
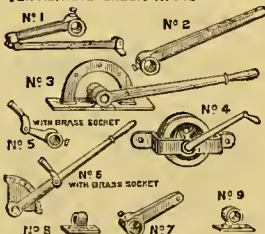
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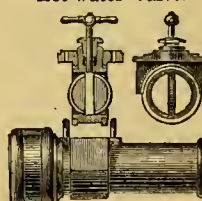
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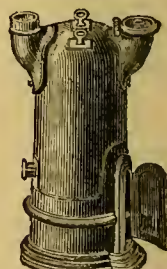
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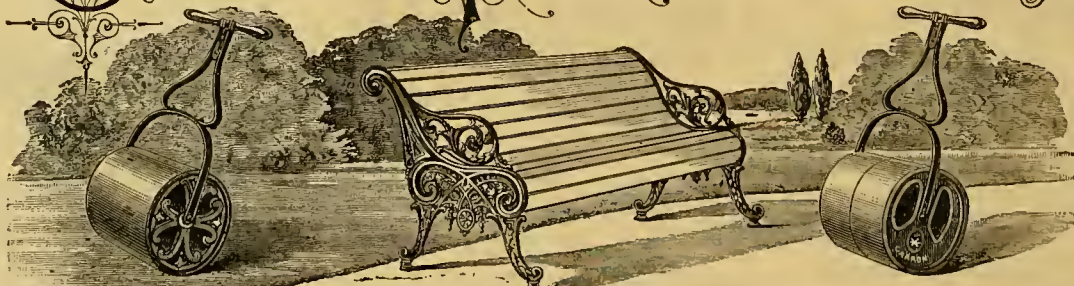


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# THE

# Gardeners' Chronicle.

SATURDAY, MARCH 28, 1885.

## BADMINTON.

BADMINTON is best known, perhaps, from its sporting associations, and comparatively few of your readers will know it as having a long and famous horticultural history. Bradley, in his quaint treatise, published in 1721, says, talking of "curious gardens of particulars," that "the chief in England are those at Badminton." This was in the days of the third Duchess, who was known and respected throughout the realm for her love of gardening and botany. Originally the grounds were laid out in the style fashionable in the days of William III. From the remnants left, a tolerably accurate picture can be formed of the manner in which the house was surrounded with labyrinths, mazes, hedges, and other forms in Yew and Box.

The kitchen garden was then at a considerable distance from the house, on the eastern side, and the site is known to this day as the "old fruit garden." Between the two was a long chain of flower garden and lawn, conceived in the ancient Dutch mode. The fifth Duke, with an animosity worthy of a Jacobite, changed the site of the kitchen garden to one nearer the house on the west side, and gradually swept away the intervening pleasure ground. About 1829 Capability Brown appeared on the scene. But, *grace à Dieu*, Badminton was a place he could only partially mar, not spoil. For the vast old timbered park around can boast the same motto as its ducal owner, *Mutare vel timere sperno*. Query—Was the first greenhouse in this country erected at Badminton?

Badminton has not been the home of the Beauforts since the Conquest, for they only came here after the levelling to the ground of the greater part of their massive castle of Raglan. Erudite John Timbs has a very interesting account of their "fair and pleasant castel, yn middle Venseland," and of its siege by Fairfax. It was beleaguered in 1646. The Marquis of Worcester, a hoary warrior of eighty-five, when bid to surrender, "made choice (if it soe pleased God) rather to die nobly than to live with infamy." However, after a siege of seventy-seven days, he capitulated on very favourable terms, which terms were kept by the Roundheads with Punic faith, for he was arrested and put into prison. In confinement his health gave way. Just before his death—only a year after the gallant defence of Raglan Castle—he was informed that permission would be given for his body to be interred in Windsor Castle, whereat the brave old man exclaimed, "Why—God bless us all!—why then I shall have a better castle when I am dead than they took from me whilst I was alive." His descendants have certainly lost nothing by the exchange, for the truly ducal mansion, which they now inhabit, has so few equals. that an exchange would be almost out of the question. The Earl of Worcester is a famous title, for besides the inventor of the steam-engine, there is Caxton's pattern for humanity, John Tiptoft.



The house is situated 9 miles from any railway station in the very south of Gloucestershire. The nearest town is Chipping Sodbury, a cleanly old market town, but sleepy. The walk from it to Badminton is across some outlying undulations of the Cotswolds, where the memory of bygone days is renewed by the sight of oxen between the shafts. This route brings the visitor to the foot of a long avenue pointing towards Bath, 14 miles away. At first it is but an avenue of comparatively young and bushy Elms and Hollies, with fields beyond. After passing the lodge it is a drive through Beech woods, rustling with a murmur like unto that of the sea. The road is good, but has no formal, carefully-brushed everyday appearance. Here and there are open spaces, and wherever practicable there is an undergrowth of Box, Laurel, Yew, and Barberry. The approaches on the other sides are through avenues of older trees, and then through park land, the one leading to the Worcester Lodge being 3 miles long.

The kitchen garden has a good aspect, and occupies a walled-in space of 11 acres. The walls are far higher than is usually the case, and a transverse one of the same stature arches over the broad central path. On both sides of this path is a well garnished herbaceous border, and over the arch is trained a flourishing Wistaria. Thus, the beautiful has a place as well as the useful. Every plot is as neat as a new pin, and the wall trees evidence the closest attention. The Apricots are fine healthy trees, and although thirty years' old look far younger than the trees in most gardens. The way these trees repay the constant and loving care bestowed upon them must be very satisfactory to Mr. Nash, the gardener. The soil in the garden is a rich and easily worked loam resting on an oolitic brash. When the trees do not succeed in cold clayey soils, as is usually the case, surely this delicious fruit is worth the trouble of having a special border formed for its roots. Constant feeding is injurious, and the mulchings should be spare. There is no reason why Apricots should not grown well in nearly every garden. And yet how many, with a spirit of *laissez-faire*, are content every year to saw out the cankered branches, and blame climate, soil, and position. Healthy trees with rational treatment, are within the bounds of possibility nearly everywhere. A west wall is devoted almost entirely to dessert Apples. By this means large yields of fine and handsome fruit have been obtained in years of scarcity. The Nonpareils, especially the old Scarlet, are admirably adapted for wall culture. The Orange Pippin, not Cox's, is a great favourite. The north walls are planted with Morellos, red and white Currants, Gooseberries, and the Diamond Plum. This latter, one of the best kitchen Plums in cultivation, has never failed to bear abundantly. Other sorts, suitable for a north aspect, are Deoniston's Superb, Guthrie's Late Green, Belle de Septembre, Gisborne's, Orleans, both the late and early, and Victoria. Although oftener met with in the older gardens, the public, thanks to the efforts of many of your correspondents, are quite awake to the advantages of growing Gooseberries and Currants on walls facing to the north. Among the Pears, Hacon's Incomparable, a Norfolk variety, which was raised near Downham Market, is planted to a large extent. It is not good in all soils, but where it is there are few, if any, varieties of better quality. November is the month of ripening, but it is a fairly good keeper. The fruit, moreover, ripens gradually without rotting at the core, and can be obtained till near the end of December.

All vegetable produce is well grown here. The whole *tout ensemble*, with its 18 feet walls and spic-and-span appearance, conveys to the senses the delight experienced at the sight of thorough and substantial work. The herbaceous border was mentioned above. The flowers in it are chiefly the old garden favourites, including the cherished Lilies. The variegated Comfrey is by no means to be despised by its neighbours, and contrasts well with the spiny Eryngiums.

The glasshouses are nearly all old structures, and the Vines from which Mr. Nash has cut so many prize bunches are forty-five years old. One vinery, with a height of 12 feet, has the disproportionate breadth of 24. The Vines have been planted close

together so that the laterals are short, but the long reach of rod counterbalances. The late varieties are very well grown, and although this year, owing to their having had their roots lifted, they are not up to their usual standard, yet Badminton Grapes are too well known in the "west country" to need any bush.

On the west and north sides of the garden is a drive called "the Verge," through alternate lawn and woodland; by its side, too, are numerous specimen Conifers. The intervening space between the house and the garden is turned to practical purposes. Near the kennels, which are situated in this part, are some huge Elms, one 30 feet round 3 feet up the bole. Lower down, nearer the public road, are some tall Yews, relics of the old order of things.

Notwithstanding its great size and its pilasters with Corinthian capitals, the mansion looks homely. The south front is very pretty; close up to the windows is an old Cedar of Lebanon, with a tall Tulip tree for neighbour, standing on the broad walk: facing it, you have the village church and its Ivy-grown tower, which is contiguous to the mansion. Hard by is the comely village of Badminton, with the old hostelry so well known to hunting men.

The west front faces a pleasure-ground of 16 acres, where are some fine old Chestnuts, and between them in the distance glistens Alderton spire. There is a flower garden on this side of the house, terminated on one side by a stone conservatory of the same architecture as the house, and on the other, the north end, by an octagon library.

The north front looks towards a goodly park, which is apparently boundless. In front of the entrance-hall is a large gravel space, large enough for two or three packs of hounds to meet on. It is surrounded by stone posts, through which are passed chains. Some little distance up the park is a small lake, and the broad Worcester avenue of Beeches and Elms.

A cosy part of the pleasure-grounds is the "Old Orange Garden." It is of the Italian pattern. The orangery, not used now for its original purpose, for the trees have been done away with, is covered with Wistarias, Magnolias, and Jasmines. In the centre of the garden is a fine marble vase, supported by exquisitely carved lion claws. The inscription is as below:—

Franciscus.  
Zam Paleo N.V.S.  
Corigien  
MDLXXXV.

There is also a quaintly-shaped fountain. Around are some clipped Boxes, and near the centre two tall Salisburias, which harmonise very well with the scene. Strolling about this old-fashioned place was very pleasant, and I liked the gardener all the better for saying "New-fangled notions couldn't sit well here." C. A. M. Carmichael. [The reader may be reminded of an interesting catalogue of variegated plants drawn up in the 17th century, and presumably grown at Badminton. The paper is by Mr. Berkeley, and is contained in the *Journal of the Royal Horticultural Society*, 1866, p. 22. Ed.]

## New Garden Plants.

VANDA STANGEANA, Rehb. f.

I WAS much puzzled when I read of "a new Vanda" of Mr. Freeman's in one of Messrs. Stevens' catalogues of a Sanderian sale. At length the new Vanda is at hand. A fine inflorescence was kindly given me by Sir Trevor Lawrence, Bart., M.P., Pres. R.H.S., and a single flower and a leaf were sent to me by Mr. F. Sander.

The plant was published by me in Von Schlechtendal and Von Mohl's *Botanische Zeitung* as early as 1858, p. 351, and dedicated to Mr. Stange, now the well-known grower of *Disa grandiflora*, *Sarracenias*, *Darlingtonias*, *Cattleyas*, Ferns, &c., at Hamburg, at one time Consul Schiller's enthusiastic gardener. I gave, in 1862, in *Xenia*, ii., plate 102, and p. 8,

\* *Vanda Stangeana*, Rehb. f.—Affinis *Vandae* Roxburghii, R. Br., et *fuscorividi*, Lindl. Labelli auriculis semiovatis divergentibus, lamina a basi lata utrinque semicordata sensim attenuata apice leviter bilobula, callis geminis parvis ante calcaris ostium; sepalis dorsalibus tepalibus subaequalibus cuneato ovatis; sepalis lateralibus majoribus.—*Vanda Stangeana*, Rehb. f., in Schlecht., and Von Mohl's *Botanische Zeitung*, '88, p. 356; *Xenia Orchidacea*, ii., tab. 102, p. 8.

both a representation and a description. I feel now a little struck at the rather narrow leaves, which were taken from a sketch prepared by Mr. Stange, as is distinctly stated in the last line of p. 8.

The leaf actually at hand is broad (m. 0.03), rather thin for a Vanda, compared by some with the leaf of *Vanda coerulea*. The leaves in the late Consul Schiller's collection were unequally bilobed at the apex; the leaf now at hand has no apex. The lax inflorescence of four to five flowers is comparable to that of the blue *Vanda Roxburghii*. Sepals and petals inside at first greenish, afterwards ochre coloured, tessellate with dark purple-brown. Auricles of lip blunt, white with yellow and some mauve-blue spots. Mid-lacinia cordate, triangular, emarginate at the apex, white with mauve-blue, or wholly mauve-blue. Two gibbosities project at the entrance in the hairless compresso-conical spurs. If one considers the destructive razzias of Mr. Freeman in Assam, an idea of the rarity of this species may be gained, since I have reason to believe there never were more than ten plants imported into England. H. G. Rehb. f.

EPIDENDRUM PSEUDEPIDENDRUM AURATUM,  
nov. var.

A fine variety, having only the disc of the semi-quadrifid lip crimson, the broad borders deep orange. Leaves as usual. There is mauve on the midline underneath, and some mauve on base above. It was kindly forwarded by Mr. W. Bull. H. G. Rehb. f.

## FILMY FERNS.

REFERRING to the article on this subject which appeared in your columns at p. 310, I must acknowledge that the benefit derived by these lovely plants through the very different and more rational treatment to which, for nearly twelve months, they have been subjected, is certainly a matter upon which all lovers of that most interesting class will join in bestowing high praise upon the Kew authorities. Every one interested in their culture will agree with "W. W." that the change has been marvellous, and certainly the greatest credit is due to the man who, during that time, has had them under his special care, for until lately, with the exception of the *Todeas*, which always were flourishing, the cultivation of nearly all kinds of New Zealand Filmy was a failure in our great national institution. In our opinion no better results could have been anticipated, unless it be, indeed, that the same alterations which have taken place in regard to their improved condition should have been arrived at under a perfectly cool treatment; for is it not somewhat misleading to apply that term to a culture where the winter temperature is kept at about 50°? "W. W." says that "some anxiety was felt for the success of the experiment;" but he need not have been so astonished at the results brought on the condition of the Kew plants through the great change in their culture, which alteration was, if I surmise aright, mainly due to the repeated advice of Mr. Cooper Forster, our best authority on the subject, who himself thinks it as unreasonable to expect those plants to thrive when subjected to great heat as it would be to see in a flourishing condition any shrub or flowering plant native from comparatively cold latitudes; for on the report of many conscientious travellers and plant collectors we know now that although some Filmy Ferns come from warm countries, they are, almost every one, found wild at high elevations, and the difficulty of introducing them alive into this country is principally owing to the certain amount of warm climate through which they have to pass before reaching our shores.

As Mr. Backhouse rightly says:—"The terms 'warm' and 'cool' treatment are too ambiguous unless the thermometric range is distinctly indicated, for one person calls 'cool' what another calls 'warm,' and *vice versa*." What is really meant by cool treatment is a temperature, keeping during the winter a little above freezing point, and as Mr. Cooper Forster's name has been prominently brought to notice in connection with this case, I may safely state that in his idea such treatment should be one in which the plants are kept quiet during the winter, and allowed to start of their own accord the following summer. It is the way in which for many years these plants have been treated in Upper Grosvenor Street, for it has often been my privilege to see in his unique Filmy Palace the thermometer as low as 34°. Yet all the species



which it contains enjoy luxuriant health, as may be attested by any visitor having a taste for, and possessing a certain knowledge of the subject, making a call at the above address. This extreme choice, and I may venture to say, matchless collection comprises fifty-nine species and varieties, so that it is not limited to New Zealand kinds alone. Far from it, for in company with the *Trichomanes radicans* and varieties, the *Hymenophyllum tunbridgense* and *H. Wilsoni*, all native from the British Isles, the numerous New Zealanders, one sees such reputed warm kinds as *Trichomanes maximum*, *auriculatum*, and *Lusch-nathiaum* in the most perfect condition; the latter not only thriving well but actually producing numberless fronds which in point of size greatly surpass even those previously grown in a warmer place. Now, that fernery is undoubtedly cool, as there are no means whatever of giving it any artificial heat, and it is situated at the back of the dwelling-house where there is no protection, and yet Tree Fern stems covered with a luxuriant vegetation of the lovely and most transparent Javanese *Trichomanes auriculatum* are there seen standing side by side with pieces of stone and pottery over which the numerous rhizomes of the Brazilian *T. Luschnathianum* form a most intricate network, and produce an abundance of beautiful fronds, some of which measure over 1 foot in length.

The extremely pretty *Hymenophyllum cruentum* and *H. pectinatum*, both of Chilian origin; the equally attractive little Japanese *Trichomanes parvulum*, the grand Brazilian *H. Forsterianum*, undoubtedly the finest of all the known *Hymenophyllums* in cultivation; the hairy *H. hirtellum* and *hirsutum*, both from the West Indies; the delicate *Trichomanes trichodeum*, also from the same habitat; the almost unique *T. Bauerianum*, from Norfolk Island; the equally rare *H. valvatum*, and several other rare kinds, are in Mr. Cooper Forster's collection as so many vegetable gems, delighting in the companionship of the New Zealand sorts, such specimens of which do not exist anywhere in cultivation. Take, for instance, the rare and beautiful *Hymenophyllum pulcherrimum*, which is there represented by several plants growing in hanging baskets and brackets (an entirely novel way of making use of Filmy Ferns, and one which originated with the fortunate possessor of this splendid collection), some of their lovely, delicate, and gracefully pendulous fronds measuring over 23 inches in length; the enormous specimen of *Trichomanes reniforme*, with its fronds counted by hundreds, and all in the grandest possible health. Besides the above enumerated we also notice masses of *Hymenophyllum æruginosum*, *caudiculatum*, *crispatum*, *dilatatum*, and *scabrum*; *Trichomanes angustatum*, *bilobiatum*, *mei-folium*, which, although still very scarce in private collections and conspicuous by their absence even in the Kew establishment, are all subjected to one common treatment and deprived of all artificial heat.

Thus we have the "cool" treatment system originating at Upper Grosvenor Street, and not as erroneously, though no doubt unintentionally stated by "W. W." at the York Nurseries. "Render unto Caesar the things which are Caesar's" is a maxim most appropriate to this particular case, and while we are all so much indebted to Mr. Backhouse for first bringing Filmy Ferns into notice, and attempting to render them popular, it is only fair to acknowledge the right of priority belonging to Mr. Cooper Forster for advising others and himself practising the "cool" or unheated treatment of these pet plants. S.

## ORCHIDS AT ROSEFIELD, SEVENOAKS.

THE collection of Orchids here is of recent formation, and consists chiefly of such kinds as thrive in cool and intermediate temperatures. In the selection of kinds Mr. De Barry Crawshaw seems to have steered clear of the mistake that so many beginners in the cultivation of these plants fall into of buying all plants that are met with—a course which soon crowds the houses with plants of little beauty horticulturally, and entails a process of weeding out which is neither agreeable nor profitable. The Cattleyas and their near allies, the *Lælias*, are the leading feature in the collection; they occupy a roomy curvilinear-roofed house standing east and west, the internal arrangements being conducive to the plants getting as much as possible of light and sun-heat. Their robust condition gives ample evidence of the

suitability of the treatment, in the unusually thick broad leaves, borne on stout bulbs, which have the appearance of having been formed in their native habitats, rather than under cultivation. All the leading Cattleyas are represented, the plants consisting of the finest forms of favourite species, and of imported plants, affording, as these last never fail to do, the pleasures of anticipation in a high degree, in marking the progress made till the open flower discloses a prize or a blank as the case may be. A number of the finest varieties of *Cattleya Trianae* were in flower, conspicuous amongst them being the variety *C. Trianae Rosæ*, a fine large flower with a splendid highly coloured lip; another, *C. Trianae Crawshayi*, a beautiful form of this favourite Cattleya, with broad petals and sepals, the soft tint of which affords a striking contrast to the intensely deep rich crimson lip and orange throat; *C. Trianae Dawsoni*, the true variety, was also in nice condition. Several other forms of this variable Cattleya, little inferior to those named, were likewise in bloom. These flowers were very different to the thin, washy coloured examples of this species that one used to meet when the over-heated, over-moist atmosphere it was generally subjected to obtained for it the character of being difficult to manage. A grand form of the fine Cattleya *Warszewiczii superbissima* was in bloom; it is the finest variety representing this species I have met with; the flowers are unusually large—8 inches across—with an immense broad open lip, the colour of which is of the most lovely shade of lilac. Of *C. Dowiana* there are a large number, some of which have been recently imported, and are making good progress. *C. gigas* in quantity flowers here as freely as *C. Mossiæ*; out of a dozen imported pieces four bloomed on the first growth they made. Of *C. Gaskelliana* one specimen was making a dozen strong growths, and numbers of other examples of this fine kind, somewhat smaller, but in equally satisfactory condition. Some of those imported last autumn have made growths as large as are often seen only in the second season. The fine dark variety of *C. Gaskelliana*, and the beautiful form of this species with white sepals and petals, both of which received Certificates from the Royal Horticultural Society last summer, are doing well—the last-named has now seven leads. *C. speciosissima Dawsoni*, with three leads, is very strong. *C. Eldorado* is in fine order, as likewise *C. Mendellii* and *C. Mossiæ*, both of which are still held in the estimation which their beautiful flowers and freedom of growth entitle them to. A grand lot of *C. Warneri* is in the best possible condition, the leaves which they bear are such as to give a forecast of the bloom that may be looked for after awhile. Most of these were imported in 1881. Some of the living roots which the plants had attached to them when they come over are still alive, showing for what a length of time they retain their vitality when the culture accords with their needs. One plant of *C. lobata* had nine strong leads. Amongst many other fine kinds was noticed *C. Mossiæ Marianæ*, a rare form, with pure white sepals and petals, in the way of *C. Reineckiana*, but paler in the lip.

In *Lælias* the collection is strong. Of *L. purpurata*, besides numerous large old established specimens, there are several that were imported last autumn and which deserve notice; one mass of 120 bulbs is coming away with twenty-eight leads; *L. Russeliana*, with six leads; of *L. elegans* in its different forms there are several specimens in vigorous condition.

A good many other Orchids are grown along with the Cattleyas, including the specimen of *Vanda suavis* from which the illustration that appeared in the March number for the present year of the *Orchid Album* was taken. The variety as there represented speaks for itself. *V. tricolor insignis* was in flower; *Trichopilia suavis* was coming on, with nine flower-spikes; *Epidendrum prismatocarpum*, with fourteen leads; *Saccolabium giganteum* illustre was nicely in flower. The treatment given to the Cattleyas does well for various *Dendrobiums*, including *D. suavisimum*, *D. chrysotoxum*, *D. Wardianum*, &c.

In another span-roofed house there is a nice collection of cool *Odontoglossums* and other plants that thrive with like treatment. Of these several fine varieties of *O. crispum* were in bloom with many others with their flowers in different stages, some with flowers heavily spotted, others devoid of marking. *O. Halli*, *O. triumphantis*, bearing a long four-branched spike; *O. hebraicum*, *O. grande*, which makes

sound fair-sized bulbs under the moderately cool temperature maintained; *Cattleya citrina* is quite at home, making good growth; also several *Oncidiums*, including *O. oriothorrhynchum*, *O. concolor*, and *O. leucochilum*, which, with many others, do much better in cool quarters than when subjected to a higher temperature. Mr. Crawshaw and his gardener both seem really fond of Orchids, and where this unison of feeling exists and their cultivation is intelligently carried out the result is generally seen in the progress which the plants make. *A Correspondent.*

## THE HARDINESS OF PLANTS.

THE accounts given in late issues of the advantages accruing from unheated Tea Rose houses, and also of the success attending the culture of Filmy Ferns at Kew under cooler treatment, is most significant, and touches closely upon a subject which has been a source of very great experimental interest to the writer during the last fifteen years, viz., the amount of success to be attained in glass structures which are practically unheated. By an unheated greenhouse is meant one in which there is no fixed apparatus of hot-water pipes, or flues or furnaces of any kind, but which may be so far heated by temporary devices as to exclude frost in severe weather. The subject is obviously one of great importance to the amateur, who, with limited means, both of money and labour, at his disposal, is yet desirous of keeping his greenhouse gay and in good order during the entire year. But, altogether apart from this aspect of the question, I venture to think that it also possesses some points of scientific interest. In the course of years instances of curious changes of habit and adaptation to circumstances have from time to time come under my notice, and it is certain that when a plant can thoroughly acclimatise itself to a lower temperature than is natural to it, it not uneldom gains in vigour and heartiness. Converse instances are also not unfrequent of thoroughly hardy plants luxuriating in the shelter afforded by glass and assuming a distinct character therefrom.

Ferns seem to be specially capable of such adaptation to cool treatment, as shown in the case of the Filmy at Kew. I have myself a plant of *Adiantum gracillimum* which bore two or three winters ago 6° of frost without injury. *A. cuneatum*, though apparently less hardy in constitution, will, under proper care, grow into fine specimens in a greenhouse from which frost is only just excluded, under which conditions it also attains the advantage of lasting much longer when cut for bouquets.

One of the most interesting of such cases, however, I met with last year in a species of *Æschynanthus* (probably *grandiflorus*, but of this I cannot at present speak positively), which bloomed throughout the summer in an unheated greenhouse, after having been wintered in a cold vinery, where a slow combustion stove—a most undesirable and clumsy mode of heating, by the way—was only occasionally lighted to keep out actual frost. On comparing the flower of this with that of *Æ. grandiflorus* grown in a hothouse, I could discover no structural distinction, though the apparent difference was great, but it was of a character quite compatible with difference of treatment. The individual flowers were the third of an inch shorter and slightly more slender, but the glowing scarlet of their colouring more than atoned for the reduction in size, and the healthiness of the dark green foliage left nothing to be desired. The plant was cut-in after flowering and has broken well, but as the temperature of the house in which it has wintered has several times fallen as low as 37°, I am curious to see whether it will bloom as abundantly this season. I believe the genus has hitherto been treated as tropical. Meanwhile, my plant seems to be in perfectly good condition. *Lasiandra macrantha* is another beautiful plant which I have found to be amenable to cool treatment requiring open-air quarters during June and July to ripen it for strong autumn blooming.

The whole system of hardy gardening under glass is distinct from ordinary warm greenhouse management, and runs parallel, as it were with hardy herbaceous gardening out-of-doors. It is especially suited to the amateur who does not disdain to give personal care and work to his plants; and to those who like to make a fair trial of this system of culture, I am persuaded that it will give a greater return of healthful interest and enjoyment than can possibly be attained in the enervating temperature of heated structures,



It will also be found that the flowering plants at command for the purpose are practically inexhaustible. *K. L. D.*

### THE EASTER LILY.

THIS, which appears to be only a form of *Lilium longiflorum*, has been cultivated in the Bermudas for a long while, though the date of its introduction to those islands is not known. Professor Sargent, to whom we are indebted for the photograph whence our illustration (fig. 72) was taken, tells us that it is grown in Bermuda in immense quantities for the New York Easter market. The buds are cut three or four days before their period of opening, packed in cotton wool,

### PINE-APPLE CULTURE IN MOSS AT FERRIÈRES.

PINE-APPLE culture has always been costly, and that has prevented its being as general as might have been hoped, considering the beauty and goodness of the fruit. The culture of this fruit has been necessarily confined to royal gardens such as Windsor, or to those of wealthy amateurs. Pine-apples require a great deal of top and bottom heat, hence an expenditure of a quantity of coke or coals; they require houses, manure, and a lot of peat, rather a long time is necessary to bring the fruit to perfection, but when once cut the plant is of no further use. For the last few years we have managed to replace peat to a cer-

tain extent by fermentation, hence it is necessary when planting with a thickness of 16 inches of moss not to put the whole of it on at once, as it might burn the roots; moss even without artificial heat attaining a temperature as high as 115° Fahr., while for the good of the Pines from 75° to 78° Fahr., at the greatest, is all that is wanted. It is absolutely necessary always to have in the moss or beds several thermometers, and to look at them often to make sure that the temperature is neither too high nor too low. We take our suckers in January, and let them dry for a fortnight before potting off, for if they were potted off at once the juice escaping from the wound might make them rot. Suckers are better for propagation than the crowns,

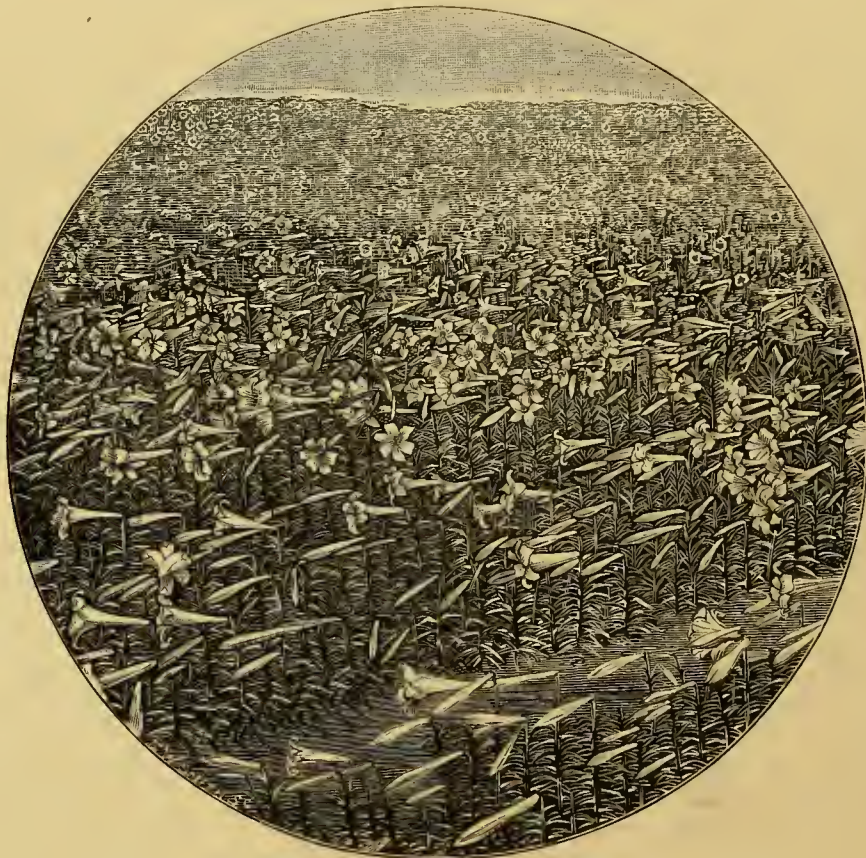


FIG. 72.—LILY CULTURE IN BERMUDA.

and sent by steamer to New York, where they are sold in the shops at a low price. The soil and climate of Bermuda seem admirably suited to this kind of Lily farming, and the crop is a valuable source of revenue to the islands. We would suggest to Mr. Dorrien Smith that it would be worth trying, as an experiment, in the Scilly Islands, though near London it is asserted not to do well out-of-doors.

¶ We first heard of this Lily in 1882 (see *Gardeners' Chronicle*, July 29, 1882); and later on Messrs. Watkins & Simpson favoured us with specimens of the flower, which showed it to be a very distinct form of *L. longiflorum*.

NEWCASTLE-ON-TYNE.—We hear that the Spring Show at this town will be held on April 15 and 16, and should be a good one if there are many exhibitors there of Mr. Watson's calibre.

tain extent by moss, thereby reducing the cost of planting out. The process of Pine-apple growing in moss consists in using that instead of peat whenever practicable. The best moss is that gathered on lawns with an iron rake. The remainder of the culture differs but little from that generally followed. With our culture in moss we have always succeeded well, our Pines varying in weight from 8 to 12 lb. Moss has the great advantage over peat of letting the heat through, which spreads evenly through all the mass of moss, up to the roots, which was not always the case with peat; this latter after being heated and watered for some time became a solid body and did not allow the heat to ascend through it. The moss can be roughly gathered and if some leaves, pieces of wood, or soil, are left in it, they do not interfere in the least with the result. Moss deve-

these last should only be employed for varieties giving few suckers, of which a number is wanted. The suckers when dry are potted into pots according to their various sizes with peat, they are then put into pits on a warm bed made of manure, and the pots are surrounded by a layer of moss instead of peat. After a short time the suckers will be well rooted. They are then planted out at the end of April, and left till October, when they are taken out, well shaken, and the roots cut back within an inch of the stock. They are then potted into what are called, in France, Belgian pots of 6 to 8 inches diameter. They are again put into a hotbed in moss till April of the following year. This is the time to plant in the house where they are to fruit. The cultivation of Pines planted out is only possible in houses with rows of hot-water pipes running under the stage, which latter is



made of tiles on T iron. These tiles are better than wood, as they do not rot; and if an inch is left between each tile the heat rises readily. A layer of crocks is then put on and peat on the top, so as to

where we formerly used six cartloads of peat, one is now quite sufficient, and the fruits are finer. After a certain time a new layer of moss of about 6 to 7 inches is added. Plenty of water is wanted during

about June or July, and ripen in December or January, that is to say, at a time when fruits in general are scarce, and, therefore, much in request. When once the fruit is cut, we think it best to keep



FIG. 73.—CONE OF *PINUS COULTERI* GROWN IN HERTFORDSHIRE. (SEE P. 415.)

form good drainage; then a layer of moss of 10 inches in thickness. The Pines are then planted with two shovelfuls of peat to each plant, and the moss is made firm round them. To give an idea of the saving of expenditure I may say that in one of our houses

the growing season, but when flowering or the fruit is ripening, syringing the crowns of the plants must be avoided, and moisture kept up in the houses only by watering the moss and on the pathways. Pines planted at the time mentioned above will flower

the plant which has suckers round it, and to shift it only when it is in the way of replanting the house; the suckers grow rapidly, and become strong much sooner after the fruit has been cut.

If Pines are wanted all the year round, and if only



one house is devoted to their culture, the planting can be done at three different times; one-third of the house is planted in February, another in March, and the last in June: in that way fruits can be gathered at all times. If Pines are wanted to bloom, so to speak, artificially, a great deal of heat must be given to them, and watering and syringing left off for fifteen or thirty days then start anew, it is almost certain that they will bloom.

The varieties we grow most successfully in moss are Smooth-leaved Cayenne and Charlotte Rothschild. We have grown many others amongst the old and newer kinds, but we always find these two the best. Amongst the varieties we keep in our collection, and which do well in pots, we may note the following:—Moscow Queen, medium size, very good; Ripley Queen, small, very sweet; Comte de Paris, big and good; Montserrat, medium, good; Providence, very big, not good in quality; Bracamorensis, enormous, not particularly good quality (see *Revue Horticole*, p. 336, 1880, where the description and culture of it is given); Lord Carrington, medium, very good, It is well to have in every collection, not for its fruits, but for the beauty of its foliage, *Anaëssa sativa variegata*, which looks remarkably well amongst the others, and the plant is useful for house and table decoration.

One of the essentials of Pine culture is to have the plants and fruits clean and healthy, so that a great deal of attention has to be paid to see that the plants do not get infested by insects. It is safest not to put any other plants into the Pine-houses, especially plants liable to have thrips, scale, and mealy-bug on them. *Ernest Bergman*.

## GARDEN PALMS.

(Continued from p. 338.)

*Chamaëdorea*, Willd.—About sixty species are included in this genus, of which the small genera *Nunnezharia* and *Morenia* now form a part. They are mostly erect slender-stemmed Palms, a few species, such as *C. Martiana*, being dwarf and more or less procumbent. The genus may be separated into three distinct groups by means of the foliar and stem characters. (1.) Stems erect, varying in height from 6 feet to 20 feet; annulated, crowned with a tuft of leaves, which are regularly pinnate, arching, the segments lanceolate and pointed, and varying in width from half an inch (*C. elegantissima*) to 4 inches (*C. Arenbergiana*). (2.) Stems erect, very tall and slender, and bearing a tuft of leaves at the top which are pinnate and plumose, as in *Cocos plumosa*. One of the finest of this group is *C. glaucifolia*, of which there is a specimen at Kew 20 feet high, the stem being no thicker than a walking stick. (3.) Stems erect and slender, and varying in height from 2 feet (*C. tenella* and *C. stolonifera*) to 12 feet or more (*C. Ernesti-Augusti*); leaves tufted near the top, from 9 inches to 3 feet long, the blade more or less cuneate, with a deep sinus dividing the blade into two pointed lobes, the margins of which are sometimes dentate. The stems of some members of this group usually develop roots several feet above the ground. A distinct species from any of the above, in that its stems sometimes grow to a length of about 60 feet (see plant at Kew) is *C. scandens*. In this the leaves hang downwards from the stem and are pinnate, the pinnae being broad and widely separated from each other.

All the cultivated *Chamaëdoreas* are remarkable for their free-flowering character, and in fact owing to their flowering at a very early stage some of them have been described as much dwarfer and smaller than they ultimately become. The spadices are graceful and ornamental, being either simple and erect, or freely branched and pendent. The flowers are generally very fragrant. Flowering as they do when quite young, and producing flowers which are both graceful and fragrant, the *Chamaëdoreas* may be recommended as flowering plants, a character very rare amongst Palms. *C. stolonifera* is remarkable for its habit of producing lateral stems or stolons from its lower joints, which stems grow down to and along the ground, where they emit roots, and the point then assumes an erect position, and forms a distinct plant. In this way a Bamboo-like tuft of stems is formed; *C. stolonifera* is the only known species with this habit. All the introduced *Chamaëdoreas* thrive best when grown in a very moist and shaded stove; in fact, they prefer more shade than almost any other

class of Palms. Their seeds germinate readily in a warm house; they are globose or oblong, pea or nut-like, and are smooth and shining. Seedling leaves bipartite. The genus is limited in its distribution to the tropical forest lands of Mexico and Central and South America.

- C. amazonica*, Hort.—Amazons River.  
*C. Arenbergiana*, Wendl. (*C. latifrons* and *latifolia*, Hort.)—Guatemala.  
*C. Caspariana*, Klotz.—Guatemala.  
*C. concolor*, Mart.—Mexico.  
*C. corallina*, Hook. f. (*Morenia corallina*, Karst.)—Venezuela.  
*C. Deckeriana*, Weodl. (*Morenia Deckeriana*, Kl.)—Guatemala.  
*C. desmonoides*, Wendl.—Mexico.  
*C. elatior*, Mart. (*C. Karwinskiana*, Wendl.)—Mexico.  
*C. elegans*, Mart., *Bot. Mag.*, t. 4845.—Mexico.  
*C. elegantissima*, Hort. Lind.—Mexico.  
*C. Ernesti-Augusti*, Wendl., *Bot. Mag.*, t. 4831—4837.—New Grenada.  
*C. formosa*, Hort. Bull.—Hab. ?  
*C. fragrans*, H. J. (*Morenia fragrans*, R. and P., *Bot. Mag.*, t. 5492).—New Grenada and Peru.  
*C. geonomeformis*, Wendl. (*Nunnezharia geonomeformis*, Hook. f., *Bot. Mag.*, t. 6088).—Guatemala.  
*C. glaucifolia*, Wendl. (? *C. crucifolia*, Hort.)—New Grenada.  
*C. graminifolia*, Wendl.—Costa Rica.  
*C. Lindeniana*, Wendl.—Mexico and Guatemala.  
*C. Martiana*, Wendl.—Mexico.  
*C. microphylla*, Wendl.—Chiriqui.  
*C. oblongata*, Mart. (*C. lunata*, Liebm.)—Mexico.  
*C. pygmaea*, Wendl.—New Grenada.  
*C. Ruizii*, Wendl.—Peru.  
*C. Sartorii*, Liebm. (*C. mexicana* and *Hartwegii*, Hort.)—Mexico.  
*C. scandens*, Liebm.—Mexico.  
*C. stolonifera*, Wendl.—Hab. ?  
*C. tenella*, Wendl. (*Nunnezharia tenella*, Hook. f., *Bot. Mag.*, t. 6584).—Mexico.  
*C. Wendlandii*, Wendl. (*C. Tepejilote*, Liebm., *Bot. Mag.*, t. 6030).—Mexico.

*Chamaerops*, Linn.—There are no less than six distinct genera represented in the dozen or so Palms which are popularly known in gardens as *Chamaerops*, viz.:—*Sabal* (*C. Palmetto*, Mich.); *Nannorhops* (*C. Ritchieana*, Griff.); *Raphidophyllum* (*C. hystrix*, Fraser); *Acanthorhiza* (*C. stauracantha*, Hort.; *C. Mocini*, Kth.); *Trachycarpus* (*C. excelsa*, Thunb.; *C. Fortunei*, Hook.; *C. Khasyana*, Griff.; *C. Martiana*, Wall.); and the two species now retained in *Chamaerops*, and enumerated here. *C. humilis* is particularly interesting as being the only Palm indigenous to Europe. It is found in abundance in some parts of Sicily and Spain, "where it spreads over the uncultivated sandy tracts just as the common Brake Fern does with us." It is also met with in Western Asia and Northern Africa. There are several distinct forms of it in cultivation in English gardens, namely, what is considered the type, and characterised by a dwarf habit, seldom exceeding 6 feet in height, and forming a dense tuft of short leafy stems with stiff erect leaves, the petioles of which are about a foot long, the edges clothed with stiff spines, and the leaf blade from 9 inches to a foot in length. A variety known as *elegans* is distinguished by its graceful petioles, 3–4 feet long, the spines on which are scattered and rather small; it forms a tuft of stems, and grows to a height of about 5 feet. The arborescent variety is represented at Kew by a specimen with a stem 15 feet high and 6 inches in diameter, naked half way up, the upper half being clothed with the persistent bases of the old foliage, and a head of numerous leaves; the petioles are about 4 feet long, very spiny, and the blade is a stiff fan composed of about twenty-four segments, each of which is split from the point downwards some 6 inches. A mass of roots encircles the stem at the base, and through and beneath it numerous sucker-like stems are developing. This species is easily distinguished from all other *Chamaerops* (so-called) by its stout spines and its habit of producing numerous lateral growths about the base of the main stem. The seeds are in size and form like the berries of a Black Hamburgh Grape, brown, smooth, and hard. Seedling leaves ensiform and entire. As a greenhouse Palm this species proves very serviceable.

*C. humilis*, Lion. (*C. elegans*, arborescens, lomen-

tosa, &c., Hort.).—South Europe and North Africa. Of the variety *tomentosa* a good illustration will be found at p. 601, vol. xix., May 12, 1883.

*C. macrocarpa*, Tenore (kept up as a species by Sir Joseph Hooker; but as represented at Kew, apparently only a form of *C. humilis*.)

(To be continued.)

## The Flower Garden.

### PROPAGATION.

THE stock required for filling the summer flower garden should now be complete, and the plants placed in frames or cold pits, to be hardened off preparatory to planting into the flower beds in May. However, such plants as *Lobelias*, *Salvias*, *Coleus*, *Iresines*, and *Alternanthera*, can still be propagated and kept growing, as they will not be required till the first week in June, when the carpet bedding is commenced generally. See that abundance of *Pyrethrum aureum*, *P. laciniatum*, and *P. selaginoides*, are sown. These plants will be found indispensable with some for lying out all the principal designs. Those I sow in boxes, and place them in cold frames till they come up; then remove them to a spot under a south wall, and as soon as the plants are large enough they are transplanted into the flower beds. They are easily managed, and form most distinct yellow lines, and are most effective when used in conjunction with the great varieties of tints seen in *Alternantheras*, *Iresines*, *Coleus*, *Kleina repens*, *Echeveria glauca*, *Hieraria glabra* and *Mesembryanthemum cordifolium variegatum*. The *Alternantheras* may be classed as the carpet bedding plants *par excellence*, and as they require to be planted very closely together, should be propagated in large quantities, the simplest and quickest way to increase them being to make up a slight hotbed, and place a frame on it, and about 4 inches of light sandy mould, making it firm, and then put in the cuttings 3 inches apart each way. They strike in about fourteen days, and make good plants by the first week in June. *W. Smythe, Basing Park, Alton*.

## FRUITS UNDER GLASS.

### FIGS: SUCCESSION-HOUSES.

IN these the trees established in borders which were started at the beginning of the current year will be in rapid growth now. Attend to disbudding and pinching in the shoots and removing all that are not wanted whilst they are in a young state—the terminal shoots be let run unchecked, the side shoots be stopped at about the fifth leaf, and not be left too thickly together. Guard against the attacks of the red-spider by means of vigorously syringing the trees twice every day. The course of ventilating and heating will be identical to that advised for the trees in pots, and watering must not be omitted whenever it is requisite. Fig trees in later houses, if not cleaned and prepared for starting, should have the necessary attention at once, or the young Figs will be liable to injury by this operation at an advanced period, as is now the case. Give regular attention to trees in pots in the way of watering, and be not hasty in putting them out-of-doors if they are expected to produce Figs this year.

### PINES: YOUNG STOCK.

The month of March is the customary time to go through the plants which have been matured in small pots, and to prepare them for starting into growth again. Presuming that preliminary operations in the preparation of the soil, pots, &c., have been attended to and a bed made up for their reception, they should at once—if the heat in the bed is of the right degree—be dealt with in the following way:—Take them out of the pots and remove all the soil from them, cut the roots off close to the stem, and strip off from it a few of the lower leaves, so that the new roots which will be formed may push forth freely into the new soil; for this purpose that part of the stem must necessarily be kept beneath the surface-soil when potting takes place. In this process use 5 and 6-inch pots, drain them properly, and cast some soot or wood-ashes



among the corks to prevent the ingress of worms, and for the sake of checking their progress afterwards should any enter. The soil used in potting should be the fibrous part of good calcareous loam only in a moderately moist state, which must be rammed down firmly and close to the stem of the plants. A bed to be in a proper state for starting these plants should have not less than from 80° to 90° of heat in it at about 9 inches beneath its surface, and I have found none is equal to those composed of fermenting materials, as they afford heat most congenial to the requirements of such plants under these conditions.

#### TREATMENT AFTER POTTING.

After the plants are potted up they should at once be plunged into the bed prepared for them. No water, excepting that afforded in the course of syringing, should be applied until such time as they have made new roots, which will occupy about ten days. Syringing should be lightly done twice every day, and other available surfaces in the house be well moistened, in order to keep up a genial and invigorating state of the air constantly about the plants—a temperature of 60° at night and 70° in the daytime, with 5° or 10° more by the aid of sunshine, with shading over the plants during the time it prevails. A close atmosphere is most suitable. No air should therefore be given except when the heat runs above 80°, and then as little as is possibly required, until the plants have made new roots and growth has commenced, when more liberal treatment as regards heat and air should be supplemented.

#### SHIFTING INTO LARGER POTS.

An occasional examination by turning a plant out will be requisite to find out its condition; and before the roots become too much matted together the plants should be shifted again into 7 or 8-inch pots. Formerly I shifted those plants from the sucker-pots into the fruiting ones, but now I find it expedient to defer the final potting into the fruiting-pots until the last-named pots are filled with roots. When this is so, they are at once put into pots, varying in size according to the variety, of from 11 to 14 inches in diameter, in the same kind of soil, only using it in larger lumps, with an addition of a few ½-inch bones and a little decomposed manure from a Mushroom-bed being intermixed. In all cases in potting Pine plants it is very essential to ram the soil into the pots very firmly. As these plants in general are partly grown in fermenting beds, these will want attention sometimes; opportunities, such as when potting is going on, should be embraced for turning them over and refreshing them with some new stuff, which should always be ready at hand. Very little addition to the beds will be necessary during the summer months, or too much heat will be generated; for Queen plants 80° or 85°, and for coarser growing kinds 5° or 10° less will be a safe range; with proper attention to airing, watering, and syringing. These plants will form the stock from which fruiting plants will be selected that will yield a supply of ripe fruit the subsequent year from the end of May until September—a period which above all others nowadays is when English-grown Pine-apples are most required. *G. T. Miles, Wycombe Abbey.*

## The Hardy Fruit Garden.

#### STUNTED TREES.

ORCHARD trees recently planted should be looked over and the soil pressed down firm round the roots. It will often happen that Prunes and Damsons will grow moderately well for a few years after being planted, then stop growing, and the leaves and shoots become smaller every year. The best remedy for this is to cut the whole of the shoots well back to within a few inches of the stem, then slightly fork over the surface of the ground round the stems of the trees and place on the surface a good dressing of rotten manure. A number of trees treated in this manner made shoots from 2 to 3 feet the first season: the season previous they did not grow so many inches. These trees have continued to grow in a most satisfactory manner, with every prospect of making fine healthy specimens, whereas a few left uncut for experiment are still mere stunted bushes, which must now be well cut back.

#### FIGS.

Fig trees that have been covered up during the winter should now be partially uncovered; it is not advisable to entirely uncover during the present cold weather, but if left covered up too long the small embryo Figs are sure to grow, and if exposed at once are as sure to drop off. It is very important to try and preserve them, as when they can be saved they will ripen early, and so lengthen the succession of fruit.

#### PEAR TREES.

Such trees as were root-pruned during the autumn and winter should have a mulching of rotten dung placed over the roots, and when this cannot be spared, a good coating of long stable-dung may be used. Attention to this early in the season will save much watering later on.

#### GRAFTING.

Grafting of Apples and Pears should now be pushed on as fast as possible. This should always be done before the trees begin to grow. Old worthless trees of Pears and Apples should be headed back, and a number of grafts put on according to the size of the trees. I think it might be possible to effect an improvement on some varieties of Apple by grafting a weak-growing variety on the strong-growing stock or old tree; as, for instance, by grafting Cox's Orange Pippin on a young healthy tree of Blenheim Orange, with many other sorts that could be named. *J. Smith, Mentmore, Bucks.*

## Plants and their Culture.

#### GREENHOUSE HARD-WOODED PLANTS.

THE winter flowering Heaths, such as *E. hyemalis*, *E. melanthera*, and others, should now be pruned back to preserve them in a compact and bushy shape. The first named will need somewhat hard pruning, being free growers under good cultivation, whilst the more slender growth of the latter will not require more than a few shoots removed, such for instance as those that are disposed to be too vigorous. This work may have been done in some cases ere this, but we do not consider that any appreciable gain will result therefrom. Now that the daylight is longer the growth that is made will be sturdier and compact, aided as it will be by the free admission of air into the house.

The greater portion of the winter and early spring blooming Epacris will now be getting past their best. Where any clean and fresh spikes of bloom still remain, I would advise such to be cut for using at the first opportunity. They last in a cut state for a long period of time, but should be cut early in the morning before the sun's rays have much warmth, as they will then be found to keep fresh much longer. When these spikes are removed the stock should be gone over without delay, and all stray shoots cut back to make the plants as uniform as possible. The tendency of the plants is invariably towards an erect growth, and that of a good length too; if these shoots are not therefore well shortened every spring, the plants will soon become more remarkable for their height than for anything else. I do not advise the bending of these shoots into a horizontal or downward direction for the formation of a trained specimen, as they are not at all adapted for this mode of culture. The varieties of *E. miniata*, generally represented by that, the best of its type, viz., *E. Eclipse*, are the most amenable for training into specimens. This process should not, however, be carried to such an extreme degree as some cultivators are disposed to do, the very character and habit of the plant being lost in the distortion of its shoots and branches in order to bring them under this severe rule-of-thumb practice.

I departed somewhat from my usual course last autumn in the culture of the Epacris. They were not potted in the spring, which is the customary time for the work, for it was thought that they would stand over for another season. In the autumn, however, their appearance was not satisfactory, especially on the surface of the soil. After the hot weather was passed they were carefully gone over and repotted, and soon afterwards housed, and I am well satisfied with the result. The soil had undoubtedly become

deprived of a great portion of its nutriment, by reason of the extra amount of water that had to be given them during the dry weather. In late autumn potting it is absolutely necessary to exercise greater care in the watering, the failures will then be reduced to a minimum. *J. Hudson, Gunnersbury House, Acton.*

## The Kitchen Garden.

#### CELERY.

IN most gardens this is considered an important crop, which indeed it is, when we consider the length of time the heads will keep in a sound and eatable condition after arriving at maturity, and how useful the heads are, not only for salad, but for other purposes, and it is well worth every attention. To obtain good crops considerable labour must be bestowed upon it, more especially on heavy land, but the best results are gained in well worked moderately light soil of a somewhat sandy character: the produce then is crisp and clean: and if plenty of good rich manure, properly prepared, be placed in the trenches the plants will always grow to a good size. In soil of this nature it will also keep sound for the longest period possible after it is fully developed. Where the soil is very heavy and clayey it is found necessary, in order to ensure the best results, to place light soil immediately around the plants when carrying out the operation of earthing-up. This will not only blanch the plants better than the natural stiff soil, but will also prevent the heads from rotting during wet and mild winters. Where this system has by necessity to be adopted the best drained piece of ground should be selected, and set apart always for this crop. By the annual addition of light soil for the earthing the plot would annually be improving, and would ultimately become light enough in itself to grow a crop to perfection. Good blanched heads may be had from September to April.

#### SEED SOWING AND PRICKING OUT.

From the February sowing the young plants will soon be large enough for pricking out on a bed near the glass in a cold frame, the young seedlings being placed 3 or 4 inches apart. When preparing beds in frames or out-of-doors for pricking out the young seedlings, some material should be worked amongst the soil, such as old Mushroom-dung, leaf-soil, or well decayed manure, well broken into small pieces. To this the roots of the plants will cling well when lifted, and each plant can be removed to the trenches with a good ball of soil full of active roots. Keep the frame a little close and steady for a few days, until the young plants make a fresh start, after which time the lights should be drawn off in the daytime and replaced on frosty nights. Frames or handlights not being at command, they can be pricked out-of-doors and protected with hoops and mats during frosty weather.

The second or main sowing should be made from the middle to the end of April. This sowing will supply heads for the winter months. In each case it is best to sow under glass either in pans or boxes, or on a raised bed in a frame. In the early stages of growth the young plants generally succeed best in a house which is syringed and damped several times a day, and the boxes or pans should be kept near the glass. The young plants from this sowing should be pricked out-of-doors when large enough in an open position. They will require shading and sprinkling overhead for some days after being removed from the boxes or pans, and during dry sunny weather successive waterings will be required; the young plants will make no headway in dry soil, in fact, throughout the whole season of growth they should not receive a check for want of water at the root.

The third and last sowing to produce heads for the spring months should be made from the first to the third week in May. I am in favour of making this sowing on a raised bed in a cold frame, keeping the latter quite shaded until the seed germinates. By this method a sufficient space of soil may be sown over to allow the seedlings to be thinned out, so that they will stand in the seed-bed until large enough to plant direct into the trenches: thus they only receive one check by removal, and this is a decided advantage should the weather be hot and dry at the time of transplanting. *G. W. Richards, Somerley Gardens, Ringwood.*



## APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, Mar. 31	Special Sale of Orchids in Flower, at Protheroe & Morris' Rooms.
WEDNESDAY, April 1	Sale of Liliun auratum, Roses, and Plants, at Protheroe & Morris' Rooms.
THURSDAY, April 2	Sale of Established Orchids, at Stevens' Rooms.
	Meeting of the Linnean Society, at 8 P.M.
	Sale of Imported Orchids, and Liliun auratum, &c., at Stevens' Rooms.

AN important epoch in the history of the ROTHAMSTED EXPERIMENTS was reached in 1883. In that year the fortieth crop of Wheat grown year after year on the same land was harvested, and in the current number of the Royal Agricultural Society's *Journal*, Sir J. B. LAWES and Professor GILBERT record the results obtained during the last twenty years of this period—the first twenty years' investigations having been given in the same *Journal* in 1864.

Since the former publication much has been learnt respecting the action of manures on different classes of soil and upon different descriptions of plants, which knowledge, our authors say, enables them to forecast with some degree of certainty—subject to the influence of climate—what will be the relative yield by the various manures applied to their experimental crops for some considerable period in advance.

Coincident with the increase of knowledge a completely new branch of inquiry has sprung up—the sources of inherent plant-food, and the channel of unexhausted manure ingredients. These subjects are ably dealt with in the report before us, and the investigations clearly show, that the soil itself, without external aid from manures, is capable of producing much more growth than it was formerly credited with; it in fact not only contains more inherent fertility derived from the *debris* of pre-existing vegetation, but holds it with a firm grasp, and gives it up very slowly unless stimulated by an additional supply of nitrogen in an easily assimilable form.

Every year a certain proportion of the organic nitrogen of the soil becomes nitrified by the agency of organisms existing in the land, resulting in an annual unmanured Wheat crop of from 100 to 120 lb. per acre. Of the more important constituents of plant-food, there have been removed from the soil 17 lb. of potash, 10 lb. of phosphoric acid, and 20 lb. of nitrogen each year.

A fact of considerable importance to gardeners comes out in the report regarding the influence of weeds. When weeds are allowed to decay upon the soil which produces them, no loss of fertility takes place. But as weeds take up available nitric acid which should go towards the support of useful garden products, an immediate loss is the result. The nitrates taken up by the weeds revert again to the form of organic nitrogen, and do not become again available as plant-food until they have undergone decay. If large crops of weeds are removed from the land, then a serious loss of plant constituents may be the consequence.

Mineral manures alone, although requisite to build up the fabric of plant growth, gave but a small excess of Wheat over the unmanured land, amounting to an increased yield of not more than  $1\frac{1}{2}$  bushel of grain per acre per annum, demonstrating the fact that the Wheat plant, at all events, obtains but little of its nitrogen from atmospheric sources. Potash and phosphoric acid, two important elements in mineral manures, appear to enter into very fixed combinations with the soil, and in this respect differ much from compounds of ammonia and nitric acid, which are extremely liable to be washed away by heavy rains unless taken up by means of growing vegetation.

When large crops of Wheat have been grown by the application of nitrate soda or ammonium salts in combination with mineral manure, the Rothamsted soil does not seem to have either

gained or lost fertility, the loss of plant-constituents being, in fact, made good by the amount of nitrogen stored up in the stubble, decaying leaves, and under-ground roots of the large crops produced. This may serve to explain the value of certain luxuriant plants as restorative crops.

When farmyard dung is applied to land much less growth is obtained from a given amount of nitrogen than from an equivalent in ammonium salts or nitrate soda. In dung the nitrogen which constitutes the stimulating ingredient is always in combination with carbon. In this form it is both insoluble and inactive, and for more crops only becomes available during the slow process of decay or nitrification.

Carbon may be separated much more easily from the nitrogen of the urine and other animal secretions, which must form a large proportion of all good and well made dung, while it may take many years to nitrify portions of the nitrogenous organic matter of straw, especially in heavy land.

The Rothamsted Wheat experiments further teach us that the soil of a well cultivated and properly manured garden should go on increasing in fertility, however much it may be cropped.

— THE DAFFODIL CONGRESS.—It is proposed to make a great display of Daffodils and Narcissi at the next meeting of the Royal Horticultural Society, on April 14, at 3 P.M., in the conservatory, so as to enable the Nomenclature Committee, appointed at the Conference held last year, to consider what additions or changes in the Daffodil report are made desirable by the experience of the present season, with the view to the publication of the report at an early date. Messrs. BARR & SON, Mr. WALKER, and others, have intimated their intention of exhibiting largely, and it is hoped that the small amateur cultivators of these popular flowers may be well represented.

— ROYAL HORTICULTURAL SOCIETY.—The President has nominated the following gentlemen Vice-Presidents for the ensuing year, viz., Sir P. CONLIFFE OWEN, K.C.M.G., C.B., C.I.E.; ROBERT HOGG, LL.D., F.L.S.; Professor M. FOSTER, F.R.S.; and G. F. WILSON, F.R.S.

— "LINDENIA."—The publication of the first number of this new journal is deferred till May 15.

— MONSTERA DELICIOSA.—A plant of this Mexican variety of Monstera, at Messrs. CARTER & Co.'s nursery, Forest Hill, is bearing at present two fine fruits. It is rather uncommon, as it is rarely grown in England. The fruit is very luscious, with a Pine-apple flavour, but objectionable from the abundance of needle-like crystals.

— PITCAIRNIA MARONI ×.—A hybrid Bromeliad, of which a coloured figure is given in the *Revue Horticole* for March 1. It has a tuft of bold lanceolate spineless leaves, silvery-white on the under-surface, and surrounding an erect stalked spike of densely packed crimson flowers. It was raised between *Pitcairnia Altensteinii* and *P. corallina*.

— THE METROPOLITAN BOULEVARD AND PLAYGROUND ASSOCIATION.—This praiseworthy Association, founded for the purpose of giving play and recreation spaces in the denser populated parts of the metropolis, and whose objects have often been advocated and noticed in these columns, has now commenced operations in Wilmington Square, Clerkenwell. This oasis of slovenly keeping will be planned out anew, new gravel walks made, new turf laid, shrubs rearranged, and the whole area generally made presentable. Employment is given, by preference to the local unemployed labourers, thus helping much to relieve temporary distress, and to lessen the burden on the local rates. Miss WILKINSON, of 15, Bloomsbury, W.C., has given £1000 towards the undertaking, and much interest is shown in the different parishes, which expresses itself in various ways.

— PALM LEAF LABELS.—We are indebted to Mr. HOLMES for specimens of plant-labels constructed from the dried leaf of *Corypha umbraculifera*. They are not easy to write on with ordinary ink, but this difficulty might be got over by the use

of Brunswick black. The durability of such labels would of course be very great. It has occurred to us, that if the name were scratched on the leaf, and then Brunswick black, or other staining fluid, allowed to penetrate the incised marks, a label would be produced which for convenience and durability could hardly be surpassed. The labels were sent by Dr. ONDAATJE from Ceylon, and could be supplied wholesale with brass eyes at about 3s. 6d. per 1000.

— LINNEAN SOCIETY OF LONDON.—A meeting of this Society will be held on April 2, at 8 P.M., when the following papers will be read:—1, "On the Coast Flora of Gapygia (Otranto), South Italy," by HENRY GROVES. 2, "Studies in Vegetable Biology: Observations on the Continuity of Protoplasm and on ROSANOFF'S Crystals in the Endosperm-cells of *Manihot Glaziovii*," by SPENCER MOORE.

— THE "FARMER'S YEAR BOOK."—This useful publication, by Messrs. SUTTON & SONS, Reading, which combines cultural directions with excellent descriptions of farm produce, as grasses, Clovers, Carrots, Mangel Wurzel, Cabbage, &c., is quite apart, as an example of trade advertising; the figures, profusely given, showing the habit of growth of the various plants, and the accurate appearance of many varieties of grass seeds used in permanent pastures and alternate husbandry, being especially interesting and instructive. Gardeners and amateurs who are frequently required to lay down lawns and cricket-grounds afresh, will find much assistance in determining the quality of the seeds used by means of the figures of the sorts usually employed for this purpose, viz., *Cynosurus cristatus*, *Dactylis glomerata* (useful in shady places, and standing drought well), *Festuca duriuscula*, *F. tenuifolia*, *F. ovina*, *Poa trivialis*, *P. nemoralis*. The cultural directions appended to each kind of crop are perfectly trustworthy, and are the results of wide experience; but knowing the pertinacity of the farmer in keeping to old safe if not over-intelligent practice, one may be inclined to ask what use these finger-posts in practice serve.

— PESCATOREA KLABOCHORUM.—It is remarkable what frail characters are sometimes made to serve the purpose of distinguishing genera, and Orchids are no exception to this finely dividing hair-splitting rule. The plant under notice is an apt illustration of this, and the *Genera Plantarum* has done good service in reducing many superfluous genera. The species of *Pescatorea* are reduced to *Zygopetalum* under the group *Warszewiczella*. The distinguishing features are one-flowered peduncles, and broad incurved sepals and petals, which give the flower a somewhat globular appearance. These, in the present instance, are white, minutely tipped with green, while the curiously shaped alternately concave and convex lip is of a reddish-purple colour. The flower is of a thick and fleshy texture, emitting a powerful but agreeable perfume. A specimen is flowering, or was recently, in the warm division of the Orchid-house at Kew.

— LILIES AT MESSRS. BECKWITH'S.—Forced Lilies have for some years been one of the features of Messrs. BECKWITH'S Tottenham Nursery, where they are grown in thousands. This season they promise to make a magnificent display. The comparatively little known *L. Harrisii* is the first to come into bloom; this kind occupies a house 125 feet long, and begins to open its flowers before the middle of March. *L. eximium* fills three houses from 120 to 140 feet long; the plants are as even as possible, just showing flower, although not more than 10 or 12 inches high. The great masses of *Hyacinths* in one house just coming into full bloom showed a picture in varied colours such as few kinds of plants afford. The even character of the large massive spikes standing well above the foliage of just the right length, would astonish ordinary growers of these bulbs. In addition to obtaining bulbs that are right in the matters of age and strength, there is a good deal in knowing the kinds that will come into flower together early or late in the season.

— COVENT GARDEN LIFE BOAT.—A grand evening concert was held in aid of the support of the above boat on Tuesday evening last at St. James's Hall, passing off brilliantly, and judging by the numbers present we should say with great profit





FIG. 74.—*PINUS COULTERI*, GROWN IN HERTFORDSHIRE. (SEE P. 415.)



to the cause. The station, which is the most important of all the stations belonging to the Royal National Lifeboat Institution, is at Caister, in Norfolk, and was founded in 1858, since which time its boats have been instrumental in rescuing over 1000 lives from a watery grave, of which *The Covent Garden*, although it has only been stationed there seven years, claims the credit of more than half, viz., 567, or an average of eighty-one per annum; thus gaining for itself the exalted position of having saved more lives in that time than any other boat in the fleet. The Ramsgate boat, we believe, comes next, her numbers being 767 in twenty years. The gratifying intelligence reached the committee a few days before the concert that their boat had again performed two good services, having been away fully twenty-four hours in making two journeys to ships in distress, their efforts being rewarded by landing the crews of two vessels, numbering thirty souls in all, at Harwich. Nearly £1200 has been paid into the Institution by the Covent Garden Lifeboat Fund.

— PLANTS IN FLOWER AT THE BOTANIC GARDENS, EDINBURGH.—We learn from the report of the Edinburgh Botanical Society that of the forty selected plants whose dates of flowering have been annually recorded by the Society for the last thirty-five years the following fourteen came into flower during the past month, all of which, with one exception, flowered in January last year:—

First Flowers Opened.	1885.	1884.
<i>Corylus Avellana</i> .. .. .	Feb. 4	Jan. 14
<i>Tussilago alba</i> .. .. .	" 10	" 18
<i>Galanthus nivalis</i> .. .. .	" 6	" 19
" <i>plicatus</i> .. .. .	" 8	" 26
<i>Daphne Mezereum</i> .. .. .	" 11	" 20
<i>Leucojum vernum</i> .. .. .	" 12	" 26
<i>Rhododendron atrovirens</i> .. .. .	" 13	" 10
<i>Eranthis hyemalis</i> .. .. .	" 14	" 22
<i>Crocus susianus</i> .. .. .	" 18	" 19
<i>Symplocarpus foetidus</i> .. .. .	" 20	Feb. 4
<i>Bulbocodium vernum</i> .. .. .	" 23	Jan. 16
<i>Crocus vernus</i> .. .. .	" 23	" 28
<i>Scilla præcox</i> .. .. .	" 26	" 20
<i>Arabis albidia</i> .. .. .	" 28	" 23

The weather experienced has been very favourable for transplanting operations and outdoor work generally.

— EUPATORIUM ATRORUBENS.—Like its congener *E. lanthum*, this is also a native of Mexico, and requires rather warm treatment to grow it to perfection. When in flower or nearly in that condition, it may be removed to a conservatory, where, although a Composite, its unusual appearance cannot fail to be attractive. The flowers are of the same pale blue or violet colour as those of the better known species, but the leaves are several times larger and far more handsome. The habit is more robust and less compact in the manner of branching; but the most important and striking feature of the plant is to be found in the long reddish-purple hairs that invest the stems, petioles, and midribs of the leaves, giving them a shaggy appearance and suggesting the specific name. It is synonymous with *Hebeclinium atrovirens*. Both the above mentioned species are well represented in the greenhouse No. 4, at Kew.

— THE QUINQUENNIAL EXHIBITION AT HAARLEM.—We learn that this exhibition, which was held at Haarlem, from March 20—24, was not only very large, but very successful. Hyacinths formed the staple of the exhibition, there being six exhibitors in the class for 100 Hyacinths in pots, eight in that for forty varieties, and corresponding numbers in other classes—twenty-eight in all. Messrs. KRELAGE obtained a Silver-gilt Medal for a new single Hyacinth, not in trade (Sophie Charlotte, red), Messrs. KERSTEN, a Silver Medal for single white Corregio, and the same gentlemen for City of Haarlem, single yellow. Messrs. G. C. VAN MEUWEN, of Haarlem, gained a Silver Medal for a new double blue variety, Duke of Norfolk. There were twenty classes for Tulips, five for Narcissus, three for Crocus, three for Fritillaria, and others for Galanthus, Scilla, Anemone, Ranunculus, Chionodoxa, Pæonies, Amaryllis, and Clivia, Eucharis, table decorations, and miscellaneous objects. The principal prize-takers were Messrs. J. II. KERSTEN & CO., of Haarlem, for a collection of one hun-

dred Hyacinths in pots (eighty single, twenty double-flowered varieties). In the same class Messrs. BIJVOET, KRELAGE, ZOCHER, and VOORHELM. In the principal class, for a hundred Tulips, eighty single, twenty double, Messrs. L. WEVEREN & CO., of Hillegom, took first honours, Messrs. POLMAN MOOY and KRELAGE being also honoured. For Narcissus (Tazetta) Messrs. J. D. ZOCHER obtained first honours. Other prizes were taken by Messrs. KRELAGE, POLMAN MOOY, and VAN VELSEN. Messrs. G. II. VAN WEVEREN obtained a Silver-gilt Medal for forced Fritillaria imperialis in pots, and which we learn were very effective. The white Scilla sibirica also attracted attention. The show was almost exclusively made up of bulbous plants, for although a few classes were allotted to other plants, they were not well filled, and "niet ingezonden"—equivalent to our "no entry"—had to be written against them.

— PHYLLANTHUS MIMOSOIDES.—The characters of the flowers of this species from a garden point of view are normal, that is, of the usual diminutive and inconspicuous type. Notwithstanding the enormous number of species belonging to the order, the absence of showy flowers is notable; and although a considerable number are cultivated in hothouses, it is their coloured bracts, or the beauty of their foliage, that gains them admission. The lateral branches of the present species, even upon close inspection, bear a remarkable resemblance to compound and twice pinnate leaves. They also mimic in no ordinary degree the leaves of some species of Acacia, such as *A. lophantha*, but of thicker and more leathery consistency. The presence of minute stipules, however, and the clusters of flowers in the axils of the ultimate divisions, show the latter to be the true leaves. The whole branch with its leaves are of a bright green colour, constituting the plant no mean object for decorative purposes. A specimen has been flowering for some time in the stove at Kew, and a figure may be seen in the *Botanical Cabinet*, 721.

— NEW EARLY TULIPS AT SOUTH KENSINGTON.—There was so much of an attractive character at South Kensington on Tuesday last that in all probability the group of new varieties of early single and double Tulips shown by Messrs. JAMES VEITCH & SONS did not receive the attention they merited. Of the single varieties one of the best is Ophir d'Or, a deep coloured Chrysolora, of a bright deep canary-yellow—large, showy, of good form, and dwarf in growth; Rose of Holland is one of the most distinct, and charmingly feathered with rosy-pink on a white ground—the flowers of good build and very pleasing; Adeline is of a soft satiny-rose, in the way of Proserpine, and, being of dwarf sturdy growth, is admirably adapted for pot culture; Prince of Austria is somewhat difficult to describe. It is something in the way of Thomas Moore, but darker and differently marked: the petals are a kind of brownish orange-red, feathered with bright deep orange—very bright and effective. It is still more difficult to accurately describe American Lac, one of the most distinct of the new varieties. The principal colour is a kind of tawny-orange, feathered with delicate lavender and white—certainly very pretty and distinct; Queen of the Netherlands is almost white: it has a white ground, very delicately suffused and flushed with pink—also pretty and distinct. Of flowers of crimson and scarlet shades there were Messcher, maroon-crimson, rich in colour, flowers large and well formed; Moucheron—this may be described as something in the way of Couleur Cardinal, the dark shaded red petals are distinctly feathered with vermilion, dwarf and very showy; La Grandesse has bright crimson flowers, feathered with scarlet, large and striking; Queen Emma is of a semi-double character, the colour bright rosy-cerise, striking and showy, but the flowers small and wanting in form; White Hawk is probably the purest white single Tulip in cultivation, large flowers, but as shown inclining to roughness; Dandy is the last of the new single varieties—it has a pale rosy-purple ground, feathered with white; the flowers small, and somewhat dull looking. The new double varieties certainly fall behind the single types for quality and attractiveness; the best are Emmeline, deep rose, flushed with crimson—very bright and striking; Vuurbaak, bright orange-crimson, distinctly feathered with orange, but with the green tips common to Rex Rubrorum; and Raphael, white, suffused with pink, and flaked with rose—pretty and distinct. All the new varieties appeared to

be of a dwarf yet vigorous growth, but this was, perhaps, mainly owing to the fact that they were so admirably grown.

— FRITILLARIA SEWERZOVII.—It is rather a comfort that Mr. BAKER has reduced REBEL's genus Korolkowia to Fritillaria. The combination of such a generic and such a specific name, however acceptable in Russia, is not very euphonious to English ears, and gardeners certainly will prefer the better known name Fritillaria to the less familiar Korolkowia. Technically it differs from most Fritillarias in the absence of a circular pit at the base of the perianth segments. In place of the pit is a rather long, very shallow furrow, from the centre of which projects a yellowish ridge. As figured in the *Gartenflora*, tab. 760, it forms a tall glabrous bulbous herb with sessile broadly lanceolate leaves and a leafy raceme of numerous pendulous green bell-shaped flowers, each rather more than an inch long with six recurved segments, dark, oblong obovate, and rather longer than the six stamens. Mr. BURBIDGE kindly forwards from the Trinity College Botanic Garden a specimen which he describes as flowering out-of-doors. In Mr. BURBIDGE's specimen there is but a single flower, considerably larger than those figured by Dr. VON REBEL, and greenish-yellow in colour, with the basal furrow bordered by a blotch of chestnut-brown. The six stamens are dull red in colour, and the filaments studded with numerous small purplish conical excrescences. The anthers are of a dull purple, not green as described by VON REBEL and BAKER. In the specimen before us the ovary and style are completely absent, so that although there is little doubt that we have to do with the same species, yet we must as usual admit a considerable range of variation in it. Perhaps, as the plants get stronger, the peculiarities we have noticed will disappear. The plant is a native of the mountains of Turkestan, where it was collected by SEWERZOW. A greenish-yellow flower is not an attractive description, nevertheless the present flower, from the elegance of its form, is worthy of cultivation, and the peculiar tint would assort or contrast well with other colours in a group. In the February number of the *Gartenflora*, t. 1181, is given a coloured figure of a variety (8 bicolor) with more robust habit and greenish-yellow flowers. Mr. BURBIDGE's specimen seems nearer to this variety than to the original species.

— APHELANDRA CRISTATA.—When this plant was introduced more than 150 years ago British gardeners knew nothing of the highly decorative and valuable species of more recent introduction, important alike for their handsome foliage and large brilliantly coloured flowers. The flowers in this instance are of the same type as those of *A. fulgens*, but greatly enlarged, and altogether more ornamental, from their deep scarlet colour and much longer tube, with a ringent mouth. The most notable feature of the species, however, is its manner of throwing out lateral branches all round the termination of the central axis. These branches are four-sided, owing to the arrangement of their bracts in alternating opposite pairs. The flowers are consequently arranged in four rows on each branch, and the whole inflorescence gives the plant a crested appearance, suggestive of the specific name. It flowers in a small state from cuttings, as may be seen in the Begonia-house at Kew. There is a coloured plate of the plant in the *Botanical Magazine*, t. 1578.

— PUBLICATIONS RECEIVED.—*Épître of the Art of Laying Down Land to Permanent Temporary Pastures.—One Hundred Years Ago*. A paper read before the Philadelphia Society for Promoting Agriculture at the Centennial Meeting, February 4, 1885. By GEORGE BLIGHT.—*Electric Meteorology. What is Gas? How the Theory was Worked Up*. By G. A. ROWELL, Assistant in the Oxford University Museum.

— GARDENING APPOINTMENTS.—Mr. B. ASHTON, late Head Gardener at Kirkham Abbey, York, has been appointed Head Gardener to Lord HOWARD OF GLOSSOP.—Mr. A. STEVENS, formerly Gardener to Mrs. FLETCHER, Hollywell Park, near Sevenoaks, Kent, as Head Gardener to J. BATMAN, Esq., Moor Park, Farnham, Surrey.—Mr. S. WHITE has been engaged as Gardener to G. B. WOODRUFF, Esq., High Hatch, Hurstpierpoint, Sussex.



## PINUS COULTERI.

THIS magnificent Pine is a native of the mountains of California (36° N.), where it grows at an altitude of 3000—4000 feet. The specimen of which, through the courtesy of Mr. Rashleigh, we give a figure (fig. 74), produced its cones in the pinetum of W. R. Baker, Esq., of Bayfordbury. The history and botanical features of the tree are well known, and may be found in readily accessible sources. We may, however, supplement the accounts by the following extract from Ravenscroft's *Pinetum Britannicum*, and from our own note-book. In the *Pinetum* this tree (of which *P. macrocarpa* is a synonym) is described as—

"A tree very nearly allied to *P. Sabiniana*, growing to the height of 80 or 100 feet, with large spreading branches, and a trunk 3 or 4 feet in diameter. It is perhaps of a straighter habit and of a less glaucous hue. It produces the largest, heaviest, and most beautiful cone of any known species. The cone is like that of *P. Sabiniana*, with the scales terminating in large recurved hooks, but it is larger, longer, and the hooks of the cones more produced. Good specimens are rarely to be seen, the projecting hooks of the scales being usually broken and injured before it reaches this country. Mr. W. Murray mentions that two magnificent specimens for long ornamented his drawing-room chimney-piece in San Francisco, and notwithstanding the occasional use of fires when these were needed, they never showed the slightest indication of opening, but seemed as if carved out of one solid block of wood—indeed, the common observation made by non-botanical visitors was what an exquisite piece of carving it was, the light colour like box-wood, and the sharply defined edges contributing to mislead those who had never heard or dreamed of Pine tree cones larger than a man's head. [In Mr. Rashleigh's specimens the scales show a tendency to separate.] The cone of *P. Sabiniana* is on the other hand easily opened, the scales separating of their own accord. The seeds of the two species are the converse of what one would expect, the species with the smaller cone (*P. Sabiniana*) having the largest seed. The cone takes about twenty months to come to maturity. In 1852 a tree in the Jardin des Plantes, at Paris, produced two cones in its eighteenth year. They grew at the top of the leading shoot: one dropped off, but the other remained; at the end of the first season it measured about 3 inches in length and three-quarters of an inch in diameter. At the end of the second season it had reached its full development, and was about 16 inches in length, by about 9 inches in diameter."

At Kew there is a fine specimen of this tree, of which the regularly pyramidal habit is very striking. The old bark flakes off in thin irregular smoky-brown plates. The branches are long and lithe, with the bud-scales markedly reflexed and rough. The buds are large, oblong-ovate acute, cinnamon-brown, expanding early in April (relatively late). The young shoots are glaucous-green, flushed with pink, and clothed to the base, or nearly so, with leaves. The leaf section is triangular, with thick wedge-shaped masses of hypoderm, resin canals surrounded by strengthening cells, and a central ovoid fibro-vascular bundle surrounded by endoderm. In germination two cotyledons only are produced, then a pair of primordial leaves, followed after an interval by two decussating pairs. We have Mr. George Paul's authority for the statement that this Pine is one of the few that will thrive on London clay. Mr. Rashleigh, on the other hand, informs us that on his deep loamy soil this Pine does not do well. At Pampesford it grows on the chalk drift.

## PROTECTION OF FRUIT TREE BLOSSOMS.

THE present is an anxious period for the cultivator of the various varieties of fruit trees, which expand their blooms earlier than our fickle climate renders quite safe. So much is this the case that an abundant promise of fruit is not unfrequently blasted by one of those sudden and sometimes unexpected depressions of temperature which are frequently experienced when the season is considerably advanced. To prevent as far as is possible injury to the fruit crop, various appliances are resorted to by way of protection, more particularly in the case of such useful fruits as the Apricot and the Peach; and for such there can be no doubt that glass in some form is one of the more effectual materials, but as this is not always available, the use of more rough and ready materials is frequently resorted to, such as hay or straw bands stretched upon poles placed at a short

distance from the face of the walls on which the trees are trained; or curtains formed of "Frigi Domo," or some similar material, suspended from temporary wood coping; or the trees are sometimes thinly covered with twigs or small branches of the Spruce Fir or the common Yew; and these, although not always effectual, are nevertheless found in a majority of instances to be so.

The petals of flowers, including the blooms of the Apricot and the Peach, &c., are possessed of considerable protective power, and effectually protect the more tender parts of the blooms from injury during even very considerable depressions of temperature, but the moment the petals are unfolded the most tender as well the most important parts of the blooms are exposed, and bereft of all defence against the frost.

It is obvious that it would tend very much to the safety of the blossoms of such trees as the Apricot and the Peach could their expansion be retarded to a somewhat later period; and it is quite possible that more than is generally attempted in this direction might easily be done. Such trees as the Apricot and the Peach are generally trained upon the south or south-east side of a garden wall, and they are consequently, at intervals, subjected to a comparatively high temperature by the bright gleams of sunshine which occur during frosty weather in the month of February and the early part of March, and this circumstance has necessarily the effect of prematurely exciting the flower-buds, and inducing an earlier expansion than would otherwise be the case. Indeed, it may generally be found that in early spring, trees trained to south walls in the open air are in a more forward condition than the same kinds occupying an unheated orchard-house, or similar glass structure, as in the latter case the cultivator may manage to keep the trees longer in a condition of rest by the free admission of external air, by night as well as by day, when the state of the weather will permit this to be done, and thus to a considerable extent retarding the blooming period, in order to secure a condition of weather more favourable to the fertilisation of the blooms, and when sudden and severe depressions of temperature are less likely to occur, as in early spring it has been found that a covering of glass is hardly a sufficient protection for Peach and Apricot trees in full bloom.

In the case of trees trained to walls much might be accomplished by carefully shading the trees during those bursts of winter sunshine which tend to excite the blossom-buds and to induce them to unfold at an earlier period than is desirable or consistent with safety. This might no doubt be effected by the use of a curtain formed of "Frigi Domo," or canvas, and which should only be applied during sunshine, and will also be in readiness to protect the expanded blooms from frost and cold winds at a later period of the spring. And such curtains, with proper care, will be found to last for many years.

It has often been asserted that the bloom of fruit trees, and tender plants in general, suffer more in the process of thawing than they do in freezing; that is, a belief that if plants when more or less frozen can be gradually thawed, the injury to them will be very much less than would otherwise be the case. It is possible that this assertion may be somewhat misleading. It may be asked, In what way does frost act injuriously upon tender vegetation? I may be wrong, but I have always considered it to be its power of expanding fluids, and the consequent rupture of the tissues of tender plants, and the tender parts of the blossoms of fruit trees, &c. [It is the fluid between the cells which freezes, not that in the cells themselves: the practical result is the same. Ed.]

If a bottle or other glass vessel be filled with water and exposed to the influence of intense frost during a winter night, it will in the morning be found to be fractured, and whether thawed gradually or otherwise, will when fairly thawed fall in pieces all the same. As another case in point, I have a distinct remembrance of having a collection of seedling *Cinerarias*, a plant known to be impatient of frost. They were intended for winter flowering, but they still occupied a cold pit, and were placed close to the glass. One night, however, an early and unexpected frost occurred, and on the following morning it was evident that the plants were more or less frozen. The pit was in two divisions, and the plants in one division were at once well syringed with cold rain-water, and kept shaded with mats during the entire day. The plants in the other division were also shaded, but by way of experiment they were not syringed. On un-

covering the pit on the following day the portion of plants which had been syringed certainly appeared to have suffered less than those which had not been so treated; but before the end of a week there was no perceptible difference in the two sets of plants as regarded the injury they had sustained. P. G.

## Florists' Flowers.

## SEASONABLE NOTES ON HARDY FLORISTS' FLOWERS: THE AURICULA.

AT p. 188 it was stated that the offsets should be taken off and potted in small pots. My own were done at that time. They were placed in a shady position in a cold frame, and have not yet been watered. At this season of the year water should be applied very cautiously to such delicate subjects. Last year we sowed the seed of the show Auriculas in January, plunging the pots in a gentle hotbed, but the seeds vegetated very irregularly, and the largest proportion of the plants appeared after the seed-pans were removed from the hotbed, and placed in a cold frame. This year the seed-pots were placed in the Auricula-house at once, and I have now a fine lot of young plants regularly placed over the surface of the soil in which the seeds were sown. I fancy the seeds of all these hardy and other alpine plants vegetate most freely when sown in cold houses or frames. The flowering of the specimen plants is much later this year than it was last. At this date last year I had many choice named varieties and seedlings in flower, while this year there is practically no bloom at all. Unless the weather changes soon the season will be a late one. As the trusses are now pushing up freely from the centre and sides of the plants, with the pips in course of expansion and formation, we are careful not to allow the cold east winds to blow directly on the plants, at the same time they must have a free supply of fresh air admitted daily. In frames the lights are tilted against the wind, and at night double mats are required to keep the plants from being frozen. Three nights ago the thermometer fell 9° below the freezing point. The plants, which up to this time have been placed very closely together, now require more room to prevent the leaves and flower-stems from being drawn.

## THE CARNATION AND PICOTEE.

ALTHOUGH the weather has been so cold the whole collections of plants have made signs of growth, and if they have not been repotted or planted out, no delay should take place now. The whole of mine have been potted into their blooming pots, they being protected in the meantime by glass lights. At one time I used to turn the plants out-of-doors as they were potted, but some of the more delicate varieties used to suffer if cold east winds or perhaps a fall of snow caught them before they became established. They do not receive any water at the roots for ten days at least after they are potted. I am planting out some named varieties, and two or three hundreds of seedlings in the open ground. It would have been much better to have planted out the seedlings in the summer, but I was unable to do this with the whole of them. Some that were planted out have made very strong flowering plants. Within a month the seeds should be sown over a gentle hotbed to produce plants to flower in 1886. Those who intend to raise seedlings with the object of producing new and distinct varieties should save their own seeds; the flowers should be intercrossed with each other, and it is better not to mix the classes. The best varieties only should be selected for seed bearing.

The young plants of the perpetual flowering type raised from cuttings in January have been potted off into large and small 60-sized pots. They require to be grown on in a frame over a spent hotbed, where there is yet a slight heat in the plunging material beneath. The plants very speedily fill the small pots with roots, and before they are root-bound in the least should be potted again into larger pots. They must be kept steadily growing under glass until the weather is favourable, about bedding-out time, when they should be placed out-of-doors.

## THE GLADIOLUS.

The main collection should be planted out now without any delay, except waiting until the ground is in good condition. Instructions were given as to



planting them at p. 188. The early flowering species and varieties that are hardy enough to be established in the borders may now be lifted in the mass, and be divided and replanted. Some of them, such as *G. Colvilleus* and the variety *alba*, have made very considerable growth, but even now, if they are lifted with a mass of roots and carefully planted, they will grow on again without any apparent check. It is better not to part each root out separately, but rather part them into smaller clumps of from six to a dozen roots in each. Some roots that were purchased in the winter were potted, and as soon as they have grown sufficiently they will be planted out where they are to remain permanently. *J. Douglas.*

#### SELECTIONS OF EXHIBITION DAHLIAS.

**Show Varieties.**—Undoubtedly the best twenty-four show Dahlias for exhibition purposes will be found to include Mrs. Gladstone, Lord Chelmsford, Miss Cannell, Prince Bismarck, Joseph Ashby, Henry Walton, William Rawlings, Henry Bond, the Hon. Mrs. Percy Wyndham, Joseph Green, Prince Arthur, Georgiana, Canary, Constancy, Emily Edwards, James Cocker, Herbert Turner, Condor, Mr. Stancomb, Mr. William Dods, Prince of Denmark, Vice-President, Earl Radnor, and Walter H. Williams. But in case a smaller selection of twelve of the best varieties might be required, the following can be named with confidence:—Mrs. Gladstone, Lord Chelmsford, Miss Cannell, Prince Bismarck, Joseph Ashby, Henry Walton, William Rawlings, Henry Bond, the Hon. Mrs. Percy Wyndham, Joseph Green, Prince Arthur, and Georgiana. The following are the very pick of the self coloured show Dahlias:—Imperial, Canary, Earl Radnor, Emily Edwards, Georgiana, Henry Bond, James Cocker, Joseph Ashby, Joseph Green, Lord Chelmsford, Prince Arthur, Prince Bismarck, Cardinal, Thomas Goodwin, Walter H. Williams, William Rawlings, Herbert Turner, and Vice-President. The self flowers are a rather more numerous section than the edged or tipped varieties, and so a selection of the best twelve of the latter will be found in Henry Walton, Lady Gladys Herbert, Harriet Tetterell, the Hon. Mrs. Wyndham, Miss Cannell, Mrs. Harris, H. W. Ward, Mrs. Hodgson, Mrs. John Downie. **Picotees:**—Royal Queen and Cremorne.

**Fancy Dahlias.**—The best twenty-four fancy Dahlias should include George Barnes, Professor Fawcett, Flora Wyatt, Jessie McIntosh, Rebecca, Rev. J. B. M. Camm, Fanny Sturt, John Forbes, Mrs. Saunders, Henry Glasscock, Gaiety, Frederick Smith, Charles Wyatt, Chorister, Parrot, Hercules, James O'Brien, Maid of Athens, Miss Annie Milsome, John Saunders, Madame Soubeyre, Mandarin, Mrs. N. Halls, and Monsieur Chauviere. What varieties should be selected from this list to form the best twelve? Clearly, George Barnes, Professor Fawcett, Flora Wyatt, Jessie McIntosh, Rebecca, Rev. J. B. M. Camm, Fanny Sturt, John Forbes, Mrs. Saunders, Henry Glasscock, Gaiety, and Frederick Smith. The fancy Dahlias are dividable into two classes—the tipped flowers and the striped and flaked flowers. The best twelve of the former are Fanny Sturt, Jessie McIntosh, Maid of Athens, Miss Browning, Miss Rodwell, Mrs. N. Halls, Mrs. Saunders, Miss Annie Milsome, Peacock, Polly Sandell, Lady Antrobus, and Queen Mab. The best twelve striped and flaked fancies are Flora Wyatt, George Barnes, Chorister, Frederick Smith, Gaiety, Henry Glasscock, Hercules, John Forbes, Monsieur Chauviere, Rebecca, Rev. J. B. M. Camm, and Professor Fawcett. *R. D.*

#### THE PARCEL POST.

I OBSERVE the remarks of a correspondent with regard to the delay which is occasioned by the parcel post system to perishable things such as cut flowers, &c., and can see with him the great inconvenience it is to senders and receivers, as in some cases the delay would prove fatal to the contents of such parcels. But I fail to see that his suggestion for an extra charge for a more prompt delivery would be accepted as an improvement on the present state of things. Such packages are supposed to be securely packed in stout material, which makes the present charge sufficient. If an extra charge were made I fear it would be equal (in some cases) to the value of the flowers sent. Some more economical suggestion must be made to become general. *Another Correspondent.*

## HOME CORRESPONDENCE.

**Large Masses of Imported Orchids.**—Orchids are noted for their slow rate of increase, especially when the plants are small to begin with. Not the least remarkable fact is the way in which large masses bear division. For many years after they began to reach this country in great numbers the importers, before offering them for sale, divided almost all they obtained into small pieces, often carrying this so far that it took years before the little bits, so divided and subdivided, were able to recover in a way that enabled them to produce bulbs and flower-spikes of their normal size. In recent years there has been a departure from this practice, and now large masses are offered which have such an amount of strength and vigour in them that in a year or two they produce bulbs and flower-spikes equal in size to those made in their native wilds, and showing little sign of the rough treatment they have been subjected to. Notwithstanding the extra price which large plants such as described realise as compared with the fragments that used to be almost all that were obtainable, still it is a great saving in the matter of time, as specimens can at once be secured, such as used to take ten or twenty years to grow up. *T. Baines.*

**Excrescence on the Stem of *Cryptomeria japonica*.**—The accompanying sketch (fig. 75) represents an example of several excrescences growing out



FIG. 75.—EXCRESCENCE FROM *CRYPTOMERIA*.

of the stem of a fine tree of *Cryptomeria japonica* growing here. They are found, here and there, all up the stem to 25 feet. Some are not forked as the one represented, but most of them are so. They are covered with a scaly bark, and are not connected very strongly to the inner bark of the tree, as shown by the figure. Those near the base look like an attempt at root making. *Henry Mills, Enys, Penryn.* [Please send a specimen. *ED.*]

***Clianthus puniceus*.**—How seldom it is one sees a plant of this now, and yet it is one of the most showy things any one can grow, especially when planted out and trained up a pillar in a conservatory—a purpose for which it is specially adapted, and where it shows to the greatest advantage, as its racemes of large pea-shaped and bright-coloured flowers show up boldly. Not only is this *Clianthus* suited for the position referred to, but it is equally good run up under the rafter of a greenhouse, or grown and tied out to cover the panel of a wall, the thing with it being to get plenty of young shoots annually on which the blossoms are formed. This may be done by pruning hard in every spring or summer after it has done blooming, and encouraging the plant to break again by frequent syringing, and this wetting of the stems and foliage should be continued during hot weather to keep down red-spider, an insect to which the plants are very subject. The soil the *Clianthus puniceus* does best in is a fibry loam, and in making the border this ought to be cut fresh, as then it lasts open much longer, and keeps the plants in good health. As they take a good deal of water when growing and blooming, it is necessary to have plenty of drainage. If it is desired to increase the stock

of plants, propagation may be effected by seeds or cuttings—the best time to take off and strike the latter being just after fresh growth commences, and when the shoots are about 4 inches long, at which stage, if taken off with a heel, they root readily; but to enable them to do this, they must be kept close under a glass, and placed where they can get a little heat. Seeds may either be sown as soon as ripe, or kept till spring, the latter being the best time, as then the plants go right on growing without any check. As the seeds are somewhat hard, their germination may be expedited by soaking them a few hours in warm water, after which they should be just buried in sandy soil and stood where they can have a brisk temperature to prevent them from rotting. *J. S.*

**Proposed Foresters' and Gardeners' Benevolent Institution for Scotland.**—I see in your paper that it is proposed to start a society under the above heading for Scotland, and opinions are solicited. I give mine freely and frankly, and am decidedly against it. We have an excellent society in London, managed in a most efficient manner, every year more prosperous, and conducted without the least partiality by members of committee without fee or favour. The pensions are to be increased. The Society has a nice sum carefully invested, and it will be far better for the gardeners of Scotland to assist this society, which is now in a prosperous condition; and let them take this carefully into consideration that if ever "Age and Want—oh! ill-matched pair"—should be their lot, the society of which I speak, or rather the gardeners who belong to it, will not forsake them in their hour of need. I know Mr. Methven well, and believe he is actuated by the purest of motives—the welfare of gardeners, but it will be better to stir up gardeners in the North to join the established society existing in London. *J. Rust, Eridge Castle.*

—I am in favour of the above Institution. I trust that no time will be lost in getting it started. I am confident that gardeners and foresters in Scotland will become members in numbers. I would suggest that a meeting be held in all the principal towns in Scotland, and in this way the number could be taken who are in favour of an Institution for Scotland for the benefit of gardeners and foresters. *J. MacL., Ayrshire.*

**Mushroom Growing.**—We often hear of Mushrooms being grown to a high state of perfection, but seldom do we see them in such fine condition as at the Ranelagh Gardens, Leamington. This establishment has for some months past been producing hundredweights of Mushrooms, grown in the simplest way imaginable. The Mushroom-house is a sight in itself, but nothing to compare with the immense beds which are made on the paths in some of the late vine-ries, and in the body of the house where the Vine borders are outside. Mr. Crump told me he had gathered as many at one time as seventy-two fully expanded Mushrooms from one stool, and left remaining as many more small buttons; also that many of the individual clumps measured from 1½ to 2 feet in diameter. I feel sure it would be very interesting and instructive to the readers of the *Gardeners' Chronicle* if Mr. Crump would give a detailed account of his method of growing the Mushroom to such perfection. *R. Greenfield, Priory Gardens, Warwick.*

**The Doubling of Daffodils.**—I cannot claim to be what the scoffers term a "Daft-down-dillyite," but still have enough preference for the *Narcissus* to think it a very beautiful and interesting genus. I would therefore like to suggest to the committee which has been appointed to consider the question of doubling or assumed doubling of single Daffodils, that it should also endeavour to ascertain whether there are to be found any cases of reversion from the duplex to the single form also, for if the latter can be found the former may be equally existent. The doubling of Daffodils stands on a diverse footing from the doubling of other flowers, because in the *Narcissi* the doubling is not assumed to result from evolution through progeny obtained from seed, but from change of soil or cultivation. Doubling is so common on the part of flowers raised from seed that we regard it as no novelty. At the same time it is by no means inexplicable, because selection of flowers showing the slightest tendency to increase their normal number of petals as seed or pollen parent is pretty sure to produce in the end a race of double flowers. The peculiarity to which the single Daffodil



is said to be addicted, is that not through seeds but from the bulbs double flowers are created. That such a freak of nature is possible none can dispute, and it is not improbable, yet it seems unlikely. It is true bulbous roots are queer things, and as they are created afresh, practically from year to year, there is no telling what sort of change may take place in them that may not be productive of the same results as flow from seed progeny. If the committee should really find single Daffodils to double, it is hoped that the reason for such evolution will also be shown at the same time. *A. D.*

**The Lyon Leek.**—A few years ago a gentleman in Scotland was good enough to send me a few seeds of this splendid variety of Leek, and since that time I have grown a breadth of it every year, and I may safely venture to say, considering its size and quality, and its merit of not running to seed so readily as some other kinds which are more commonly cultivated, that it is the best kind of Leek with which I am acquainted, either for general use or for the exhibition table. I am glad to see this subject has met with recognition by the Royal Horticultural Society, as liberal prizes are offered for Leeks at the exhibition at South Kensington on October 27 and 28 next. This incentive will undoubtedly be the means of bringing together a good collection of different kinds, and of affording an opportunity of finding out practically some of the merits pertaining to them. I, for one, shall certainly be somewhat astonished if this excellent variety does not rank well amongst them on that occasion. *Geo. Thos. Miles, Wycombe Abbey.*

**The Potato "Sclerotet."**—Mr. Murray now contends (see *Gardeners' Chronicle*, March 14, p. 350) that "satisfactory evidence can readily be obtained" as to whether the plasmodium is inside the lime or outside, "by cutting through the so-called 'sclerotet,' and demonstrating the contents, if any." Supposing that this ball of the two-thousandth of an inch in diameter could, by some happy accident, be cut in two, it would be impossible to tell that it was cut. If the flat face of one hemisphere were next the eye, then, upon the assumption that the plasm forms the interior, its transparency would allow the lime crystals on the convex surface below to be seen through, so that the appearance would be an opaque ball, as before cutting. Then, upon the assumption that the lime is in the interior, the face of the section, all round the circumference, would remain unaltered. And, as the interior would appear opaque whether the lime is in the interior or below a translucent plasm, no information would be got from the section. The expedient of focussing would not apply to an opaque field. What next? *A. Stephen Wilson.*

**Two Good Varieties of Melon.**—Were I debarred from growing more than two varieties of the Melon—and I do not think that I should be a loser as regards quality and supply if such were the case—the two chosen would be Cox's Golden Gem (green-flesh), and Blenheim Orange (scarlet-flesh). These two, when well grown, possess, in my opinion, everything that could be desired in a first-class Melon. They are good growers, free setters, and the fruits are handsome in appearance and rich in flavour. But unfortunately seeds of these excellent Melons cannot always be obtained true to name from the trade, by reason of the seed having been saved from fruits grown in the same house side by side with other varieties. At Madresfield Court, where Golden Gem was raised by the late Mr. W. Cox, who superintended the gardens there for a great number of years, and was succeeded in their management by the raiser of Blenheim Orange (Mr. W. Crump), only these two varieties of Melon, I believe, are grown, each in a house to itself, and the crop in one house forming a succession to the other; in which case both varieties are never in flower at the same time, even in separate houses, and the possibility of their getting crossed is in consequence prevented. *H. W. Ward.*

**Peas.**—It is a fact patent to us all that good Peas may justly be termed the prince of all vegetables. They are alike the favourite with the rich and the poor, so that they are universally liked. For me to suggest to hold a Congress of Peas this season would not be well received—Congresses being like many other things, good no doubt, still may be overdone.

I am well aware of the great amount of work a Congress brings to both the worthy Superintendent and his subordinates at the Royal Horticultural Society, still I should like something to be done even in a small way, and I feel sure the Society will help us in any way which lies in its power. I therefore suggest we invite the four large firms, Messrs. James Veitch, Sutton, Carter, and Webb, also the three Pea-makers, Messrs. Laxton, Culverwell, and Burberry, and five noblemen's or gentlemen's gardeners—but the selection of these, I shall leave to the Editor—each one to send one dish, both cooked and uncooked, to one of the meetings of the Fruit Committee to be hereafter named: one dozen varieties of Peas being enough to spare for the committee to adjudicate upon in one day. This would be a beginning to get at the great fact as to which is the best Pea, as I feel sure by having one dozen shown we should have the cream of the collection, and so that we may have Peas in perfection mid-season varieties should have the preference. These few crude lines I look upon as a text, and invite discussion on the subject. *R. Gilbert.*

**A Friendly Lift.**—The accompanying sketch (fig. 76) was taken from an Elder bush growing in proximity to a pollard Oak. Most of the



FIG. 76.—AN AMBITIOUS ELDER.

branches of the Elder were their usual size, but one, which grew against the trunk, seems to have profited by the support, for it not only hooked itself over the branch of the Oak at a height of 10–12 feet from the ground, but developed in thickness amazingly in proportion to the other branches which had no such friendly aid. Generally when a branch is thus supported, although its length is increased, the thickness is not enhanced; thus we may often see the fronds of the common Brake attaining a height of 12–15 feet when supported by the bushes in a hedgerow, but the stalk is not proportionately thickened, as it was in the Elder. A second branch of Elder was observed pressed up against the trunk of another pollard near to the one first mentioned. In the latter instance the shoot had not yet reached the branches of the Oak, and so could not support itself by hooking over them, but it was firmly pressed against the Oak trunk, and at least twice as tall and twice as thick as the other branches of the Elder not so supported. We lighted upon these interesting specimens in the course of a Sunday afternoon ramble, and mentally decided to revisit the spot, with pencil and note-book, at the first opportunity. A week elapsed ere this occurred, and then we experienced a shock to find that some enterprising builder of the tribe of the Philistines had felled the Oak and grubbed up the Elder. Another week and they would have disappeared utterly. Wretched Philistine! As it

was, we were enabled to make a rough sketch, and give it in memoriam. *M. T. M.*

**Fertilising and Raising Seedling Fuchsias.**—When does Mr. Lye fertilise his Fuchsia blooms if he finds it necessary to do so? is a question to which some of your readers would no doubt like a reply. It may be said to arise out of the remarks relating to his mode of culture given in the *Gardeners' Chronicle* a few weeks ago. The month of September is that when the work of fertilisation is done by the famous grower. He prefers for the purpose flowers that have been expanded three or four days. It is also necessary that the weather be fine, and the pollen in good condition and dry. A feather or the tail of a rabbit is used in the process. The pollen is taken from one set of flowers and placed on the stigma of others, and the plants so operated upon are placed within a covering of tiffany to prevent bees and other insects visiting the flowers. When the berries are ripe, i.e., of a black, or nearly black colour, they are gathered and laid by on a piece of slate or board and placed on a warm shelf in the greenhouse for a few days to dry somewhat and shrivel. The seeds are removed from the pods by means of a small pen-knife, taking them from the pulp and placing them on a sheet of brown paper to dry. The seeds are sown in March in a temperature of some 60° to 70° during the month of March. The soil used is one composed of three quarters of rich yellow loam, and of leaf-mould one quarter, with the addition of a good sprinkling of silver-sand. The seeds are sown in pots or pans, and slightly covered, and then placed in a Cucumber-house or Melon-frame, where they germinate in a comparatively short time. As soon as they have grown large enough to handle they are potted singly into small pots and returned to the Cucumber-house to get them established. They are then placed in a cold frame, where they remain during the summer months, throwing the lights open at night to keep them from drawing. Many of the plants flower in the month of September. It is a bad plan to over-pot seedlings, as they grow too much to wood in consequence, and require a longer time in which to flower. *R. D.*

**Pruning Orchids.**—Orchids were never held in so much estimation as at the present time. There are continually numbers of people commencing their cultivation who have comparatively little knowledge of their management, but who are ever ready to adopt any new treatment they see held up as advantageous, such as this cutting out the living bulbs, which has now for several years been persistently held up by the advocates of the practice as the right course to follow. Yet the inexperienced cannot be too often cautioned as to the condition their plants will be reduced to if they follow the mischievous practice. It is not every one who has been beguiled into this erroneous mutilation of their plants who has the courage to proclaim the result like Mr. David Walker. Several cases have come under my notice, one in particular where the bulb-cutting was not confined to two or three plants, like the instance so fully described, but ten or twelve fine specimens were operated on with the result that the owner was so disgusted with the plight they were reduced to that at the end of the season they were put into the fire as being beyond recovery. When the subject was first mooted the advantages claimed for it were not confined to Dendrobiums, but extended to other species. *Coelogyne cristata* was represented to be much benefited by cutting out the back bulbs, which it was alleged did not allow enough room for the young growths. It now appears there is a retreat from the ground first taken up, and the operation advised is to be confined to the removal of the bulbs that are three, four, or five years' old, with the damaging admission that a plant that had all its back bulbs cut away for several years in succession continues to live. If nothing better than negative results like this had at first been claimed for the pruning it is not likely any one would have been foolish enough to have adopted it. Mr. De B. Crawshaw rightly suggests that the pruned plants should be shown at the Orchid Conference. I and others have repeatedly urged that they should be shown at one of the leading exhibitions, or at a meeting of the Royal Horticultural Society. After February there is a meeting every fortnight, consequently they cannot be withheld on the plea of not being in bloom at a time when there is an opportunity of showing them. Neither would it matter whether the plants were in bloom or not; the result



of the practice would be as easily seen without flowers as with them. Why cannot the other correspondent mentioned show his pruned *Dendrobium nobile* with bulbs said to be 3 feet long at one of these meetings? A sight of the plants would do more than all the assertions that have been made to remove the scepticism of Orchid growers. *T. B.*

**Sclerotoids in Potatoes.**—On p. 663, Professor Trail suggests that these bodies should be sought for in Tomatos attacked by *Peronospora*. I have recorded their occurrence with *Peronospora* in Parsley, and with *Peronospora* in Onions, in the *Gardeners' Chronicle*, Nov. 22, 1884, p. 662. *W. G. Smith.*

## Reports of Societies.

### ROYAL HORTICULTURAL: March 24.

THE last meeting of this Society was the occasion for an interesting exhibition by nurserymen and other growers of Hyacinths, Tulips, Cyclamen, Tazetta Narcissus, Daffodils, together with some uncommon forms of Orchids and specimens of various rock plants and Primulas.

#### Scientific Committee.

Sir J. D. Hooker in the chair. Present: Messrs. Michael, Pascoe, Masters, Godman, Houston, Grote, Lowe, McLachlan, Murray, Ridley, and Henslow.

#### CYPRIPEDIUM, SEMI-DOUBLE.

Dr. M. T. Masters exhibited a very curious blossom of *C. Hookeri*, on the part of T. B. Haywood, Esq., which he was requested to examine and report upon.

#### LAPAGERIA ROSEA, DOUBLE.

He also showed [a specimen received from Mr. C. J. Bowring, of Forest Farm, Windsor, on which he will report.

#### ARUM ITALICUM.

He also showed specimens of this plant gathered at Folkestone. The foliage is much larger than that of *A. maculatum*, and also appears earlier.

#### INDIAN PRIMULAS AND THE COLD.

Mr. Wilson exhibited some trusses which had withstood severe rain, snow, and a temperature of 24° without injury.

#### IRIS RETICULATA BULBS ATTACKED BY MILLIPEDES.

Mr. McLachlan mentioned that bulbs received from Professor M. Foster and others were often attacked by these enemies after a year or two of cultivation, though Mr. Wilson and Colonel Clarke had not experienced it.

#### DAFFODIL BULBS DISEASED.

Mr. Plowright sent bulbs received from Dr. M. Foster attacked by some species of *Pleospora* (*Sphaeria*) with sketch of fungus. It was given to Mr. G. Murray for further examination and report.

#### SWEET WILLIAM LEAVES ATTACKED BY PUCCINIA DIANTHI.

Mr. Plowright sent specimens, and observed:—"This is one of the *Leptopucciniae*, the spores of which germinate as soon as they are ripe. Like *P. malvacearum* the mycelium is confined to limited circular areas, where after a time it kills the tissues of the leaf—in some cases quite through, so as to cut out or punch out a circular hole."

#### WILLOW ATTACKED BY CEDIDONYA SP.

Mr. Plowright also sent branches of Willow with the "Cabbage gall," the tufts of leaves still adhering to the ends of the branches.

#### PODISOMA SARINÆ.

He also forwarded a branch of Juniper, exhibiting this fungus just commencing to appear.

#### PLANTS EXHIBITED: IIBISCUS HUGELII.

Colonel Clarke showed this beautiful flower from Australia.

#### HYBRID (?) BETWEEN BEGONIA SOCOTRANA AND B. SUBPULVATA ROSEA (?).

A plant was sent by MM. Thibaut & Keteleer with rosy-pink blossoms and cordate, not petate leaves. The question was raised whether it was a hybrid, as it appeared to show no trace of *B. socotrana*, while the figure of *B. subpeltata* (Wight's *Zeon*) was hirsute and not smooth, and of quite a different habit, as was the specimen sent.

#### RICHARDIA ÆTHIOPICA WITH TWO SPATHES.

A specimen of this not uncommon peculiarity was sent by Mr. Axford, of Twyford Moors, Winchester.

#### Floral Committee.

Present: G. F. Wilson, Esq., in the chair; and Messrs. Masters, Henslow, W. Wilks, H. Bennett, W. Bealby, J. Walker, G. Duffield, H. Ballantine, H. M. Pollett, J. Doiny, W. B. Kellock, A. Perry, J. Smith, H. Herbst, Shirley Hibberd, J. Fraser, C. Noble, H. Williams, J. O'Brien, T. Baines, H. Cannell, H. Turner.—A letter was read from Mr. R. Cookson relating to the variety of *Dendrobium nobile* shown at the previous meeting, and which he alleged to be constant.

Some small trained plants of Roses from Messrs. Paul & Son, The Old Nurseries, Cheshunt, consisting of the following of the *Rosa polyantha* section, found many admirers:—*Pacquerette*, pure white, with a habit of flowering in large bunches; *Anna Montravel*, also white, very double and sweet, with the habit of the first-named; *Mignonette*, *Perle d'Or*, and *Rivers* and Musk Rose. From the same nurseries came *Scilla sibirica*, *Erythronium purpureum majus*, a fine large rose-coloured variety; *Sempervivum fimbriatum*, of bronzy-red as to the leaf; *Saxifraga longifolia*, with silvery-white foliage, distinct; and various other alpine in *Saxifraga aretioides*; a minute yellow-bloomed *Primula*; *Primula Wulfeniana*, a rare and rosy-lilac flower, opening boldly; *Androsace Laggeri*, *Saxifraga retusa*, *S. oppositifolia*, &c. Messrs. Paul & Son were awarded a Bronze Banksian Medal for their collection of plants.

Messrs. J. Veitch & Son, Chelsea, staged numerous exhibits, including a fine collection of Narcissi, Anemones, Iris, &c.; *Rhododendron Emblem*, pale brick-red, and a good truss; and R. Teymanni, with pale buff-yellow trumpet-shaped flowers, with ten declinate stamens. Several of their seedling *Amaryllis*, of which the best were *Niobe*, a scarlet with a white stripe and green centre; *Queen*, white ground flaked with claret; and *Paragon*, a deep scarlet with a broad white star, the eye being green; other varieties were also shown by them of much beauty. Their exhibits included a fine collection of Hyacinths and Tulips, for which the Silver-gilt Banksian Medal was awarded; *Heliniopsis umbellata*, a Japanese plant, with a leafy spike arising from a tuft of lance-shaped leaves, and bearing at the top an umbel of pink six-parted flowers, like those of *Helenias bullata*; and some fine plants of *Pieris japonica* and *Spiraea confusa* were likewise shown by them. Messrs. Cutbush & Son, Highgate, London, also staged a fine collection of 150 Hyacinths and sixty Tulips, similar in name, &c., to the previous collections, also receiving the Silver-gilt Banksian Medal; and two fine plants of *Viburnum Laurustinus lucida*, well bloomed, which is a fine thing for decorative purposes. Mr. R. Dean, Ealing, exhibited a collection of hardy *Polyanthus*, consisting of *P. White Queen*, *P. Purple Cushion*, *P. spectabilis*, *P. marginata*, *P. latifolia*, *P. nivea*, *P. pedemontana*, and *Anemone ranunculoides*. R. Newbury, Esq., Manor Lodge, Feltham, staged three fine blooms of *Camellia Mathottiana*. H. Cannell & Sons, Swanley, Kent, showed a basket of a fine Primrose called *Harbinger*.

Mr. B. S. Williams, Holloway, staged a select lot of plants, consisting of *Clivia Lindenii*, a very fine variety, scarlet and orange; and General Gordon, of a more intense colour; *Amaryllis Masterpiece*, fiery crimson; *Calanthe Sanderiana*, a strong grower, with a peduncle 3 feet in height, and a large strong bulb—the flowers are of a deep rose colour; *Camellia Commendatore Betti*, a fine large-flowered bright rose-coloured variety, with smooth petals and very massive form; *Sarracenia atro-sanguinea*, *Atkinsoniana*, *Tolliana*, and *Chelsonii*, all in flower; a nice pan of *Boronia megastigma*, a collection of very well flowered *Azalea mollis*, in considerable variety; a few pots of very dwarf floriferous *Primula sinensis*, six splendid pots of *Lily of the Valley*, a small collection of well grown *Polyanthus*, *Narcissus* in pots, and a splendid lot of Hyacinths and Tulips—180 of the former and sixty of the latter. Amongst the Tulips Kaiser Kroon, *Proserpine*, *Van der Neer*, *Fabiola*, *Joost van Vondel*, *Ophir d'Or*, *Canary Bird*, &c. Amongst the Hyacinths, *Czar Peter*, *Lord Macaulay*, *La Grandesse*, *Koh-i-noor*, *Challenger*, *Odalisque*, *Ida*, *Mont Blanc*, *Sultan*, *Lord Derby*, *Princess Amalia*, *Prince Albert Victor*, and many others. Mr. B. S. Williams was awarded the Silver-gilt Banksian Medal.

Mr. W. Bull, King's Road, Chelsea, had a small group of *Palms*, *Ferns*, *Asparagus*, and other small foliage plants, as a background to a few flowering plants. We noticed a pretty piece of *Dendrobium Farmeri*, *D. nobile* insignis, a high coloured variety with much purple tints on the tips of sepals and petals; *Cymbidium eburneum*, with three blooms; *Coleogyne Massangeana*, with a stout spike of its lemon and brown-coloured blooms; *Odontoglossum Wilckeanum album*, with a creamy ground colour, crest and throat yellow, and brown spots on petals and sepals and labellum. *Azalea Illuminator*, a bright coloured improved form of *A. amona*, formed an attractive plant in this group, as did also *Epacris onosmaeflora flore-pleno* and *Hæmanthus Kalbreyeriana maxima*. *Anthurium Rothschildianum*, with a spathe of small size, white, suffused with minute red spots, was a curious thing, which might be showy as a large plant. *Bentinkia condapanina* is a fine Palm, of bold habit, with three-sided stems and glabrous pinnate foliage. A Silver Banksian Medal was awarded for the group.

Mr. Anthony Waterer, Knaphill Nursery, Woking, had a pretty collection of Primrose *Polyanthus* in pots,

also hardy Heaths, and some fine plants in pots of *Pieris japonica*, well bloomed; *Andromeda floribunda* being placed beside them to show the superiority of the former plant. Mr. Waterer received a Bronze Banksian Medal for the collection.

Mr. Henry Bennett, Shepperton, Middlesex, showed the pedigree hybrid Tea Rose, Lady Mary Fitzwilliam, Tea Rose William Francis Bennett, and pedigree seedling Tea Rose "Ye Primrose Dame," a very delicately tinted yellow; and General Gordon, almost a white, very fine, but of less substance than the first-named. Mr. J. Aldous, florist, Gloucester Road, South Kensington, staged a collection of decorative plants, consisting of *Palms*, *Dracenas*, *Adiantum farleyense*, *Funkias*, and *Lycopodiums*, also a few nice plants of *Chrysanthemum frutescens*, being awarded a Bronze Banksian Medal. Messrs. Collins Bros. & Gabriel staged a choice collection of English grown Victoria Giant Anemones, very fine; also a nice lot of Narcissi, *Muscari*, *Scilla*, *Chionodoxa*, &c., and were awarded a Bronze Banksian Medal. Mr. R. Clark, florist, Twickenham, staged about 400 splendid Cyclamens, in various sized pots, but all of fine form, substance, and colour, obtaining a Silver-gilt Banksian Medal. Messrs. Barr & Son, Covent Garden, had an excellent collection of Narcissi, *Pseudo-Narcissi*, and *Polyanthus Narcissi*, &c., obtaining a Silver Banksian Medal. In this collection was *Chionodoxa sardensis* with smaller flowers than the type, and of a deep purple colour, the white eye being very small. Mr. T. S. Ware, Tottenham, was awarded a Silver Banksian Medal for a fine collection of hardy herbaceous plants and bulbs, consisting of fine examples of *Lachenalias*, *Iris*, *Freesia*, *Scillas*, *Chionodoxa*, *Anemones*, and *Megasea Milesii*, a white variety of much promise. Mr. W. B. Hardland, of 24, Patrick Street, Cork, staged a collection of Narcissi grown in Ireland, consisting of the following sorts amongst others that were unnamed, viz., tall Albicans, *Commodore Nutt*, *Silver and Gold*, tall *Tortuosus*, with pale sulphur perianth and crown; early flowering *Cloth of Gold*, a stellate double form of pale yellow; double *Cernuus*, a primrose coloured double flower. Mr. J. Walker showed a fine basket of cut blooms of *Clematis indivisa lobata*. A very finely bloomed plant of *Trichopilia suavis* was exhibited by Mr. J. N. Davis, gr. to W. Soper, Esq., 307, Clapham Road, S.W. Mr. W. Parkes, gr. to H. M. Pollett, Esq., showed a well-grown plant of *Odontoglossum Wilckeanum*, carrying fifty-one flowers and buds. J. Batten, Esq., Highfield, Bickley, showed a plant of *Odontoglossum gloriosum majus*, a fine variety, nicely spotted, of a pale yellow ground, the spots, which are brown near the apex of the petals, approach to a crimson colour at the base.

#### FIRST-CLASS CERTIFICATES.

To Messrs. J. Veitch & Sons, for *Amaryllis Niobe*.  
To Messrs. J. Veitch & Sons, for *Amaryllis Paragon*.  
To Messrs. J. Veitch & Sons, for *Amaryllis The Queen*.  
To R. H. Measures, Esq., for *Odontoglossum Wilckeanum*.  
To Messrs. Barr & Son, for *Chionodoxa sardensis*.  
To Mr. H. Bennett, for *Rose General Gordon*.  
To Mr. H. Bennett, for *Rose Ye Primrose Dame*.  
To Messrs. Paul & Sons, The Old Nurseries, Cheshunt, for *Primula Wulfeniana*.  
To Mr. B. S. Williams, for *Calanthe Sanderiana*.  
To Mr. B. S. Williams, for *Camellia Commendatore Betti*.

#### VOTES OF THANKS.

To J. Walker, Esq., for *Clematis indivisa lobata*.  
To L. Paighton, Esq., for *Odontoglossum Alexandræ*.  
To H. M. Pollett, Esq., for *Odontoglossum Wilckeanum*.  
To I. Batten, Esq., for *Odontoglossum gloriosum majus*.  
To W. Soper, Esq., for *Trichopilia suavis*.  
To R. Newbury, Esq., for *Camellia Mathottiana*.  
To R. Dean, Esq., for hardy Primulas.  
To J. C. Bowring, Esq., for *Orchid bloom*.  
To H. Bennett, Esq., for cut Rose blooms.  
To H. Cannell & Sons, for cut blooms of Primulas, &c.

#### Fruit Committee.

Present: F. D. Godman, Esq., in the chair; and Messrs. J. Lee, A. W. Sutton, H. J. Veitch, J. Bennett, G. Bunyard, J. Lane, G. Paul, T. F. Rivers, J. Roberts, F. Rutland, R. D. Blackmore, J. Woodbridge, H. Ivarson Weir, Dr. Hogg, T. B. Heywood, G. Goldsmith, and J. Willard.

Dr. Bull, Hereford, showed a dish of Herefordshire Beefing. Mr. S. Ford, gr. to W. E. Hubbard, Esq., Leonardslee, Horsham, showed dishes of Bessom, a large handsome conical Apple; Mincing Pippin, and Minchal Crab. He also sent the first two cooked. C. Ross, Welford Park, Newbury, sent Apple Peck's Pleasant; and Isaac Harrison, Esq., Leicester, sent an unnamed seedling.

#### ROYAL BOTANIC: March 25.

This Society held its first show this year on Wednesday last in the corridor and conservatory of Regent's Park.

Six greenhouse Azaleas, amateurs.—Mr. H. Eason, gr. to B. Noakes, Esq., Hope Cottage, Highgate, was 1st, with six nicely trained and flowered specimens of *Apollon*, *Françoise*, *Vervaine*, *Model*, &c.; 2d, Mr. G. Wheeler, gr. to Lady Louisa Goldsmith, St. John's Lodge, Regent's Park, with six nice examples; 3d, Mr. F. G. Hill, gr. to H. Little, Esq., Hillingdon Place,



In the class for nurserymen, Mr. H. James, Castle Nursery, Norwood, was 1st, with Flag of Truce, Exquisite, Apollon, Roi Leopold, Ceres, and Sigismund Rucker; Messrs. T. Todman & Son, Rose Park Nursery, Upper Tooting, was 2d. For six Chinese Primulas, open, Mr. F. G. Hill, who, amongst other varieties, had Tomkins Queen especially fine, was 1st; Messrs. Carter & Co., High Holborn, were 2d, with six of their well-known varieties; 3d, Messrs. H. Williams, Finchley. For nine hardy Primulas, open, Mr. J. Douglas, gr. to F. Whitbourn, Esq., Great Gearies, Ilford, Essex, was 1st, with P. nivalis, P. nivca, P. obconica, P. marginata corulea, P. Nelsoni hybrida, and P. John Bright. For nine hardy herbaceous plants, Mr. J. Douglas was also 1st, with Narcissus bicolor Horsfieldii, white and blue Muscari, Sanguinaria canadensis, Anemone ranunculoides, Hellebores, Fritillarias, &c. For six forced Roses (nurserymen) Messrs. Paul & Son, the "Old" Nurseries, Cheshunt, were 1st, with Souvenir d'un Ami, Marquise de Castellane, Perfection de Montplaisir, Alba rosea, Duke of Teck, Catherine Soupert, all well grown handsome specimens. This firm also staged forty other pot Roses, all in the very best condition, for which they received a Large Bronze Medal. Six Deutzias (open).—Mr. J. Douglas was a long way 1st here, with six splendid specimens, literally "smothered" with bloom; Mr. H. Eason was 2d, with six well bloomed but considerably smaller specimens than Mr. Douglas; 3d, Mr. G. Wheeler. The classes for twelve pots of Cyclamen brought forth a grand display. In the open class Mr. H. B. Smith, nurseryman, Ealing Dean, was 1st, with twelve even, dwarf, well bloomed plants; Mr. F. Hill, gr. to H. Little, Esq., Hillingdon Place, was 2d, with twelve good plants, but not quite so dwarf as Mr. Smith's.

In the amateurs' class, Mr. F. Hill was 1st, with a nice even lot; and Mr. J. Wiggins, gr. to W. Clay, Esq., Grove Road, Kingston, was 2d with twelve plants very little behind Mr. Hill's. Six pots Lily of the Valley, in 9-inch pots (open), brought out some grand examples, which were much admired. Mr. W. J. Watson, nurseryman, Newcastle-on-Tyne, was 1st with six splendid fresh examples, especially when the distance they travelled is taken into consideration; Messrs. H. Williams & Sons, Fortis Green, Finchley, were 2d; and Mr. H. R. Wright, florist, Lee, Kent, 3d. For twelve Hyacinths, single spikes, amateurs, Mr. H. Eason was 1st, with magnificent examples of Koh-i-noor, Lady Derby, General Havelock, Grand Master, Baroness von Tuyl, Macaulay, Marie, Marchioness of Lorne, King of the Blues, and Von Schiller; Mr. J. Douglas was 2d with fine examples of La Grandesse, Bird of Paradise, Ida, Von Schiller, Souvenir de J. H. Veen, and others. The class for twelve Hyacinths, distinct, nurserymen, brought out a fine lot. Messrs. H. Williams & Sons were 1st, with magnificent examples of Czar Peter, Koh-i-noor, Grandesse, King of the Blues, Lord Macaulay, Marie, Morena, Lord Derby, Von Schiller, Grandeur à Merveille, and King of the Yellows. Mr. H. R. Wright was 2d, with fine examples of Grand Maitre, Rubra, and Maxima. Messrs. W. Cutbush & Son, Highgate, were 3d, with twelve fine spikes, mostly of the newer varieties, fine in colour, but deficient in size. Twelve pots of Tulips, three in a pot, amateurs.—Mr. J. Douglas was 1st, with fine dwarf, highly coloured examples of Kaiser Kroon; white Joost van Vondel; purple Joost van Vondel, Ophir d'Or, and Prosperpine; 2d, Mr. H. Eason, with rather taller plants of the same varieties. Twelve pots of Tulips, distinct, Nurserymen.—Messrs. W. Cutbush & Son were 1st, with excellent examples of Hector, Prosperpine, Kaiser Kroon, Fabiola, Van der Neer, Rose Gris de Lin, Ophir d'Or, Cottage Maid, Vermilion Brilliant, and Joost van Vondel. Messrs. H. Williams & Son were 2d, having, amongst others, several very well-grown plants, good examples of Hector, Nelly, Mercurius, Spaendonk, &c.; Mr. H. R. Wright was 3d. Twelve pots of Polyanthus Narcissus, three in a pot, not less than four varieties (open).—1st, Messrs. H. Williams & Son, with a fine even lot of Grand Monarque, Bazelman Major, Newton, Gloriosa, Her Majesty, Bathurst, &c.; 2d, Mr. J. Douglas, with similar varieties; 3d, Mr. H. Eason. Twelve pots of Crocus (open).—1st, Mr. J. Douglas; 2d, Messrs. Cutbush & Son. Twelve Amaryllis (open).—1st, Mr. J. Douglas, with twelve seedlings of Empress of India, all of them, more or less, showing the character of the parent. Two of them were especially noticeable—an unnamed one with a fine white star, and very deep claret edging; and Sir Garnet Wolseley, fine lively scarlet.

Special prizes for Amaryllis.—For the best seedling, 1st, Mr. J. Douglas, with Helen Lodge, a fine bold flower, rich carmine, with small white distinct star; 2d, Mr. F. J. Hill, with Mrs. H. Little, a good flower, deep crimson, white-tipped, small green star. For the best six named, Mr. J. Douglas was 1st, with Great Gearies, light crimson, white distinct star; Empress of India, J. Douglas (Veitch), Marcus Aurelius, fine bright crimson, green star; John Heal, bold flower, white, flaked claret, green eye; 2d, Madonna, white, flaked crimson, green eye; 2d, Mr. R. Butler, gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, with six of the Empress of India type. For the best dark variety, Mr. J. Douglas was 1st and 2d, with Great Gearies and Empress of India respectively. For the best light variety, Mr. J. Douglas was again 1st and 2d, with J. Heal and Madonna. There were numerous miscellaneous exhibits of exceptional quantity and merit, which in no small degree contributed to the success of the exhibition. Mr. Bull, Chelsea, had a choice collection of plants, neatly arranged, several of which received Certificates. Messrs. Paul & Son, the "Old" Nurseries, Cheshunt, had a fine collection of hardy plants and alpine, for which they received a

Certificate, while some of their specimens received a special Certificate. Messrs. H. Cannell & Sons, Swanley, staged a fine stand of twenty bunches of Pelargoniums and a basket of Primrose Harbinger. Mr. Anthony Waterer, Knap Hill, received a Bronze Medal for a fine collection of hardy Primroses, &c. Messrs. B. S. Williams, Holloway, had a large stand of miscellaneous plants, which had a telling effect, and for which they received a Large Silver Medal. Mr. R. Clark, Twickenham, had a fine lot of Cyclamens. Mr. H. W. Price, gr. to P. M. Muntz, Esq., Malvern Lodge, Surbiton, showed a collection of Cinerarias, with very large heads of bloom, for which he received a Certificate. Mr. H. B. Smith, Ealing Dean, received a Large Bronze Medal for a magnificent group of Cyclamens. Mr. James, Farnham Royal, Slough, received a Bronze Medal for a collection of Cinerarias of remarkably dwarf habit and striking colours. Mr. H. R. Wright, Lee, had a Large Bronze Medal awarded him for a collection of Tulips. Mr. J. Wiggins, gr. to W. Clay, Esq., Kingston-on-Thames, received a Certificate for a collection of Cyclamens. Messrs. J. Veitch & Sons, Chelsea, had a fine collection of miscellaneous plants, including some of their famous Amaryllis, many of which received a Certificate. Mr. F. J. Hill received a Certificate for a quantity of Lycopodium in variety, and a fine example of Dendrobium crassinode, with very large blooms and well coloured. Mr. H. Eason also received a Certificate for a collection of flowering bulbs—Hyacinths, Tulips, &c. Messrs. Hooper & Co. exhibited a fine basket of Carnations. Messrs. Carter & Co., High Holborn, had a fine basket of Valotta purpurea, and pans of Primula spectabilis and Soldanella montana. Messrs. Collins Bros. & Gabriel had a showy collection of Narcissi, Anemones, &c., for which they were awarded a Large Bronze Medal. Mr. T. S. Ware, Tottenham, with a fine collection of hardy flowers, for which he received a Certificate. Messrs. Barr & Son, Covent Garden, were awarded a Bronze Medal for a fine collection of Narcissi, &c. Messrs. W. Cutbush & Son were awarded a Small Silver Medal for groups of Hyacinths, &c.

Certificates were awarded as follows:—To Mr. W. Bull, Chelsea, for Hemanthus Kalbreyeri maximus, Bentinckiana condapanna, Oreodoxa plumosa, Saracenica Adkinsiana, Masdevallia Wagneriana, Lycopodium Skinneri alba, Dendrobium crassinode var. alba, D. nobile var. insignis, D. Ainsworthii, Odontoglossum Rossii concinnum, Selaginella amocna, and Lomaria heterophylla. To Mr. Hill, for Dendrobium crassinode var. gigantea. To Messrs. Paul & Son, Cheshunt, for Anemone pulsatilla patens. To Mr. E. S. Williams, for Calanthe Sanderiana, Dendrobium nobile nobilis, and Camellia Commendatore Betti. To Messrs. Barr & Son, for Chionodoxa sardensis. To Messrs. Keteleer, nurserymen, Soeaux, for Begonia Gloire de Soeaux. To Mr. J. Douglas, for Amaryllis Helen Lodge, and A. Great Gearies. To Mr. Hill, for Lycopodium Skinneri magnifica. To Mr. James, for single-flowered Cinerarias, Mrs. A. Sutton, Viceroy, Paragon, Mary Anderson, General Gordon, Dante, and Rob Roy. To Mr. Hill, for Azalea Madame J. N. Verschaffel and Primula Tomkin's Queen. To Messrs. J. Veitch, for Amaryllis Basilisk, Ne Plus Ultra, Perfection, and Rhododendron Teysmanni.

### CLIFTON SPRING SHOW.

THE fifteenth spring show was held in the Victoria Rooms on the 18th inst., and was in every respect an excellent one. The chief features were the spring flowering plants, but in addition there were also some choice collections of stove and greenhouse plants, Orchids, Ferns, and some capital dishes of late fruit, consisting of Grapes, Pears, and Apples, all of which were in an excellent state of preservation. One of the most interesting exhibits in the non-competitive class was a very large and choice collection of Narcissi, sent from Tresco Abbey, Isles of Scilly, by T. A. S. Dorrien Smith, Esq.

Prize offered by the Treasurer, Walter Derham, Esq., for the best eighteen Hyacinths, distinct varieties; twelve pots of Tulips, six single and six double.—Mr. G. Marsh, gr. to M. Dunlop, Esq., was 1st, with a very choice collection, comprising the following varieties:—Queen of Blues, General Havelock, Von Schiller, Fabiola, L'Innocence, King of Blues, Odalisque, Haydn, Lord Shaftesbury, Queen of Hyacinths, Mont Blanc, Pinerman, Lord Macaulay, De Candolle, Paix de l'Europe, Grand Maitre, General Pellissier, Lothair, Tulips:—White Pottebakker, Vermilion Brilliant, Murillo, Prosperpine, Fabiola, Joost van Vondel, Tournesol, Kaiser Kroon, Imperator Rubrorum, Tournesol yellow. 2d, W. N. Lintern, gr. to Wm. Butler, Esq., with some good examples of Queen of Hyacinths, General Havelock, Mont Blanc, King of Blues; also some well grown Tulips. 3d, Mr. W. C. Taggett.

Twelve Hyacinths, distinct varieties.—1st, Mr. Gastrell, gr. to A. Jones, Esq.; 2d, Mr. H. Lintern, gr. to Wm. Butler, Esq.; 3d, Mr. Wm. Fox, gr. to Mrs. Harle.

Six Hyacinths, distinct varieties.—1st, Mr. Josh. Gastrell, gr. to A. Jones, Esq.; 2d, Mr. W. Fox.

Four pots, single Tulips.—1st, Mr. W. Fox; 2d, Mr. Lintern.

Four pots double Tulips.—1st, Mr. Fox; 2d, Mr. Lintern.

Four pots Vermilion Brilliant.—1st, Mr. Lintern; 2d, Mr. Fox.

Banks of plants arranged for effect on a space 12 feet by 7 feet.—These were composed of Orchids, stove and greenhouse plants, interspersed with fine-foliated plants and Ferns, and although somewhat flat and formal, had a very gay effect (open). 1st, H. C. Miles, Esq. (gr. Mr. F. Perry) (Silver Cup); 2d, James Derham, Esq. (gr.

Mr. W. Rye), 4 guineas; 3d, Messrs. Maule & Son. Three pots Amaryllis.—1st, Mr. C. Taggett.

For the best bunch of Grapes, Mr. F. Nichol, gr. to Mrs. Miller, was placed 1st, with a good bunch of Lady Downe's; and Mr. Loosenore, gr. to W. Cooper, Esq., 2d, with the same variety, better in colour than the former, but somewhat shrivelled. For the best dish of Pears, Mr. J. Marshall, gr. to Mark Whitwell, Esq., was 1st, with an excellent dish of Easter Beurré; Mr. J. Stapleton, gr. to H. Mardow, Esq., 2d; and Mr. W. Rye, 3d. For the best dish of Apples the 1st prize was awarded to Mr. E. T. Hill for a highly coloured plump dish of Blenheim Orange; the 2d to Mr. H. Bannister, gr. to H. St. Vincent Ames, Esq.; 3d, Mr. J. Marshall.

For the best arranged vase of flowers there was a keen competition, as also for buttonhole bouquets. In the former class Mr. E. T. Miller was 1st, with a well arranged stand, although the flowers were somewhat too crowded at the base. Mr. E. S. Cole was 2d, and Mr. Mark Hutchings, 3d; and for the buttonhole bouquets, Mr. E. S. Cole, gr. to W. Pethwick, Esq., was 1st.

For the best specimen Orchid, for which a Banksian Silver Medal from the Royal Horticultural Society was awarded to Mr. E. Miller, for a nicely flowered Phalaenopsis Schilleriana with over sixty expanded flowers; Mr. Rye being a good 2d with a nice pan of Cologney cristata, 3 feet in diameter; Mr. Nichol being 3d with the same species. The ornamental foliated plants were represented by some grand specimens of Crotons—Weismanni, interruptus, Youngii and variegatus; Latania borbonica, Areca sapida, Cycas revoluta, Alocasia metallica, Dracena Morreana, and others.—Mr. Rye being placed 1st; Mr. R. Morse, gr. to S. Budgett, Esq., 2d; and Mr. T. Edwards, gr. to J. Lysaght, Esq., 3d. For the best collection of stove and greenhouse plants, there were some neat plants staged, consisting of Clerodendron Balfourianum, Clivia polygala.—Mr. F. Perry being 1st, Mr. H. Hancock, gr. to A. W. Summers, Esq., 2d; and Mr. Fox, 3d. The Azaleas were not largely represented, although some neat and well flowered specimens were staged, the chief prizes being awarded to Messrs. F. Perry, H. C. Taggett, A. Hancock, H. Spry, gr. to J. Gibson, Esq., H. Lintern, and R. Morse, gr. to S. Budgett, Esq. For hand bouquets, Messrs. E. S. Cole, M. Hookings, and E. Miller, were awarded prizes for some very choice and tastefully arranged examples. Messrs. Parker & Sons also exhibited (not for competition), some elaborate specimens of bridal and ballroom bouquets. Pots of Lily of the Valley, as well as Cyclamens, were exceedingly well done, as were also Mignonette and Primula. A few good stands of cut Roses were also well shown, especially those exhibited by Mr. Wm. Taylor, gr. to Alderman Chaffin, Esq., of Bath. I must not omit to mention the splendid display of Hyacinths contributed by Messrs. Garaway of the Durdham Down Nursery, which comprised some magnificent examples of all the leading kinds. A treble-spated Anem was also shown by the same firm. In this instance two of the spathes were large and equally developed, while a third could just be distinguished between these.

Advantage was taken at this large gathering of the lovers of horticulture to present to Mr. George Webley, who has just resigned the post of Hon. Secretary to the Society after sixteen years' hard and most successful work, an illuminated address, accompanied by a silver cake-basket, fruit-spoons, and album, as a mark of their sincere regard for him, and as a small acknowledgment of his valuable services. T. S. C.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, MARCH 25, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.						HYGROMETRI- cal Deductions from Glaisher's Tables 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 48 Years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 50 years.	Dew Point.	Degree of Humidity. Sat. = 100.	Average Direction.		
Mar.	In.	In.	°	°	°	°	°	°			In.	
19	29.92	+ 0.10	44.7	31.0	13.7	36.5	— 5.2	30.3	79	N.W.	0.00	
20	29.59	— 0.22	58.0	31.5	26.5	45.7	+ 4.0	41.1	90	S.W.	0.00	
21	29.60	— 0.11	46.0	40.5	5.5	41.7	— 0.1	32.3	70	N.W.	0.00	
22	29.72	— 0.07	44.0	32.0	12.0	35.6	— 6.3	32.3	89	N.E.	0.67	
23	30.13	+ 0.35	42.0	25.0	17.0	33.7	— 8.3	27.9	80	N.W.	0.00	
24	30.11	+ 0.33	46.2	27.5	18.7	35.7	— 6.4	31.8	86	E.S.E.	0.00	
25	30.09	+ 0.31	47.4	31.6	15.8	38.2	— 4.1	30.0	75	E.N.E.	0.00	
Mean	29.89	+ 0.10	46.0	31.3	15.6	38.1	— 3.8	32.4	81	N.W.	0.67	

March 19.—Fine bright day and night.

20.—Dull, but fine.

21.—Dull and windy.

22.—Snow fell from early morning till 10 A.M., to the depth of 4 inches. Fine afternoon; sun shining at times.

23.—Fine bright morning, dull afterwards.

24.—Fine and bright mostly.

25.—Very fine bright morning; dull afternoon.



LONDON: *Atmospheric Pressure.*—During the week ending March 21, the reading of the barometer at the level of the sea decreased from 30.54 inches at the beginning of the week to 30.44 inches by 5 P.M. on the 15th, increased to 30.59 inches by 9 A.M. on the 16th, decreased to 29.60 inches by 1 P.M. on the 18th, increased to 30.09 inches by 9 A.M. on the 19th, decreased to 30.08 inches by 1 P.M. and increased to 30.13 inches by 5 P.M. on the same day, decreased to 29.72 inches by 5 P.M. on the 20th, increased to 29.90 inches by 9 A.M. on the 21st, and was 29.87 inches by the end of the week.

The mean reading of the barometer for the week was 30.05 inches, being 0.28 inch lower than last week, and 0.15 inch above the average of the week.

*Temperature.*—The highest temperature in the shade in the week was 58° on the 20th; the highest temperature on the 19th was 44°.7. The mean of the seven high day temperatures was 50°.

The lowest temperature was 26° on the 15th; on the 21st the lowest temperature was 40°.5. The mean of the seven low night temperatures was 32°.2.

The greatest range of temperature in one day was 26°.5, on the 20th; the smallest was 5°.5, on the 21st. The mean of the seven daily ranges was 17°.8.

The mean temperatures were—on the 15th, 37°.3; on the 16th, 39°.4; on the 17th, 42°.3; on the 18th, 41°.5; on the 19th, 36°.5; on the 20th, 45°.7; on the 21st, 41°.7; and these were all below their averages (excepting the 17th and 20th, which were 0°.7 and 4° above) by 4°.1, 2°.1, 0°.2, 5°.2, and 0°.1 respectively.

The mean temperature of the week was 40°.6, being 3°.3 higher than last week, and 1° below the average.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 112°, on the 15th and 17th. The mean of the seven readings was 96°.3.

The lowest reading of a minimum thermometer with its bulb placed on grass was 21°, on the 15th. The mean of the seven readings was 26°.3.

*Rain.* 0.05 inch fell on the 18th.

ENGLAND: *Temperature.*—During the week ending March 21, the highest temperatures were 59°.2 at Cambridge, 58° at Blackheath, 57° at Plymouth; the highest at Preston was 49°, at Liverpool 49°.3, at Bolton 49°.8. The general mean was 53°.8.

The lowest temperatures were 24°.5 at Cambridge, 25°.6 at Wolverhampton, 26° at Blackheath; the lowest at Liverpool was 32°.4, at Brighton 31°.3, at Bristol 30°.5. The general mean was 29°.

The greatest ranges were 34°.7 at Cambridge, 32° at Blackheath, 29° 9 at Wolverhampton; the smallest ranges were 16°.9 at Liverpool, 18° at Preston, 19°.4 at Brighton. The general mean was 24°.8.

The mean of the seven high day temperatures was highest at Sheffield, 53°.3, at Cambridge 52°.9, at Truro 51°.6; and was lowest at Bolton and Sunderland, 45°.8, at Liverpool 46°. The general mean was 49°.3.

The mean of the seven low night temperatures was highest at Liverpool and Preston, 36°.1, at Truro 36°; and was lowest at Cambridge, 30°.5, at Wolverhampton 31°, at Hull 31°.6. The general mean was 33°.9.

The mean daily range was greatest at Cambridge, 22°.4, at Wolverhampton 19°.3, at Sheffield 19°.2; and was least at Hull, 9°, at Liverpool 9°.9, at Preston 10°.5. The general mean was 15°.4.

The mean temperature was highest at Truro and Sheffield, 42°.7, at Preston 42°.2; and was lowest at Bolton, 37°.8, at Wolverhampton 39°, at Sunderland 39°.3. The general mean was 40°.6.

*Rain.*—The largest falls were 0.90 inch at Bolton, 0.81 inch at Brighton, 0.58 inch at Preston; the smallest falls were 0.01 inch at Plymouth and Bristol, 0.05 inch at Blackheath. The general mean fall was 0.26 inch.

SCOTLAND: *Temperature.*—During the week ending March 21, the highest temperature was 59°, at Glasgow; at Paisley the highest was 51°.3. The general mean was 53°.6.

The lowest temperature in the week was 20°, at Greenock; at Leith the lowest temperature was 31°.7. The general mean was 27°.9.

The mean temperature was highest at Edinburgh and Aberdeen, 42°.1; and lowest at Greenock, 40°.1. The general mean was 41°.5.

*Rain.*—The largest fall was 0.65 inch, at Greenock; and the smallest fall was 0.15 inch, at Dundee. The general mean fall was 0.30 inch.

JAMES GLAISHER, F.R.S.

## Obituary.

WE regret to hear of the death of Mr. F. W. WILSON, at the comparatively early age of fifty-one. He was for many years superintendent of the shows at the Crystal Palace, and all who knew him at that time will remember how indefatigable he was, and the wonderful good temper he displayed in moments of worry and anxiety.

## Answers to Correspondents.

\*\* Correspondents are informed that, owing to the arrangements for Easter week all communications intended for publication must be sent not later than March 31.

CAMELLIA LEAVES DISEASED: *Waterside.* We are unable to offer any satisfactory explanation of the numerous brown spots on the Camellia leaves. We have seen like spots caused by a fungus named *Pestalozzia Guepini*. In your case, however, we cannot detect any fungus spores. For a description of a very similar disease in Palms, with illustrations of species of *Pestalozzia*, see the *Gardeners' Chronicle* for October 4, 1884. In default of a full knowledge of the ailment, we can only recommend the removal and burning of the leaves as soon as the disease-patches begin to show. *W. G. Smith.*

DISEASED PEACH TREE. *Arbre.* Apparently a case of gumming, but from what cause is not evident.

LAWN TENNIS COURT: *H.* There is no harm done by the ground having been much trodden, rather good if the land be light and well-drained. It can be best laid with turf from an old pasture, as free as it can be got from weeds. Lawn Sand applied after the turf has begun to grow will encourage the grasses, thereby choking the other vegetation, which will then gradually die out. For the mixture of grass seeds suited to your soil and requirements, apply to a respectable nurseryman, but do not purchase the Rye-grass with the other seeds, as this is best sown by itself first and hoed in lightly; the other seed can then be sown and lightly raked in, and the ground rolled evenly afterwards. The Rye will cover the ground and shade the weaker grasses for the first year, after which it will die out, leaving the perennial grasses to form the sward.

NAMES OF PLANTS: *F. C. T.* Camellia paeoniflora rosea.—*G. K. Gude.* Eucalyptus globulus; Cytisus racemosus; Carex, next week.—*A. Chapman.* 1. Scilla sibirica; 2. S. bifolia; 3. not recognised.—*W. M. B.* Gaultheria Shallon.—*W. Leighton.* Aeschynanthus splendens.—*W. Collett.* Grevillea Manglesi; Rhododendron, perhaps Countess of Haddington.—*J. Willis.* Dendrobium chrysotomum, Epidendrum Stamfordianum. The seed-pod of your Odontoglossum grande will be engraved, and figured in our columns shortly.

PRIZE SCHEDULE, &c.: *G. C. I.* Unless the schedule states that no hardy plant may be shown as a greenhouse plant, you should be able to put up Clematis Miss Bateman. 2. Not later than six weeks in advance of the date.

QUOTATIONS FROM BOOKS, &c.: *C. Ford.* If you fully acknowledge the source from which the quotations are taken, that is all that is required, unless you quote in a wholesale manner, when, unless you have obtained permission, your acts would become unlawful. The rule to follow is "Do unto others," &c.

"TRANSACTIONS OF THE BOTANICAL SOCIETY OF EDINBURGH" (vol. xiv., part 3): *Dis.* This can be obtained through the Treasurer, Mr. P. Neil Fraser, Old Fishmarket Close, Edinburgh.

WINDOW-BOX PLANTS TO BLOOM FROM APRIL TO JUNE: *John M. G.* Pansies, fancy and self; Lobelia erinus in variety; Regal Pelargoniums; zonal ditto; shrubby varieties of Calceolarias; Azaleas, Indian, Ghent, and mollis species; early-flowering Pinks; Wallflowers in variety, single and double; Ivy-leaf, sweet-scented, and tricolor Pelargoniums; Mignonette; the old single yellow Auricula, and alpine varieties; Cinerarias; Dactylis procumbens; Lysimachia nummularia; Saxifraga sarmentosa. All of these are best obtained from a florist's, in a forward state, just about to bloom. Dwarf coniferous and evergreen plants, to mix up with the flowering plants, if desired, can be obtained in great variety from the same source.

## CATALOGUES RECEIVED.

V. LEMOINE, Nancy, Rue de l'Etang—Catalogue and Price Current.

JAMES VATES, 29, Little Underbank, Stockport—Farm Seeds.

THIBAUT & KETLEER, 107, Rue Houdan, à Sceaux, Seine—Plants.

JOHN DOWNIE, Edinburgh—Florists' Flowers.

HOOPER & CO., Covent Garden—Cereals, Roots, Grasses, Clovers, &c.

CHARLES TURNER, Slough—General Spring Catalogue.

COMMUNICATIONS RECEIVED.—*W. R. Lee.*—*M. D.*—*J. Haigh.*—*R. Barton West.*—*B. T. L.*—*J. W.*—*C. W. S.* (next week).—*Thomas.*—*G. S. Boulger.*—*J. C.*—*E. R.*—*R. S.*—*J. Calder.*—*C. H.*—*H. J. C.*—*J. F. W.*—*Fyfe.*—*E. J.*—*H. S.*—*Caot.*—*H. G. M.*—*Prof. Sargent.*—*Hon.* and *Rev. J. T. B.*—*E. M. V.*—*F. W. B.*—*W. H. T.*—*H. M. J.*—*Carl Hansen,* Copenhagen.—*Chevalier de Moeteiro,* Almeida.

## Markets.

COVENT GARDEN, March 26.

PRICES almost without alteration, supply being quite equal to demand. Good Grapes coming short, with a rise in prospect. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve ..	1	6-50	Lemons, per case ..	12	0-18 0
— Nova Scotia and ..			Pine-apples, Eng. lb. 1	0-2 0	
— Caoadiao, barrel 12	0-21 0		— St. Michael, each 2	6-8 0	
Cobs, per 100 lb. ..	50	0-55 0	Strawberries, per oz.	0-6-9 0	
Grapes, per lb. ..	5	0-8 0			

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Globe, per doz. ..	4	0-6 0	Horse Radish, bun. 3	0-4 0	
Asparagus, English, per bundle ..	3	6-10 0	Lettuces, Cab., doz. 1	6-—	
— French, bundle 15	0-20 0		— French Cos, each 9	—	
— Peripignat, oat, ..			Mint, green, bunch ..	0-9-1 0	
Beans, Eng., per 100 2	0-—		Mushrooms, p. basket	2-0-1 0	
Beet, per doz. ..	1	0-—	Onions, per bushel ..	4-0-—	
Cabbages, per doz. 1	6-2 0		— Spring, per bun. 0	6-—	
Carrots, per bun. ..	0-6-—		Parsley, per bunch ..	0-6-—	
Cauliflowers, English, doz. ..	2	0-4 0	Peas, per lb. ..	2-0-—	
Celeriac, per root ..	0-4-—		Potatoes, new, per lb.	0-9-1 0	
Celery, per bundle ..	1	6-2 6	Radishes, per doz. ..	1-0-—	
Cucumbers, each ..	0-9-1 6		Rhubarb, bundle ..	0-6-—	
Endive, per dozen ..	2-0-—		Salsify, per bund. ..	1-0-—	
Garlic, per lb. ..	0-6-—		Seakale, per punnet	2-0-2 6	
Herbs, per bunch ..	0-2-0 4		Small salading, per punnet ..	0-4-—	
			Spinach, per bushel	4-0-—	
			Tomatoes, per lb. ..	2-0-2 6	
			Turkeys, bun. ..	0-5-—	

POTATOS.—All markets ss. to ros. per ton lower, with a bad trade.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilon, 12 bunches	2	0-4 0	Marguerites, 12 bun.	3-0-6 0	
Acacia, Fr., basket ..	4	0-5 0	Mignonette, 12 bun.	3-0-9 0	
Anemone, 12 bunch.	3-0-9 0		Narcissus, Paper-		
Arum Lilies, 12 blms.	3-0-6 0		white, 12 sprays ..	0-9-1 0	
Azalea, 12 sprays ..	0-6-1 0		— French, 12 bun.	2-0-6 0	
Bouvardias, per bun.	1-0-1 6		Pelargoniums, per 12		
Camellias, per doz. ..	1-0-4 0		sprays ..	1-0-1 6	
Carnations, 12 blms.	1-0-3 0		— scarlet, 12 sprays	0-6-1 0	
Cinerarias, per bun.	0-6-1 0		Primroses, 12 bunch.	0-6-1 0	
Cyclamen, 12 blooms	0-3-6 0		Primula, double, bun.	0-9-1 0	
Epiphyllum, 12 blms.	0-4-0 6		— siacensis, 12 bun.	0-4-0 6	
Eucharis, per doz. ..	4-0-6 0		Roses (fador), doz.	2-0-6 0	
Euphorbia, Jacquini-			coloured, doz. ..	2-0-6 0	
flora, 12 sprays ..	3-0-6 0		— French, per doz.	1-0-2 0	
Geraniums, 12 blms.	2-0-6 0		Spiraea, 12 buccoes ..	6-0-9 0	
Heliotropes, 12 sp. ..	0-6-1 0		Tropaeolum, 12 bun.	2-0-4 0	
Hyacinths, Roman, 12 large bunches.	12-0-18 0		Tulips, 12 blooms ..	0-9-1 0	
Lapageria, white, 12 blooms ..	2-0-3 0		Violets, 12 bun. ..	0-4-0 9	
— red, 12 ..	1-0-2 0		— French, bunch ..	0-3-1 0	
Lily-of-Val., 12 sprays	0-9-1 6		— Parme, French, per bunch ..	3-0-5 0	
			Wallflower, 12 bun.	4-0-6 0	
			White Jasmine, bun.	0-6-1 0	

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6-24 0		Ferns, in variety, per		
Arbor-vitæ (golden), per dozen ..	6-0-18 0		dozen ..	4-0-18 0	
— (common), dozen	6-0-12 0		Ficus elastica, each	1-6-7 0	
Arum Lilies, dozen	9-0-15 0		Foliage Plants, vari-		
Azaleas, per dozen ..	18-0-42 0		ous, each ..	2-0-10 0	
Begonias, per doz. ..	6-0-12 0		Genista, 12 pots ..	9-0-18 0	
Bouvardia, dozen ..	9-0-18 0		Hyacinths, per doz.	6-0-9 0	
Cinerarias, per doz. ..	9-0-12 0		Lily-of-the-Valley, 12		
Cyclamens, per doz.	9-0-24 0		pots ..	12-0-18 0	
Cyperus, per dozen	4-0-12 0		Marguerite Daisy, per dozen ..	8-0-15 0	
Dracaena terminalis, per dozen ..	30-0-60 0		Myrtles, per doz. ..	6-0-12 0	
— viridis, per doz. ..	12-0-24 0		Narcissus, 12 pots ..	12-0-18 0	
Epiphyllum, doz. ..	18-0-24 0		Palms in variety, each ..	2-6-21 0	
Erica, various, doz.	9-0-18 0		Pelargoniums, scar-		
— Cavendishii, per dozen ..	42-0-48 0		let, per dozen ..	4-0-9 0	
— ventricosa, doz.	42-0-60 0		Primula siacensis, per dozen ..	4-0-6 0	
Eucalypt, in var., doz.	6-0-18 0		Spiraea, per dozen ..	9-0-18 0	
Evergreens, in var., per dozen ..	6-0-24 0		Tulips, dozen pots ..	6-0-9 0	

## SEEDS.

LONDON: March 26.—Messrs. John Shaw & Sons, of 37, Mark-Lane, report that an active sowing demand now prevails for field seeds, but the business passing this season is not so large as usual. Prices all round show no improvement, however, every description continuing exceedingly cheap; available supplies are meantime feeling the inroads made upon them, and values generally, it is thought, have seen their lowest point. Clover seed maintains the firm tone previously noted. Ther eis an improved inquiry for Italian and perennial Rye grasses. Canary and Hemp seed are without variation, the business passing being small. Spring tares offer more freely. Good black Rape seed is in short supply.

## POTATOS.

The Borough Market report states that supplies are more than adequate to demand, which is dull. Quotations—Scotch Regents, 85s. to 95s.; Kent ditto, 75s. to 90s.; Champions, 45s. to 60s.; Magnum Bonums, 60s. to 80s.; and Victorias, 70s. to 90s. per ton.—The imports into London last week consisted of 27 bags from Boulogne, 755 from Hamburg, and 55 from Rotterdam.

Government Stock.—Consols closed on Monday at 97½ to 97½ for delivery, and 97½ to 97½ for the account. Tuesday's figures were 97½ to 97½ for delivery and the account. The closing quotations on Wednesday were 97 to 97½ for both account and delivery, Thursday's final figures were 96½ to 97 for the double quotation.



# NATIVE GUANO.

Extracts from the Ninth Annual Collection of Testimonials from persons who have used this  
Manure for Farm and Garden Crops:—

## ROOTS, GRAIN, GRASS, &c.

GEORGE STONE, *Cashio Bridge Farm, Watford.*

February 19, 1885.

"Used for Swedes on plants at the rate of about 6 cwt. per acre. Results: I was very well satisfied, considering the long time we were without rain; the Swedes were quite as good or better than some in the same field with more expensive manures. I have used your Native Guano for Swedes and white Turnips, and have a very good crop for the season. Kindly send me 3 toos at your earliest convenience, and oblige."

JAMES KITLEY, *Farm Steward to the Right Hon. Lord Derby, Witley Park, Haslemere.*

January 24, 1885.

"Used for Tares, at the rate of 4 cwt. per acre. Results: Very good."

ROBERT CRAWLEY, *Chelveston, near Higham Ferrers.*

January 20, 1885.

"Used for Wheat, Oats, Barley, Clover, and grass, at the rate of from 2½ to 5 cwt. per acre (according to the condition of the land, which was cold clay), with good results; had quite 5 cwt. of hay more per acre. Your manure, if as good as last year's, is the best I have ever used, except guano. All other manures are land damagers—they doctor the land for a time, afterwards they require a physician."

WM. GEO. ELLIOTT, *Aston Abbots, Aylesbury.*

February 1, 1885.

"Used for Oats grown after seed Tares at the rate of 7 cwt. per acre. Results: Very good; about 12½ qr. per acre. Being grown against the road, it was generally remarked what a fine piece of corn it was, and I have no doubt will be the cause of several of my neighbours using it this season."

JAMES SOMES, *Bailiff, Yelden Estate, Higham Ferrers.*

February 3, 1885.

"Used for Oats and roots, at the rate of 4 cwt. per acre for roots, and 2 cwt. for Oats, with farmyard manure. Results: Exceedingly good for crops. I was very pleased with your manure, and we intend using it largely this year."

JOSEPH FRANKLIN, *Scotsgrave, Thame.*

February 18, 1885.

"Used for grass and Mangel Wurzel, at the rate of 6 to 8 cwt. per acre. Results: Very good."

A. C. HILLS, *Marston, Oxford.*

February 7, 1885.

"Used for Mangel Wurzel, at the rate of 5 cwt. per acre, with plenty of ash. Results: A splendid crop. I think a lot of ash with the Guano does a deal of good."

J. SHRIMPTON, *Great Hasely, Tetworth, Oxford.*

February 5, 1885.

"Used for Swedes and Turnips, without farmyard manure, at the rate of 4 cwt. mixed with ashes. Results: Gave good satisfaction, the Turnips being a very good crop indeed. The Swedes were a good plant, but owing to the dryness of the season and severe attacks of blight did not finish up so well. I shall be a customer again this season."

C. BFESON, *Glory Farm, Amersham.*

February 9, 1885.

"Used for Mangel at the rate of 6 cwt. per acre. Results: Very good. I have given my opinions on your manure previously."

JOHN A. WILLIAMS, *Alderminster Lodge, Stratford-on-Avon.*

January 26, 1885.

"My first experience with your manure has been confirmed during the past year. It seems especially valuable and economical when used for roots."

## POTATOS and KITCHEN GARDEN CROPS.

G. WHEELER, *Bourne End.*

February 2, 1885.

"Used for Potatoes at the rate of 16 cwt. per acre. Results: Tubers much finer and quantity considerably larger than any other manures I ever tried. I consider your manure the best possible, as it supplies the tubers when most needed, without a tendency to rot them."

JACOB ROBINSON, *Beyton Green, Bury St. Edmunds.*

February 9, 1885.

"Used for Potatoes at the rate of 10 cwt. per acre. Results: Most satisfactory: no other manure whatever used. My method of applying is to sow broadcast immediately in front of the hands engaged in moulding up."

J. SMITH, *Head Gardener to the Right Hon. Lord Rosebery,*

*Mentmore, Bucks.*

January 28, 1885.

"Used for Peas, Onions, Lettuce, Cabbages, Potatoes, Turnips, and fruit trees. Results: Onions, a splendid crop; other crops, where used, most satisfactory. As a surface-dressing I consider your Native Guano most useful. Peas seemed to derive much benefit from the dressing."

JAMES DART, *Gardener to the Right Hon. Lord Carlingford, K.P., The Priory, Chewton Mendip, Bath.*

February 9, 1885.

"The Native Guano I received from your firm in 1884; instead of using it dry I used it as liquid in large tubs to plants of many sorts: in pots; also Roses, Cucumbers, Marrows, and many other things, and I was quite satisfied with it."

THOMAS HAMILTON, *Gardener to the Right Hon. Viscount Hood, Lynwood, Sunningdale, Ascot.*

January 28, 1885.

"Used for Tomatoes, Cucumbers, and soft-wooded plants in general. Results: Very good. As we had only a cwt. bag, can-generally purposes is very good."

THOMAS HENRY HILL, *The Gardens, Durward, Witham.*

January 24, 1885.

"Used for Potatoes, Onions, Beet, and Carrots, at the rate of 8 cwt. per acre. Results: Very good indeed. I can report again on the excellency of your Native Guano. I use no other artificial manure. All I used it for did very well, considering the dry season we had."

H. CAKEBREAD, *Head Gardener to Sir Philip Rose, Bart.,*

*Reyners, Bucks.*

January 28, 1885.

"Used for Potatoes, Peas, Beans, and all kinds of winter Greens, Vines, Peaches, and Pot Plants. Results: Satisfactory in all cases. Without doubt your Native Guano is a very stimulating manure, and especially for all green crops. I am of opinion, to thoroughly prove any kind of artificial manure on the same piece of ground, one row should be manured and the next left, i.e., every alternate row only done."

JAMES SAYERS, *Gardener to Frank Snod, Esq., The Firs,*

*Old Charlton, Kent.*

January 26, 1885.

"Used for Peas, Beans, Potatoes, Cabbage, Cauliflowers, Celery, Lettuce, Radish, Endive, Cucumbers, Tomatoes, &c., and Fruit Trees, also Stove, Greenhouse, and Conservatory. Results: Very satisfactory. I consider it a first-rate manure for all these purposes. I think the Native Guano only requires to be better known to be much more largely used."

E. S. WILES, *The Gardens, Edgercote, Banbury.*

January 26, 1885.

"Used for Melons, Cucumbers, Peas, Onions, and Pot Plants. Results: Good on all—Melons, Cucumbers, Peas, and Pot Plants in particular. The Native Guano supplied to me last year was very good, and as a cheap manure I highly recommend it."

## VINES, STRAWBERRIES, LAWNS, FRUIT TREES and FLOWERS.

ISABELLA MECHI, *The Limes, Earls Colne, Essex.*

February, 1885.

"Used for all kinds of vegetables, and young fruit trees, with satisfactory results. On pot plants the effects are very marked, producing a brilliant green foliage, and enabling them to resist greenfly. I have no doubt whatever of the fertilising qualities of Native Guano."

Dr. CHAS. A. BURGHARDT, *Delamere, Alderley Edge,*

*Cheshire.*

February 9, 1885.

"Used for Peas, Cauliflowers, Strawberries, Cabbages, and grass. Quantity used: well dusted over surface for grass; well dusted over surface and forked in for other crops. Results: The Strawberries were excellent in quality and larger in size than usual, the Peas and other vegetables were much improved by this manure, in fact the Brussels Sprouts were earlier and finer than I have seen them for some years. No other manure used on grass, ordinary farmyard manure on Strawberries, as I always have used it. I consider the manure you sent me most excellent for grass, lawns are much improved by the use of it, the grass growing much quicker and having a much better colour than before."

Col. the Hon. W. P. TALBOT, *Glenhurst, Esher.*

January 27, 1885.

"Used for all sorts of flowers, fruit, and vegetables, in and out of houses. I have used it principally on small patches of ground and in the houses in pots, but my gardener tells me he supposes about 2 cwt. to the acre. Results: Very good; won a great number of prizes at South Kensington, Richmond, and other shows with fruit, flowers, and vegetables grown with it."

General BOILEAU, *Bognor.*

January 24, 1885.

"Used for almost all garden crops, Peas, Beans, Lettuce, Asparagus, Tomatoes, Carrots, Turnips, Salsify, &c., Strawberries. Results: Very good, with all vegetables, fruit, &c."

WILLIAM APPLETON, *Sipton, Slough.*

Feb. 5, 1885.

"Used for Strawberries at the rate of half a ton per acre. Results: Season very dry; not a fair trial; where used the Strawberries were more free from mildew."

J. E. HAINSWORTH, *Dewsbury.*

January 29, 1885.

"Used for Vines. Results: Great improvement. I think the manure good for many kinds of things—Roses, Geraniums. I have used it for Camellias that have not bloomed for a long time without retreating. Crops this year good: Peaches, Figs, Nectarines. It must be used with reason."

W. PATERSON, *Beech Grove, Sydenham Hill.*

February 9, 1885.

"Used for lawns, vegetables, Vines, flowers; grass thickly covered with the Guano (probably at half a ton per acre). Results: Very satisfactory. Having used your Guano for twelve years, I have no hesitation in saying that it has always answered well, and that my gardeners say they could not do without it, more especially for my grass slopes and lawns."

C. L. NICHOLSON, *Thatched House Club, St. James's,*

*London.*

January 24, 1885.

"Used for lawn. Results: Excellent. Marking out the area over which I used the manure, the crop of fine new grass compared most favourably with that portion of the lawn over which ordinary manure was applied. Our gardener desires a larger supply this season."

A. MARGETSON, *Victor Road, Teddington.*

January 31, 1885.

"Used for Beet, Onions, Lettuce, Celery, Turnips, Endive, Roses, Pelargoniums, Primulas, Cinerarias, Tomatoes. The results have been greatly to my satisfaction, especially in cases of Roses, Beet, and Celery. I have tried all other manures, but, considering the price you charge, I shall recommend it to all my friends."

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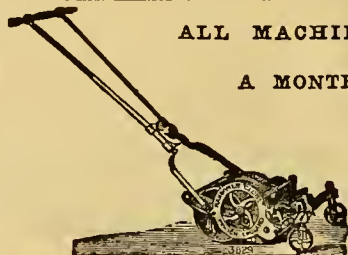
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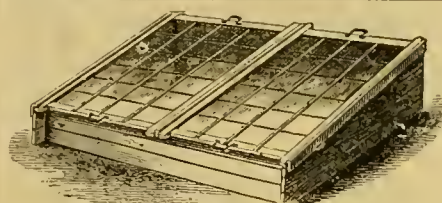
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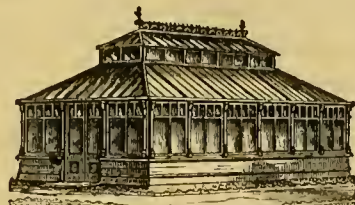
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	2-inch.	3-inch.	4-inch.	
HOT-WATER PIPES	... 1s. 0d.	... 1s. 4d.	... 1s. 9d.	per yard.
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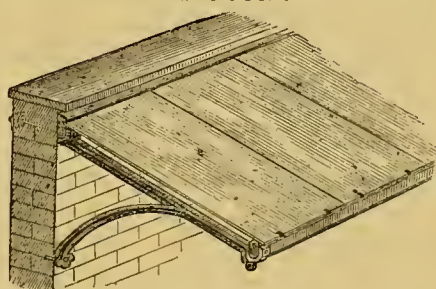
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2 ft. wide, 1s. 10d. per ft. run; 3 ft. wide, 2s. 6d. per ft.  
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THE ONLY LAWN MOWER FITTED WITH  
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ENABLING THE CUTTING PARTS  
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Easily worked  
Making the Lawn like Velvet  
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**THE ABOVE** and many other PATTERNS  
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suited for KITCHEN  
GARDENS, as they har-  
bour no Slugs or Insects,  
take up little room, and,  
once put down, incur no  
further labour or expense,  
as do "grown" Edgings, consequently being much cheaper.  
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone,  
very durable and of superior finish, and in great variety of design.  
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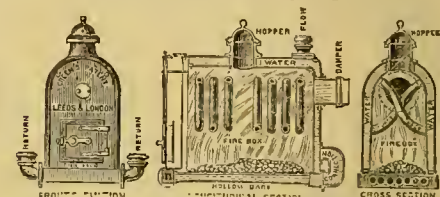
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Horticultural Engineers to Her Majesty the Queen,  
CALL SPECIAL ATTENTION TO THEIR  
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**WROUGHT-IRON TUBULAR**  
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And others with SHELVES, and Ho'w or Ordinary Cast-iron  
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With WATERWAY BACKS, and WELDED BOILERS,  
which are Specially adapted for Heating Greenhouses, Conser-  
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They are the neatest, cheapest, most effective, and durable  
of any extant.  
The Tubular ones are remarkable for their great heating  
power, slow combustion, and the length of time the fire will  
burn without requiring attention. This pattern  
Had the First and Highest Prize, a Silver Medal,  
Awarded to it at the Royal Horticultural Society's Exhibition,  
South Kensington, London, on June 3 1884.



The Journal of Horticulture of June 9 says:—  
"HEATING APPARATUS—A great number of boilers, valves,  
&c., were exhibited by eight competitors, and considerable in-  
terest was manifested to the verdict of the judges, and much  
discussion was brought to bear on the merits and shortcomings  
of the different boilers. The apparatus for which the Silver  
Medal was awarded was a wrought-iron saddle boiler, with a  
series of intersecting tubes, somewhat in the form of a letter X,  
but the tubes in ogee form, in the crown of the boiler. Most  
gardeners who examined the boiler expressed a favourable  
opinion of it. It is no doubt a quick and powerful boiler with-  
out being complex, the latter condition having, no doubt, had  
weight with the judges."

The Garden of June 11 says:—  
"The premier prize, a Silver Medal, was taken by Messrs.  
Green & Son for their new patent tubular saddle boiler. It is a  
modification of their original patent, the boiler being longer and  
not so high. It is found to be a powerful and efficient boiler, and  
heats a large quantity of water quickly with a small consumption  
of fuel."  
Descriptive Illustrated Price List may be had free on application.  
Estimates given for all kinds of Heating Apparatus, and Hot-  
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Galvanised Iron Cisterns, from 4d. to 15. 6d. per gallon.

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An additional heating power of fully one-third is obtained by  
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Churches, Schools, and all Horticultural Buildings Heated  
on the most approved principles by Hot Water.  
PLANS AND ESTIMATES FREE.

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Can be obtained in all sizes and quantities of  
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B. & S. have always a large stock in London of 20 in. by  
12 in., 20 in. by 14 in., 20 in. by 16 in., 20 in. by 8 in., in 16-oz.  
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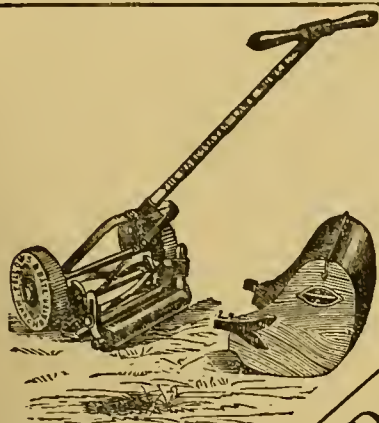
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BRATED MACHINES  
IN USE.

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NO CHARGE FOR  
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 Brussels, 1874—International Exhibition—1st Prize Medal.  
 Melbourne, 1881—International Exhibition—Diploma of Merit.  
 Alexandra Palace, 1873—International Lawn Mower Contest—The 1st Prize.  
 Manchester, 1875—Society for the Promotion of Scientific Industry—Medal.  
 Manchester, 1874—International Show—1st Prize Medal.  
 Manchester, 1873—Grand International Horticultural Exhibition—1st Prize Medal.  
 Liverpool, 1872—Manchester & Liverpool Agricultural Society—1st Prize Medal.

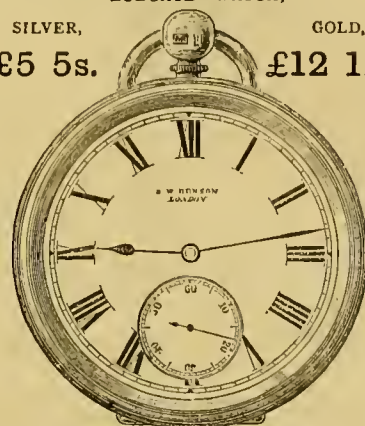
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Is a "Special Strength" Silver English Lever, my best London make, with Three-quarter Plate Movement.

*Twee led throughout.  
 Chronometer balance, with damp and dust proof  
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 Massive sterling silver dome cases  
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 Winding, set hands and opens at back.*

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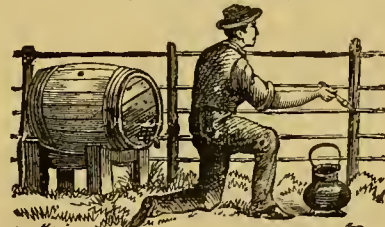
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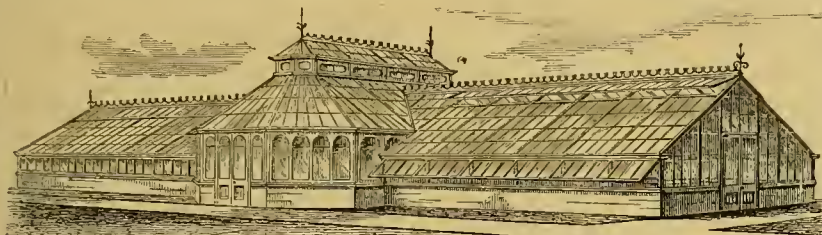
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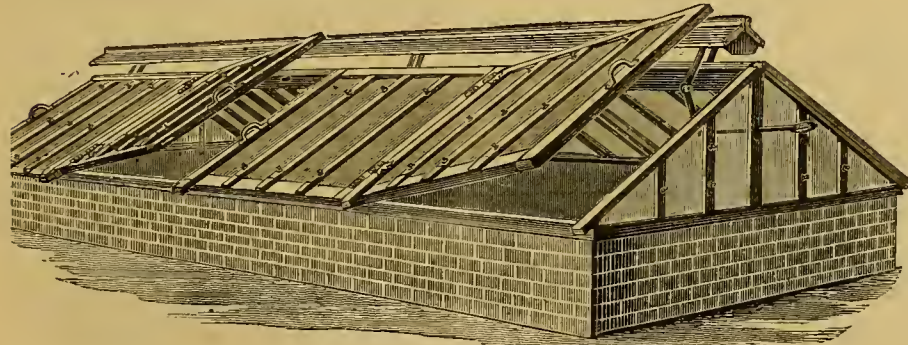
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# EXTRACTS.

From the "Daily Telegraph" of  
March 20, 1885.

FOLKESTONE WINTER GARDEN.—The South-Eastern Railway Company's Hotel at Folkestone has been greatly improved by the construction of a well-appointed winter garden, which will be open for the use of visitors on the 1st of next month. With a frontage of 168 feet, a width of 51 feet, and constructed on the "ridge and furrow" principle, the building consists of seven spans, the centre one being surmounted by an octagonal lantern rising to a height of 43 feet. Along the ridge of each roof an iron cresting is placed, finished at the ends with an ornamental finial. The front and one end consist of moulded pilasters with ornamental transom and cornice, the former being relieved at each pilaster, while shaped consoles are placed on the mullions between the cornice and the transom. The bottom portion is filled with sashes sliding on brass rollers, and the top with fan-lights. There are three entrances, each with a vestibule. One of these is directly connected with the hotel by a glass corridor, thus enabling visitors to enter the winter garden without exposure to the weather. A bed for plants, with moulded edging, runs all round the building, and the heating apparatus is so regulated and arranged that an even temperature can be always maintained.

From the "Standard" of  
March 19, 1885.

WINTER GARDEN AT FOLKESTONE.—A spacious "Winter Garden" has just been erected for the South-Eastern Railway Company at their Royal Pavilion Hotel, Folkestone. The building, which is now completed, has a frontage of about 168 feet, and a width of 51 feet. It has three entrances, each of which has a vestibule, one being connected to the hotel by a glass corridor, enabling visitors to enter the Winter Garden from the Hotel without exposure to the weather. A bed for plants, with moulded edging, runs all round the building. In front of the bed and through the centre of the building are hot-water pipes, laid in four brick chambers, covered with ornamental gratings. In each of these chambers there are six 4-inch pipes, running the whole length of the building and across the two ends, the apparatus being so arranged that the heat can be regulated at pleasure, thus enabling an even temperature to be maintained in any weather. The Garden will be open for the use of residents in the Hotel on Wednesday, the 1st of April.

From the "Daily Chronicle" of  
March 20, 1885.

A WINTER GARDEN AT FOLKESTONE.—A spacious Winter Garden has just been erected for the South-Eastern Railway Company at their Royal Pavilion Hotel, Folkestone. The building, which is now completed, is a spacious one, having a frontage of about 168 feet and a width of 51 feet. It is built on the "ridge-and-furrow" principle, and consists of seven spans, two of 16 feet each, four of 22 feet each, and a centre span of 31 feet, surmounted by an octagonal lantern, running to a height of 43 feet. All the roofs are hipped back at each end, and an iron cresting runs along the ridges, finished at the ends with an ornamental finial. The whole of the work has been carried out by Messrs. Weeks & Co., Horticultural Builders and Hot-water Engineers, of Chelsea, about 110 tons of prepared wood, glass, and ironwork having been sent from their works for its construction. The gardens will be open for the use of residents in the hotel on Wednesday, April 1.

This Winter Garden was designed and has been erected by  
**J. WEEKS & CO., Horticultural Engineers, King's Road, Chelsea, S.W.,**  
and will be opened on April 1, 1885.

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Established 1841.

No. 588.—VOL. XXIII. { NEW SERIES. }

SATURDAY, APRIL 4, 1885.

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**WANTED, a FORDHAM'S SALTING MACHINE**, for other Boilers on wheels, with Distributor, for Pouring Hot Brine on Garden Walks to Destroy Weeds. Apply with description and price to  
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**LAING'S BEGONIA SEED.**—GOLD MEDAL STRAIN, from our Prize Plants. Sealed packets CHOICE MIXED, from single varieties, 1s. and 2s. 6d. per packet; 5s. extra large packets. We regret to say we are sold out of Seed of Double varieties. COLLECTIONS, 12 named varieties, separate, 7s. 6d.; ditto, 6 named varieties, separate, 4s.  
LAING AND CO., Seedsman, Forest Hill, S.E.

**CREEPERS** for Walls, Trellises, &c., in great variety. By planting what is suitable, an unsightly object may easily be made beautiful. Descriptive LIST and advice on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

**HERBACEOUS and ALPINE PLANTS.**—Now is the season to plant and insure success. Write for R. H. VERTICAN'S Pocket CATALOGUE, and make your choice from his unrivalled Collection, at Chad Valley Nurseries, Edgbastoo, Birmingham.

**HEATHS a SPECIALTY.**—The finest Collection of HEATHS, AZALEAS, and HARD-WOODED STOVE and GREENHOUSE PLANTS generally in the country. An inspection solicited.  
T. JACKSON AND SON, Nurserymen, Kingston-on-Thames.

**CARNATIONS, PICOTEEES, CLOVES, PINKS, PANSIES**, in the very best varieties, strong, vigorous plants. Special Trade Quotations.  
SAMUEL HARTLEY, Headingley Nursery, Leeds.

**CARNATIONS.**—Strong Seedlings, from a splendid Collection of Choice Named Flowers. All to bloom this year. Per dozen, 2s. 6d.; per 100, 15s.  
DANIELS BROS., Town Close Nurseries, Norwich.

**JERSEY CHRYSANTHEMUMS.**—All the best, New and Old. LIST free, from  
H. ELLIOTT, Springfield Nursery, St. Helier's, Jersey. Established 1834.

Hyacinthus candicans.

**BUDDENBORG BROS., BULB GROWERS**, Hillegom, near Haarlem, Holland, offer the above, splendid white flowering bulb, at 50s. per 1000.

**SPRING CLEARANCE SALE,** to avoid planting.  
LILIAM AURATUM, SINGLE DAHLIAS, IRIS, GLADIOLI, BEGONIAS, and many other Bulbs, with some choice Seeds, at greatly reduced rates. Send for our Special Clearance LIST, No. 73.  
NEW PLANT and BULB COMPANY, Lion Walk, Colchester.

**TWELVE CAMELIAS or AZALEA** INDICA, full of buds, 21s., large perfect plants of either, in 5½-inch pots, all different named sorts; or 1 dozen of each sent carriage paid on receipt of 42s.  
E. VANDER MEERSCH, Queen's Nursery, Selhurst, S.E.

**CABBAGE PLANTS**—CABBAGE PLANTS!—Fine autumn sown plants, Early Battersea, Enfield Market, Rainham, and Nonpareil, 3s. per 1000; Red Drumhead (true), 5s. per 1000. Sprouting and Spring BROCCOLI of sorts, BRUSSELS SPROUTS and SAVOYS, 3s. 6d. per 1000. The above are healthy and well-rooted. Delivered free on rail. Cash or reference must accompany all orders from unknown correspondents.  
W. VIRGO, Womersley Nurseries, Guildford, Surrey.

**FIVE THOUSAND PELARGONIUMS.** Must be sold. Clean, large bushy stuff, to flower early. Established in 48-pots, including all the best named varieties, as Dr. Masters, Duchess of Bedford, Bridal Bouquet, Kingston Beauty, &c., 7s. 6d. per dozen for cash. Also ditto in 60s., ready for 48-pots, at 4s. per dozen for cash.  
Address, MANAGER, The Hill Nurseries, Sandiacre, Notts

**EIGHTY THOUSAND CLEMATIS** in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants Descriptive LIST on application.  
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

**VINES.—VINES.—VINES** STRONG FRUITING CANES, 4s. 6d. each. STRONG PLANTING CANES, 3s. each. All the best varieties in cultivation.  
CALDWELL AND SONS, The Nurseries, Knutsford, Chester

Seed Potatoes.

**H. AND F. SHARPE** have still in stock all the leading kinds of SEED POTATOS, and are now offering them at reduced prices to clear out.  
Seed Growing Establishment, Wisbech.

**NEW RUNNER BEAN.—GIRTFORD** GIANT (Laxton).—The finest and most prolific Scarlet Runner. Special First-class Certificate at Shrewsbury, 1884, 2s. 6d. per half pint.  
T. LAXTON, Seed Grower, Bedford.

Gardenias.—Gardenias.

**JOHN STANDISH AND CO.** have to offer a splendid lot of GARDENIA PLANTS, clean, bushy, and well set, at the undermentioned prices for Cash with order:—In 5-inch pots, 18s. per dozen; in 6-inch pots, 27s. per dozen; in 8-inch pots, 40s. per dozen.  
Royal Nurseries, Ascot.



## SALES BY AUCTION.

Wednesday Next.—Sale No. 6888.)

HARDY PLANTS and BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 8, at half-past 12 o'clock precisely, 1200 first-class Dwarf, Climbing, and Pot ROSES, including all the leading varieties; RHODODENDRONS to name; VINES, CARNATIONS, PICOTEES, PINKS, and other BORDER PLANTS; FIGUS ELASTICA and LAURUSTINUS from Ghent; LILUMS, GLADIOLI, and other HARDY BULBS and ROOTS.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6889.)

VALUABLE IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Messrs. Shuttleworth, Carder & Co., on THURSDAY NEXT, April 9, at half-past 12 o'clock precisely, a splendid importation of ONCIDIUM TIGRINUM, in grand masses and splendid bulbs; ODONTOGLOSSUM INSLEAVI LEOPARDINUM, extra grand mass and fine bulbs; WHITE LELIA ANCEPS, and ODONTOGLOSSUM CRISPUM (Alexandre), of the very best type, and fine masses; ONCIDIUM KRAMERIANUM, &c., all in the best possible condition.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6890.)

IMPORTED ORCHIDS from MEXICO.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. G. Marriott, on THURSDAY NEXT, April 9, at half-past 12 o'clock precisely, a splendid importation of MEXICAN ORCHIDS, including 50 plants of the white-tipped variety of Odontoglossum bicornis, Mormodes pardinum, finest variety of Odontoglossum Rossi majus, Cattleya citrina, Epidendrum vitellinum majus, Lycaste Lawrenceanum, Lelia anceps, L. alba, &c., all in splendid health.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6891.)

6000 LILUM AURATUM from Japan in grand condition. MR. J. C. STEVENS will include the above in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 9

Flowering Orchids.

MR. J. C. STEVENS begs to announce that his NEXT SALE OF FLOWERING ORCHIDS will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 15, at half-past 12 o'clock precisely. Gentlemen desirous of entering plants for this SALE will please send particulars not later than THURSDAY NEXT.

Caversham Park, Reading.

MR. J. C. STEVENS has received instructions from the Executors of the late Mrs. Crawshaw, to SELL by AUCTION, on the Premises, as above, EARLY IN MAY, without reserve, the collection of STOVE and GREENHOUSE PLANTS, consisting of Crotons, Dracaenas, Marantas, Palms, Alocasias, Camellias and Azaleas, Ferns, &c.; also 12,000 BEDDING PLANTS, of all the best varieties; a small collection of ORCHIDS, including several nice plants of Dendrobium nobile, Cypripedium pubescens, C. venustum, C. barbatum, Cattleyas of sorts, Anthurium Scherzerianum, and other species; a quantity of IMPLEMENTS, comprising 2 Rollers, Water-barrows, Cans, Tanks, Mowing Machines, Farm and Spring Carts, together with a Cart-horse, Cob, &c. Date of Sale will shortly be announced.

Important Sale of a Choice Collection of Carnations, PICOTEES and PINKS of fine growth, 500 Standard and other ROSES, selected FRUIT TREES, HARDY CONIFER, SHRUBS and AMERICAN PLANTS, GREENHOUSE PLANTS in variety, old dark CLOVES, white laced PINKS, Double PÆONIES, CHOICE SEEDS, DAHLIAS, LILUMS, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on THURSDAY, April 9, at 12 o'clock precisely.

On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 67 and 68, Cheapside, E.C.

Tuesday, April 14.

ODONTOGLOSSUM ROSSI MAJUS.

The finest strain Europe.

ODONTOGLOSSUM VEXILLARIUM.

The beautiful dark, spring-flowering type, well leaved.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, April 14, by order of Messrs. Fred. Horsman & Co., the above, representing the finest type of each species. Also other CHOICE ORCHIDS.

Ewell, Surrey.

By order of the Trustees of the late George Torr, Esq. IMPORTANT SALE of the celebrated Garbrand Hall COLLECTION of EXHIBITION STOVE and GREENHOUSE PLANTS, which have been exhibited at the leading Shows with such unprecedented success by Mr. J. Child.

MESSRS. PROTHEROE and MORRIS are favoured with instructions to SELL by AUCTION, on the Premises, Garbrand Hall, Ewell, Surrey, on WEDNESDAY, April 22, at 11 for 12 o'clock precisely, the whole of the VALUABLE COLLECTION of EXHIBITION STOVE and GREENHOUSE PLANTS, including a large number of thriving young specimen Azalea indica, in grand order for successful exhibition; also fine examples of white Lapagerias, Stephanotis, Dracophyllum and other New Holland Plants; Tree, Filmy and other Ferns; the best Collection known of specimen Tuberoses and Begonias; a large assortment of Bedding Plants, likewise a few unusually fine specimen ORCHIDS, amongst which will be specially mentioned:—

Cypripedium Stueei Two Oncidium ampliatum the charming Garbrand Hall variety, believed to be the only plant extant, 4 feet across. Dendrobium Farmeri (true) splendid variety, upwards of forty bulbs. Vanda suavis Veitchii, some grand pieces.

Also Two One-house Exhibition VANS, complete. May be viewed the day prior to the Sale. Catalogues may be had on the Premises, of Mr. J. CHILD, and at the Auction and Estate Offices, 67 and 68, Cheapside, E.C.

Friday Next.—Mexican Orchids.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, April 10, at half-past 12 o'clock precisely, a very grand lot of MEXICAN ORCHIDS, consisting of the beautiful dark-flowered form of Lelia autumnalis atro-rubens, a fine lot of Lelia anceps, dark variety; a superb Barkeria, Odontoglossum nebulosum, Cattleya citrina, Epidendrum nemorale, Barkeria Barkerioli, Lelia alba, Mormodes luxatum, Oncidium tigrinum—the whole in superb order; also the beautiful Oncidium nigratum and Zygopetalum Burkei, many Cattleyas, and other Orchids.

On view morning of Sale, and Catalogues had.

TO BE DISPOSED OF, a WHOLESALE and RETAIL SEED BUSINESS. A splendid going concern. One of the finest in existence, doing a large and profitable trade. An unusual opportunity.

Apply (by letter only) to Messrs. PROTHEROE and MORRIS, 67 and 68, Cheapside, London, E.C.

Market Gardeners or Retired Farmers.

TO LET, or to be SOLD, compact and small ESTATE, at Bracebridge, about a mile from Lincoln, consisting of House, Gardeo, Barn, Cowsheds, Stable, &c., and 10 Acres of fertile Land. SMYTH BROTHERS, New Exchange Chambers, Lincoln.

TO LET, from March 25 next, THE NURSERIES, Mill Hill, near Hendon, Middlesex, late in the occupation of Mr. James Wright. There is a fair amount of Stock, &c., which would be offered on easy terms to a respectable Tenant. There is a cottage and about 5 Acres of Land. Application for terms, &c., to be made to C. DRUMMOND, Estate Agent, Hertford, Herts.

THE GATESHEAD PARK COMMITTEE invite TENDERS for the ERECTION of a CONSERVATORY and PROPAGATING HOUSE in Saltwell Park.

Persons tendering are expected to furnish their own Designs, which must include the means of Heating and all other details. The Conservatory will front the West on a nearly level frontage, and to the South on a slight inclination. A Plan showing the proposed site, with particulars as to level and inclination of ground, will be furnished on application to the TOWN SURVEYOR, Town Hall, Gateshead.

Tenders must be sent to the Town Clerk not later than APRIL 24. The Town Council do not bind themselves to accept the lowest or any Tender, nor will they pay any expenses which any person tendering may incur in the preparation of his Design.—By order, J. W. SWINBURNE, Town Clerk.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE and MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

To Landed Proprietors, &amp;c.

A. MCINTYRE (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS. Plans prepared. 115, Listria Park, Stamford Hill, N.

JOHN KENNARD'S HORTICULTURAL SUNDRIES, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

T. HARPAM, PRACTICAL ROCK BUILDER and GENERAL HORTICULTURAL DECORATOR (for many years leading hand with Dick Radcliffe & Co., London), 107, Church Street, Edgware Road, London, W.

## TUBEROSES!!!

Double American, good sample, per 100, 12s.; per 1000, 110s.

Not less than 500 at 1000 price.

HOWCROFT & WATKINS, COVENT GARDEN, LONDON, W.C.



TO show how well pleased even the East Indians are with what we send them, the Indian Gardener of March 3, in a long article, written by "Paharee," alludes to us thus:—

"Many people are under the impression that it is not only difficult to raise plants from seed, and these raised they are scarcely worth having; such, however, is not my experience. Last spring a friend of mine sent me out a packet of CANNELL'S GIANT BEGONIAS—sown in May—and I have now 150 plants from it, most of which are in flower. They are the most even lot of seedlings I have seen. Blooms measure over 5½ inches in diameter, and there is scarcely one below 4½ inches. The flowers are not only very diverse in colour, but of good shape and substance. I know that many do fail in their endeavours to raise what are termed florists' flowers, and for two good reasons—first, they do not procure seeds from a reliable source, or, if they do, they study cheapness before quality; and secondly, when the seeds are obtained they bestow no more care on them than they would on the commonest annual. We continually hear grumblings of the deterioration of plants and seeds in this country, but my opinion is that, provided we really get good seeds, and grow them as we ought to grow them, we in India can, to use an Americanism, have them better than the old country."

H. CANNELL &amp; SONS,

THE HOME FOR FLOWERS

NEW ROSES, BEDFORD BELLE and GIPSY (Laxton).—Full particulars of these distinct and beautiful new Roses on application. Strong Plants in May. Bedford Belle, 7s. 6d.; Gipsy, 5s.; 6d.

T. LAXTON, Bedford.

ASPARAGUS.—True—Giant, 2, 3, and 4-yr. Fine sample 100 or 1000, with price, on application. JAMES BIRD, Nurseryman, Downham.

ASPARAGUS.—A large quantity to offer, of very fine transplanted stuff, 2-yr. and 3-yr., 2s. 6d. and 3s. per 100, 20s. and 25s. per 1000. Also 2-yr. from drills, 10s. per 1000. All packages free on rail. S. BIDE, Alma Nursery, Farnham, Surrey.

New Kidney Potato.

BIRD'S DOCTOR BOB.—This is the earliest Kidney variety in existence; a very heavy cropper, as many as sixty tubers of all sizes have been counted at a root. It is a seedling from Early King. After a trial of several years it has never taken disease. Eyes very shallow; a good cooker, and fine flavour. 5s. per stone. JAMES BIRD, American Nurseries, Downham Market.

IMANTOPHYLLUMS.—Great special Culture. One-year seedlings from H. Lindeni, robustum, Van Houttei, and others, with large flowers, 12s. per dozen, 80s. to 100s. per 100.

2-yr. Seedlings, 24s. to 30s. per dozen, 200s. to 240s. per 100. Flowering Plants, 40s. to 48s. per dozen, 320s. to 400s. p. 100. ED. PYNAERT, Ghent, Belgium.

SPECIAL OFFER.—RETINOSPORA FILIFERA, 1½ to 2 feet, 6s. per dozen; do, 2 to 2½ feet, 8s. per dozen. THUOPSIS DOLABRATA, 4 to 6 inches, 2s. 6d. per dozen, 15s. per 100. RHODODENDRONS, choice named varieties, 1 to 1½ foot, 17s. per dozen, 120s. per 100; do, 1½ to 2 feet, 24s. per dozen, 160s. per 100; PONTICUM and HYBRIDS, 1½ to 2 feet, 40s. per 100; 1 to 1½ foot, 25s. per 100; 9 to 12 inches, 15s.; and 6 to 9 in. hes, 13s. per 100; 2-yr. Seedlings, 4s. 6d. per 1000, 46s. 10s. per 100,000; 3 yr. do, 6s. 6d. per 1000, 62s. 10s. per 100,000. IVY, maculata latifolia, 1-yr. cuts, 4s. per 100, 35s. per 1000; Silver Queen, in pots, 7s. per dozen. SAMUEL and JAMES SMITH, Tansley Nurseries, near Matlock.

NEW EARLY POTATO.—WHITE

BEAUTY OF HEBRON.—A white-skinned selection from Beauty of Hebron, the finest of all the American sorts. Very early, and a great producer: quality excellent. Largely grown for market. 2 lb., 2s.; 6 lb., 4s., by Parcel Post: 14 lb., 6s. 6d.; 4s. per bushel. T. LAXTON, Seed Grower, Bedford.

VERBENAS.—Purple, Scarlet, White, and other best varieties, strong, well rooted cuttings, 6s. per 100, 50s. per 1000. FUCHSIAS, 12 best varieties, 1s. 6d. ZONAL PELARGONIUMS, 12 best exhibition varieties, strong plants, 3s. All post-free for cash with order. KIRK ALLEN, The Nursery, Fea Drayton, near St. Ives, Hunts.

THORN QUICKS, good, 2 to 2½ feet, 15s. per 1000. HOLLY, 18s. per 100. LAURELS, good, 2 to 3 feet, 4s. per 1000. W. JACKSON, Blakedown, Kidderminster.

GERANIUMS of sorts for Bedding, extra fine plants, from single pots, from 8s. per 100. Geraniums for pots, the cream of several well-known collections, from single pots, extra fine, priced LIST free. CALCEOLARIA Golden Gem, extra fine, autumn sown, 6s. per 100. Trade LIST on application. Cash, package free. B. R. DAVIS, Yeovil Nurseries, Yeovil.

An Acre of

COMMON PRIMROSES on Sale, at 21s. per 1000; 2s. 6d. per 100; good flowering Roots. Cash with orders.—EDWIN HILLIER, Winchester.

ASPARAGUS and SEAKALE for Forcing and Planting. Price on application. JAMES DICKSON and SONS, Newton Nurseries, Chester.

NEW ROSES of 1885.

The whole of those raised in England, including:—Mrs. CAROLINE SWALES (H.P.), ELLA GORDON (H.P.), BEDFORD BELLE (Hybrid Tea); And all the best of those raised abroad, including:—GLOIRE LYONNAISE (the yellow H.P.), ETENDARD DE LYON (H.P.), SOUVENIR DE MAD. GABRIEL DREVET (Tea); can now be supplied in very fine plants, fit for immediate working or for summer budding. CATALOGUES, giving raisers' descriptions of each variety, post-free on application to KEYNES, WILLIAMS and CO., Salisbury.

To the Trade.

SPANISH BROOM, strong 2-yr., £1 per 100. CURRANTS Red GRAPE and Mixed, strong 2-yr. and 3-yr., 10s. per 100. ASPARAGUS, Early Purple Argenteuil, a fine stock: retail, 7s. 6d. per 100. Trade liberal terms. T. LAXTON, Seed Grower, Bedford.

Hollyhocks.—Hollyhocks.

CATALOGUE containing a splendid collection of finest named Hollyhocks, all fully described and priced, and probably the largest, most select, and best collections of all other Florists' Flowers, Perennials, &c., ever brought together, is now ready, and will be posted on application. It consists of eighty pages of closely printed matter, and forms a very handy reference book on flowers, which should be in the hands of all who cultivate a Garden or Greenhouse. JOHN FORBES, Nurseryman, Hawick, N.B.

New and Choice Chrysanthemums.

R. OWEN begs to call attention to his choice collection, which comprises only the best new and old varieties. Strong rooted cuttings, twelve varieties for 1885, 7s. 6d.; ditto for 1886, 3s. 6d.; best old varieties, 2s. 6d. per dozen—cuttings, 6d. per dozen less, post-free for cash. CATALOGUE one stamp. Mr. BOWERMAN, Hackwood Park Gardens, says:—"They are the best cuttings I ever had sent me." The Floral Nursery, Maidenhead.

SCARLET RUNNERS, quantity of, for Sale, good samples, for cash, at 12s. per bushel, carriage paid to London. Sacks found at 1s. each. EDWARD WARNER, Seed Grower, Kelvedon, Essex.



**CUPRESSUS LAWSONIANA**  
**NOVELTY. ROBUSTA.**  
 For description see my CATALOGUE, spring 1885.  
 Plants of 3 feet 4 inches, 6s. each, £1 10s. for 10.  
 " " 3 feet, 5s. each, £1 5s. for 10.  
 " " 1 foot 8 inches, 2s. 6d. each, 14s. for 10, £6 per 100.  
 " " 1 foot 4 inches, 1s. 6d. each, 10s. for 10, £4 4s. per 100.  
 " " grafted in spring 1884, 10s. each, 5s. for 10, £2 2s. per 100.  
 A. M. C. JONGKINDT CONINCK, Tottenham Nurseries,  
 Dedensvaart, near Zwolle, Netherlands.

## SURPLUS STOCK.

Special offer of Nursery Stock:—  
**FIR**, Scotch, 3 to 5 feet, 2-yr., 2-yr.  
**Spruce**, 2-yr., 3-yr.  
**LARCH**, 2-yr., 2-yr., strong stuff.  
**BIRCH**, 2 to 3 feet.  
**ASH**, Mountain, 4 to 6 feet.  
**LABURNUM**, 4 to 6 feet.  
**WYCH ELM**, 5 to 6 feet.  
**SYCAMORE**, 4 to 6 feet.  
 Prices on application.  
**JOS. TREMBLE AND SON**, Nurserymen, Penrith.

**LILIU AURATUM**.—Special Offer.—Now is the best time to plant. Splendid firm sound bulbs, just arrived, 6 to 8 and 8 to 10 inches in circumference, 28s. and 35s. per 100, 4s. and 6s. per dozen. The cheapest for quality ever offered. Samples 12 stamps.

**SEED POTATOS**.—For Special Prices see former advertisements.

**MORLE AND CO.**, 1 and 2, and 162, Fenchurch Street, E.C.

**DOG ROSE**, 1-yr., fine, 6s. per 1000.  
**MANETTI STOCKS**, 20s. per 1000. **IVY**, Irish, strong, 60s. per 1000. **HONEYUCKLE**, sempervirens, yellow, 25s. per 100. **LAURELS**, Common, 2-yr., fine, 22s. per 1000. **SEA BUCKTHORN**, 2 feet, 20s. per 100. **HYPERICUM CALYCINUM**, 1 foot, 10s. per 100. **ABIES DOUGLASHI**, 1½ to 2 feet, 25s. per 100; 2 to 2½ feet, 32s. per 100; 3 to 4 feet, 40s. per 100; by the thousand, finely rooted. **ARALIA IMBRICATA**, 18 to 20 inches, 24s. per dozen. **CRYSTOMERIA ELEGANS**, 2 to 2½ feet, 60s. per 100; **CUPRESSUS LAWSONIA**, 2½ to 3 feet, 60s. per 100; **C. GRACILIS**, distinct, 1½ foot, 12s. per dozen; **C. STRICTA**, 2 to 2½ feet, the finest upright, 12s. per dozen; **C. FUNEBRIS**, scarce, 1½ foot, 15s. per dozen. **PICEA NORDMANNIANA**, 1 foot, fine, 50s. per 100. **PINUS EXCELSA**, 2 feet, 8s. per dozen; **P. INSIGNIS**, 1 foot, 30s. per 100; 6 to 8 inches, 16s. per 100. **THUJA LOBBII**, 10 to 15 inches, special by the 1000; the best substitute for Larch. **RHODODENDRON PONTICUM**, 1 to 4 feet, each size in thousands.

**GARLES MITCHELL**, Nurseryman, Stranraer, N.B.

To the Trade.  
**MANGEL WURZEL** and **TURNIP SEEDS**.  
**H. and F. SHARPE'S Wholesale Priced**  
 LIST of the above-named Seeds is now ready, and may be had on application. It comprises all the very finest varieties of 1884 growth.  
 Seed Growing Establishment, Wisbech.

**JOSIAH H. BATH**,  
 York Street, Borough Market, S.E.  
 Offers the following varieties of **SEED POTATOS**:—  
 Rivers' Royal Ashleaf. Fortyfold.  
 Myatt's Prolific Ashleaf. Scotch Regent.  
 White Elephant. York Regent.  
 Beauty of Hebron. Paterson's Victoria.  
 Snowflake. Redskin Flourball.  
 Schoolmaster. Reading Hero.  
 Early Rose. Dalmaboy.  
 Magnum Bonum. Early Don.  
 And other leading varieties. Prices on application.

## ANTHONY WATERER

has to offer:—  
**BIRCH**, 3, 4 and 5 feet.  
**SPRUCE**, 2½, 3, and 5 feet.  
**LARCH**, 4 to 6 feet.  
 All stout and well rooted.  
**ANTHONY WATERER**, Knap Hill Nursery, Woking, Surrey.

Cheap Plants.—Special Offer.  
**WILLIAM BADMAN** offers as under from store pots, all healthy, well-rooted, and fit for present potting:—

**TRICOLORS**.—Mrs. Pollock, one of the best, 2s. per dozen, 15s. per 100; Lady Cullum, S. Dumaresque, Sir R. Napier, 2s. 6d. per dozen, 18s. per 100. Twelve choice varieties Tricolors, for 5s.  
**SILVERINGS**.—May Queen (Turner's), Flower of Spring, Prince Silverings, Little Tim and Bijou, 2s. per doz., 10s. per 100.  
**GOLD LEAF**.—Crystal Palace Gem, 2s. per dozen, 10s. per 100; Happy Thought, 2s. 6d. per dozen.  
**BRONZE**.—McMahon, Black Douglas, Czar (best bedders), 2s. per dozen, 15s. per 100.  
**SCARLET**.—Vesuvius, Jean Sisley, Col. Seely, 1s. 6d. per dozen, 8s. per 100.  
**PINK**.—Master Christine, Mrs. Levers (fine), 1s. 6d. per dozen, 10s. per 100.  
**WHITE**.—Madame Vaucher and Virgo Marie, 1s. 6d. per dozen, 10s. per 100.  
**CRIMSON**.—Henry Jacoby, 2s. per dozen, 15s. per 100; Waltham Seedling, 1s. 6d. per dozen, 8s. per 100.  
**LOBELIA**.—Brighton, Blue Stone, Pumila magnifica, 3s. per 100, 20s. per 1000.  
**HELIOTROPE**.—Jean d'Amour, Miss Nightingale and Light, 6s. per 100.  
**AGERATUM**.—Imperial Dwarf Blue, 5s. per 100, 40s. per 1000.  
**CALCEOLARIA**.—Golden Gem and Dark Camden Hero, 5s. per 100, 40s. per 1000.  
**COLEUS Verschaffelti** and **IRENE Lindeni**, 5s. per 100.  
**TROPÆOLIUM**.—Vesuvius, dwarf, good bedded, 8s. per 100.  
**PELAGONIUM**.—Show and Fancy, in single pots, 3s. per dozen, 20s. per 100.  
 Packing included. Terms Cash.  
 Cemetery Nursery, Gravesend.

**GUINEA BOX OF SPECIALTIES**.—We again offer a choice Collection of **CARNATIONS** and other **POPULAR PLANTS**, package and carriage free, for One Guinea, consisting of Six Pairs each choice Show Carnations, Picotee, and Pinks to name; twelve true old Crimson Cloves, twelve border Carnations, twelve Pyrethrums, double, named; twelve Show and Fancy Dahlias (dry roots). Half the above, 11s.  
**ISAAC BRUNNING AND CO.**, Great Yarmouth Nurseries.

# EXTRACTS

from our Seed Catalogue of

## FLORAL GEMS

**ANARRHINUM BELLIDIFOLIUM.**  
 A rare and beautiful Biennial, which though allied to the Antirrhinum, differs nevertheless in its formation of bloom from that family. Grows 1½ foot high, and produces, June to August, most lovely blue flowers. It is perfectly hardy, and may thus be sown in the open border, greatly delighting in a sandy loam. Price 6d. and 1s. per packet.

**ANGELONIA GRANDIFLORA.**  
 A most lovely and sweet-scented Greenhouse Annual, producing fine spikes of beautiful blue flowers. Can highly recommend this to any amateur wanting an uncommon, pretty, and easily grown pot plant. Price per packet, 3d. and 6d.

**ANTIRRHINUM ("SNAPDRAGON").**  
 Magnificent Strain.  
 The mixture we offer has been procured from three of the finest strains in the world, and which we have thoroughly mixed; our patrons may therefore depend upon receiving a strain such as cannot be equalled. Price per packet, 1s. 6d. and 2s. 6d.

**ASTER TENELLUS.**  
 This is a beautiful Biennial, and blooms in August, when it presents one dense mass of lovely blue flowers; is a splendid pot plant for greenhouse, or may be planted outdoors on a warm sunny border. Price per packet, 6d. or 1s.

**CHRYSAETHUM, POMPONE.**  
 We can now offer seed at 1s. and 2s. 6d. per packet.  
**CLEMATIS GRAVEOLENS.**  
 A half-hardy Clematis, bearing yellow flowers, and thus contrasting most effectively with other well-known varieties. Price per packet, 1s. and 2s. 6d.

**CONVOLVULUS MINOR, "ROSE QUEEN"**  
 This is unquestionably a most valuable acquisition to the Annual family, being of a most enchanting soft rosy-blush, whilst each plant is smothered with bloom. Certain to create a grand impression. Price, per packet, 6d. and 1s.

**CONVALLARIA MAJALIS, "LILY OF THE VALLEY."**  
 We can offer seed of the well-known "Lily of the Valley," Price, per packet, 3d. and 6d.

**FORGET-ME-NOT, "PIGMY BEDDER."**  
 If any one requires a cheap, effective, and uncommon blue edging, obtain a packet of this and plant out with other bedding plants, when we can vouch that, if well grown, all visitors will say that it puts all other Myosotis or Lobelia completely into the shade. Unlike the other known varieties this new species now offered presents no straggling appearance but one line of unbroken blue. Supply limited. Price, per packet, 1s. 6d. and 2s. 6d.

**IPOMOPSIS ELEGANS.**  
 As the name implies (*Ipo* to strike forcibly, and *opsis* sight) this splendid Biennial is extremely effective when well grown. It grows in pots, well crocked, watered carefully, and kept in any airy situation next the glass the amateur will find his labours amply repaid by an uncommon effective flower. Our collection comprises an assortment of various colours, and will produce hues of from rose, calvary, yellow to dazzling scarlet. Price, per packet, 6d. and 1s.

**MISTLETO.**  
 It is not generally known that Mistletoe may be easily grown by rubbing the viscous seed upon the young wood of any Apple, Thorn, &c., tree, when the wood is not too hard. Many growers where the wood is hard cut off a little of the outer bark. Dust a little fine earth over to keep from view of birds. Price, per packet, 6d. and 1s.

**PALIURUS ACULEATUS SYN. P. AUSTRALIS (CHRIST'S THORN).**  
 This, without question, is the plant from which "the Crown of Thorns" which was put upon the head of Jesus Christ was composed (*Loudon, Encyc. of Plants*, p. 178). Many is sheer ignorance imagine the Crown in question to have been formed of our common Hawthorn (*Crataegus oxyacantha*). Besides its biblical interest the plant possesses such curious and ornamental qualities as should alone make it a resident in every English garden. It is a perfectly hardy ornamental deciduous shrub, and delights in any common garden soil. It attains a height of about 4 feet, and produces during June and July greenish-yellow flowers, which are succeeded by curiously-formed fruit, "appearing something like a head with a broad-brimmed hat" (*Paxton*). Grows readily from seed. Price per packet, 6d.

**STEPHANOPHYLLUM LONGIFOLIUM.**  
 This is a most beautiful Greenhouse Annual, producing during autumn numerous graceful branches with enchanting scarlet blossoms, which open for a long period. Price per packet, 1s. 6d. and 2s. 6d.

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 This is a great improvement on the White variety at present known, being larger in the blooms, more compact, and altogether more effective as a border plant. Stock this year limited. Price per packet, 1s. and 2s. 6d.

**N.B.**—All Seeds forwarded, post-free, upon same day as orders are received.

**VICARS COLLYER & CO.,**  
 Importers of New & Rare Plants, Seeds, &c.,  
 SEEDSMEN, NURSERYMEN, &c.,  
 CENTRAL HALL, LEICESTER,  
 AND  
 Central Nurseries, Glenfield, near Leicester.  
 A. W. CREWS, Manager.

**SAMUEL SHEPPERSON, FLORIST and SEEDSMAN**, Prospect House, Belper, Derbyshire, begs to inform the readers of the *Gardeners' Chronicle* that he is prepared to execute orders for the following plants, all of which have been grown on the Derbyshire hills, and are very hardy and strong stocky plants, and sure to succeed well. They are of the very finest strains that money can buy. They are carriage free for cash with order.  
 Descriptive CATALOGUE of Florists' Flowers free.  
 Established 26 years.

**PANSIES a SPECIALTY.**—Probably the best collection in England. The cream only of the most noted raisers. The latest new sorts, and the winners at all the great shows. Good plants, correctly named, Show or Fancy, 12 for 3s.; 25 for 5s. 6d.; 100 varieties for 20s. Postal Orders.

**BEAUTIFUL WHITE POLYANTHUS.**  
 —Strong Plants, full of Bloom-buds, 12 for 1s. 6d. 8 for 1s.

**CARNATIONS, PICOTEES, and CLOVES.**  
 —Yellow, Pink, Scarlet, Dark Red, Pure White, &c., beautifully Striped, Spotted, and Selfs, 12 named varieties, all strong layers, for 4s.

**CANTERBURY BELLS.**—Unrivalled Collection, grand new Colours, Double and Single Telescopes, Candelabra, and other new forms, 12 for 1s.; 12 extra strong for 1s. 6d. Postal Orders.

**CARNATIONS and PICOTEES.**—The new French Perpetual, a really grand new strain, most beautiful colours, twelve varieties, strong plants, to bloom well, for 2s., 6 for 1s. 2d.; 12 extra strong for 2s. 6d.

**AURICULAS (Alpines).**—Fine large Trusses and Blooms, most beautiful colours, strong plants, to bloom well, 12 for 2s.; 12 extra strong for 3s. Postal Orders.

**AURICULAS.**—The old-fashioned Single Yellow. Most deliciously scented. Soon bloom. 12 strong plants for 2s. 6d., 6 for 1s. 6d.

**POLYANTHUS.**—The finest strain grown; fine large Trusses and Blooms, and splendid Colours. 12 for 1s., 25 for 1s. 9d.

**BEAUTIFUL PURE WHITE GARDEN PINKS**, deliciously Scented.—Good strong Plants, to bloom well, 12 for 1s.; 25 for 1s. 9d.

**CARNATION.**—The new German Scarlet Grenadin, a really fine decorative variety, early and free bloomer. Twelve strong plants, to bloom well, 2s. 6d. for 1s. 2d.; 12 extra strong for 2s. 6d.

**HOLLYHOCKS** of Chater's very finest and most select strain, 12 varieties for 2s. 6d.; 6 for 1s. 6d.; 6 extra strong for 2s. Postal Orders.

**DAISIES.**—A fine Collection, three plants each of six distinct sorts, named, for 1s.; Earl of Beaconsfield, the grand New Scotch Dark Daisy, for 1s.

**CARNATIONS and PICOTEES (Seedling),** from Carter's celebrated strain. All Colours. Strong plants, to bloom, 12 for 1s. 2d., 24 for 2s., 12 extra strong for 1s. 6d.

**FOXGLOVES**, Dean's grand new spotted varieties, very fine, 12 for 1s. 2d.; 12 extra, 2s. **FOXGLOVES**, Dean's new Golden, very extra, 12 for 2s.

**WALLFLOWERS.**—The Covent Garden Dark, the Double German Dark, Cloth of Gold, all fine stocky plants, 12 for 1s.

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**YENARCISSUS or DAFFODIL;** containing its History, Poetry, and Culture, with Notes on Hybridisation, and Illustrated with many Woodcuts. Price 1s. **BARR AND SON**, King Street, Covent Garden, W.C.

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**JOHN STANDISH AND CO.** have to offer many thousands fine bushy Plants of **PONTICUM RHODODENDRONS**, exceedingly well grown and well-rooted, from 1 to 2½ feet in height, suitable for covert planting, 9 to 12 inches, at 30s. per 100; 12 to 15 inches, 42s. per 100; 18 to 24 inches, 55s. per 100; 24 to 30 inches, 75s. per 100.  
**HYBRID PONTICUM RHODODENDRONS**, 2 to 2½ feet, 45s. per 100. Chosen named varieties, 1½ to 2 feet, with flower-buds, 27s. per dozen, £10 per 100.  
 Royal Nurseries, Ascot.

**ARBOR-VITÆ**, American, 2-yr., 25s. per 1000. **SWEET BAY**, 8 to 9 inches, transplanted, 10s. per 100. **BOX**, Tree, 4 inches, 30s. per 1000. **GOLDEN JAPAN**, Box, transplanted, 12s. per 100. **COTONEASTER MICRAPHYLLO**, 6 to 8 inches, 40s. per 1000. **CLEMATIS FLAMMULA**, 1 and 2-yr., 20s. per 1000. **CLEMATIS VITALBA**, 2-yr., 20s. per 1000. **CUPRESSUS MACROCARPA**, 1-yr. transplanted, 60s. per 1000; **CUPRESSUS LAWSONIANA**, 4 to 6 inches, 50s. per 1000. **LAUREL**, Colchic, 1-yr., 30s. per 1000. **Portugal LAUREL**, 1-yr., 25s. per 1000. **PINUS INSIGNIS**, 1-yr., fine, 4s. per 100. **PINUS EXCELSA**, 2-yr., 4s. per 100. **PICEA NORDMANNIANA**, 1-yr., 4s. per 100. **REINOLDSIA PLUMOSA**, 6 to 8 inches, 10s. per 100; **R. SQUARROSA**, 6 inches, 10s. per 100. **THUJA TARTARICA**, 6 to 8 inches, transplanted, 10s. per 100. **THUJA COMPACTA**, 8 inches, 8s. per 100. **THUJA LOBBII**, 9 to 12 inches, 80s. per 100. **THUOPSIS DOLABRATA**, 6 to 8 inches, 12s. per 100. **English YEW**, 2-yr., 30s. per 1000; 2-yr., transplanted 50s. per 1000.  
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very cordially and respectfully solicit an inspection by all lovers of this interesting and beautiful class of plants, whether purchasers or not.

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This delicious vegetable does not require half the expense often incurred; for directions see SEED LIST, free. Strong roots 2s. 6d. per 100; extra strong ditto, 2-yr., 3s. 6d. per 100; forcing, 12s. 6d. per 100.

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NURSERYMEN and SEED MERCHANTS,  
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SUPERB COLLECTION. Fine bulbs. Post-free. 12 distinct and beautiful varieties, 6s. and 12s.; 12 choice and rare varieties, 21s.; 12 new and golden-leaved varieties, 42s.; 50, choice collection, 50 varieties, 63s.

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GESNERAS.—12 varieties, 5s.

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„ Yellow, early, 4s. per dozen, 30s. per 100.

„ Yellow, late, 2s. per dozen, 12s. per 100.

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„ Red, 4s. per dozen, 30s. per 100.

„ Purple, 6s. per dozen.

„ „ Crimson, 6s. per dozen.

„ Crimson, 12s. per dozen.

„ Crousi, 12s. per dozen.

„ Cloth of Gold, 12s. per dozen.

„ Blush, 9s. per dozen.

„ platyptala, 6s. per dozen.

SINGLE, White (Purity), 1s. per dozen, 6s. per 100.

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GOLD-LACED, named varieties, 9s. to 18s. per dozen.

„ Border varieties, 1s. per dozen, 6s. per 100.

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ALPINE, named varieties, 6s. to 12s. per dozen.

„ mixed, 6s. per dozen.

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„ MUNROI, 6s. per dozen.

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„ SIEBOLDII, of sorts, 2s. per dozen, 12s. per 100.

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WHITE PASSION FLOWER,

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LUCOMBE, PINCE AND CO., The Exeter Nursery, Exeter, will be prepared to send out this Novelty in the Spring of 1885. They have purchased the whole Stock from the raisers, Messrs. FULLER & SON, of Newton Abbott.

Price 5s. each.

A few extra-sized Plants, 10s. 6d. each.

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ONLY PRIX D'HONNEUR	AMSTERDAM,	1884.
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## Special Offer for Cash

JOHN STANDISH AND CO. beg to offer the under-mentioned finely grown and well-rooted shrubs:—

LAUREL, caucasicum, 2 to 2½ feet, 30s. per 100.

Common, 2 to 2½ feet, 20s. per 100.

HOLLY, Common, 2 to 2½ feet, 42s. per 100.

Golden and Silver, 2 to 2½ feet, 30s. per dozen.

PRIVET, Oval-leaved, 2 to 3 feet, 7s. 6d. per 100.

BERBERIS DARWINII, 2 to 2½ feet, 25s. per 100.

YEW, English, 2 to 2½ feet, 50s. per 100.

AUCUBA, Green, 2 to 2½ feet, 63s. per 100.

LIMES, Standard, stout, 5 to 7 feet stems, 18s. per dozen.

SPRUCE, fine stout stuff, 2 to 3 feet, 40s. per 100.

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SEVEN ACRES OF NURSERY, containing a VALUABLE STOCK, continues to be offered at a nominal price. The lease cannot be renewed.

See CHARLES NOBLE'S full Advertisement, *Gardeners' Chronicle*, March 28 and April 11.

## ROSES, 20 Acres,

well-rooted, many shoot, truly named, of matured vigorous growth, and of the best kinds. Bushes, R. S. & Co.'s selection, 8s. per dozen, 60s. per 100. Standards, 15s. doz., 105s. 100. Packing and carriage free for cash with order.

These World-famed ROSES cannot fail to give the greatest satisfaction.

## ROSES

IN POTS; all the best New and Old English and Foreign sorts, from 18s. to 36s. per doz.

Descriptive LIST free on application.

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CATALOGUE of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.

A CAPITAL COLLECTION for Rocks, Stumps and Borders, from 25s. per 100, or 4s. per dozen.

Most of the plants being in pots may be despatched at any time, or by Parcel Post when fit.

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For Thousands or any Smaller Number:—

10,000 SPIRÆA PALMATA.  
10,000 Green HOLLIES.  
10,000 ANDROMEDA FLORIBUNDA and others.  
10,000 REFINOSPORA AUREA and others.  
10,000 Dwarf ROSES, finest kinds.  
10,000 GOOSEBERRIES and CURRANTS.  
10,000 MAHONIA (Berberis) AQUIFOLIA.  
10,000 ERICA CARNEA, and sorts.  
ACER NEGUNDO VARIEGATA, a few hundred.  
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Thousands of other things on offer.  
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DESCRIPTIVE CATALOGUE

of New and Select Varieties of every Class of Seeds for the

Garden, is now ready.

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## 10,000 PELARGONIUMS,

Very fine healthy plants, in 5 inch pots, 50s. and 75s. per 100

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Cash with order, or reference, from unknown Correspondents

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PRICKLY COMFREY.—We offer crown sets, which are superior to roots, at 21s. per 100. The root is said to be an excellent remedy for coughs and colds in horses and other animals.

GIANT ASPARAGUS.—Splendid roots, from sandy land, in four sizes, 15s., 21s., 30s. and 42s. per 1000.

Trade prices on application.

HARRISON & SONS, Seed Growers, LEICESTER.

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Have purchased the entire stock of a grand new Pea, a selection from the Ne Plus Ultra, and a great improvement, having larger and better filled pods, containing Peas of an immense size, it having taken the 1st Prize at every Show where it has been exhibited. We have named it

HARRISON'S EXHIBITION MARROW,

and highly recommend it for

AUGUST and SEPTEMBER SHOWS.

Pint Packets post-free for 2s.

HARRISON & SONS,  
SEED GROWERS, LEICESTER.

NOTE.—Seedsmen likely to require a few bushels next season can have a trial packet free on receipt of 3d. for postage.



## THE FRUIT OF THE FUTURE.

NEW MAGNIFICENT BLACKBERRY,  
"THE WILSON JUNR."

In spite of the fact that Blackberries will grow "anywhere" in reason, and everybody likes them, it is yet a puzzling reality that it is only with great difficulty and at a high figure that we can purchase them in our markets.

Surely, then, it must be apparent to all farseeing "fruit growers" that instead of glutting the markets with Gooseberries, Currants, &c., they have here a fruit which, if planted upon any given area of land, will prove far more profitable than any other hardy fruit that could be grown. And why? Simply because for half-a-dozen years ahead, at least, the stock throughout the country will not have time to become so great as to exceed the demand.

Landowners, Stewards, and Gardeners, who have each year to show a balance-sheet "of profits," have here a very simple, safe method of for some years obtaining highly profitable results. Planted 3 feet by 8 feet requires at the rate of 1815 plants to an acre.

Gardeners also who grow for house consumption will find this fruit a valuable assistant. It will stand any treatment, and do well where other fruits would fail.

Whilst, however, we have the matter under consideration, do not let us fall into the mistake of planting any variety so long as it is a "Blackberry." Why not, for the sake of a slightly additional first expense, obtain the very "cream" of the family; or in other words, procure stocks of the hardiest, largest, most delicious, and most productive?

By pursuing this procedure the result repays the grower tenfold for the slightly additional first expense incurred.

It was this reasoning that caused us to give the subject our most careful study; the result of which is, we offer a variety, the grandest of the group, producing enormous berries, measuring on an average  $3\frac{1}{4}$  inches around, leathery, and the same dimensions crosswise. (This will give so idea of the profit to be derived from its culture as a market commodity.) The berries are also glossy black, very early of exquisite flavour, and enormously productive—the heavy load of fruit often bending the canes to the very ground.

We can offer plants of this grand variety at 1s. 3d. each, 12s. per dozen, 85s. per 100, carriage paid.

We can offer other varieties as follows:—"LAWTON," "KITTA-TINNY," "PARSLEY-LEAVED" (*Rubus fruticosus laciniatus*), "WILSON'S EARLY," at 9d. each, 8s. 6d. per dozen, 63s. per 100.

After this date (March 12) we advise our numerous Patrons for the "Wilson Junior Blackberry" to give us the option of Autumn Delivery. We have, however, every reason to believe that there is a certainty of delivery in time this spring.

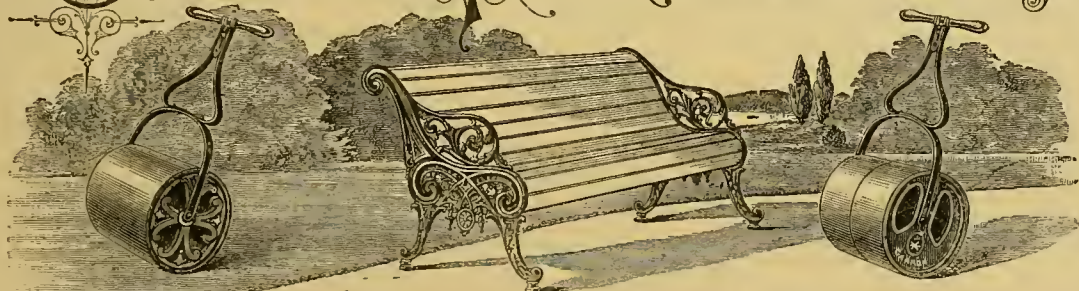
## VICCARS COLLYER &amp; CO.,

NURSEYMEN, SEEDSMEN, &amp;c.,

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CENTRAL NURSERIES, GLENFIELD, near  
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A. W. CREWS, Manager.

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SPECIAL ISSUE OF NEW DESIGNS in GARDEN CHAIRS & ROLLERS  
AT REDUCED PRICES FROM FORMER LISTS  
SINGLE CYLINDER ROLLERS, 16x16, 20x20 AND 24x24 DOUBEE DO SAME SIZES.

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CARRON WORKS, FALKIRK, N.B. DAVID COWAN, MANAGER.

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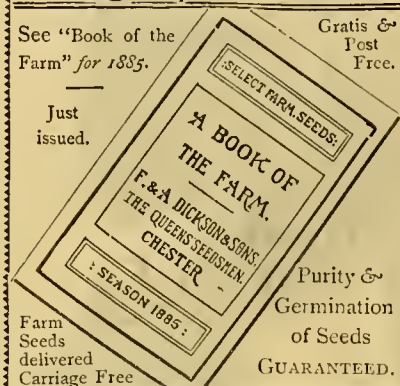
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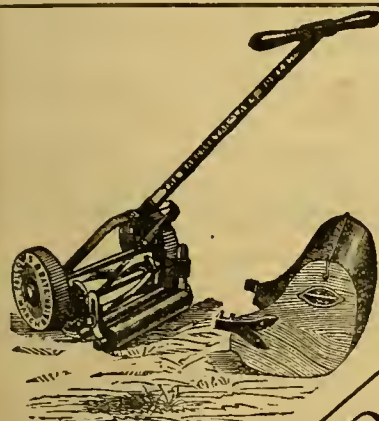
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C. BEESON, *Glory Farm, Amersham.* February 9, 1885.  
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J. SMITH, *Head Gardener to the Right Hon. Lord Rosebery, Mentmore, Bucks.* January 28, 1885.  
"Used for Peas, Onions, Lettuce, Cabbages, Potatoes, Turnips, and fruit trees. Results: Onions, a splendid crop; other crops, where used, most satisfactory. As a surface-dressing I consider your Native Guano most useful. Peas seemed to derive much benefit from the dressing."

JAMES DART, *Gardener to the Right Hon. Lord Carlingford, K.P., The Priory, Chewton Mendip, Bath.* February 9, 1885.  
"The Native Guano I received from your firm in 1884; instead of using it dry I used it as liquid in large tubs to plants of many sorts in pots; also Roses, Cucumbers, Marrows, and many other things, and I was quite satisfied with it."

THOMAS HAMILTON, *Gardener to the Right Hon. Viscount Hood, Lynwood, Sunningdale, Ascot.* January 28, 1885.  
"Used for Tomatoes, Cucumbers, and soft-wooded plants in general. Results: Very good. As we had only a 2 cwt. bag, cannot bear testimony on a large scale; but have no doubt for general purposes is very good."

THOMAS HENRY HILL, *The Gardens, Durwards, Witham.* January 24, 1885.  
"Used for Potatoes, Onions, Beet, and Carrots, at the rate of 8 cwt. per acre. Results: Very good indeed. I can report again on the excellency of your Native Guano. I use no other artificial manure. All I used it for did very well, considering the dry season we had."

H. CAKEBREAD, *Head Gardener to Sir Philip Rose, Bart., Rayners, Bucks.* January 28, 1885.  
"Used for Potatoes, Peas, Beans, and all kinds of winter Greens, Vines, Peaches, and Pot Plants. Results: Satisfactory in all cases. Without doubt your Native Guano is a very stimulating manure, and especially for all green crops. I am of opinion, to thoroughly prove any kind of artificial manure on the same piece of ground, one row should be manured and the next left, i.e., every alternate row only done."

JAMES SAYERS, *Gardener to Frank Snood, Esq., The Firs, Old Charlton, Kent.* January 26, 1885.  
"Used for Peas, Beans, Potatoes, Cabbage, Cauliflowers, Celery, Lettuce, Radish, Endive, Cucumbers, Tomatoes, &c., and Fruit Trees, also Stove, Greenhouse, and Conservatory. Results: Very satisfactory. I consider it a first-rate manure for all these purposes. I think the Native Guano only requires to be better known to be much more largely used."

E. S. WILES, *The Gardens, Edgemoor, Banbury.* January 26, 1885.  
"Used for Melons, Cucumbers, Peas, Onions, and Pot Plants. Results: Good on all—Melons, Cucumbers, Peas, and Pot Plants in particular. The Native Guano supplied to me last year was very good, and as a cheap manure I highly recommend it."

## VINES, STRAWBERRIES, LAWNS, FRUIT TREES and FLOWERS.

ISABELLA MECCHI, *The Limes, Earls Colne, Essex.* February, 1885.  
"Used for all kinds of vegetables, and young fruit trees, with satisfactory results. On pot plants the effects are very marked, producing a brilliant green foliage, and enabling them to resist gently. I have no doubt whatever of the fertilising qualities of Native Guano."

Dr. CHAS. A. BURGHARDT, *Delamere, Alderley Edge, Cheshire.* February 9, 1885.  
"Used for Peas, Cauliflowers, Strawberries, Cabbages, and grass. Quantity used: well dusted over surface for grass; well dusted over surface and forked in for other crops. Results: The Strawberries were excellent in quality and larger in size than usual, the Peas and other vegetables were much improved by this manure, in fact the Brussels Sprouts were earlier and finer than I have seen them for some years. No other manure used on grass, ordinary farmyard manure on Strawberries, as I always have used it. I consider the manure you sent me most excellent for grass, lawns are much improved by the use of it, the grass growing much quicker and having a much better colour than before."

Col. the Hon. W. P. TALBOT, *Glenhurst, Esher.* January 27, 1885.  
"Used for all sorts of flowers, fruit, and vegetables in and out of houses. I have used it principally on small patches of ground and in the houses in pots, but my gardener tells me he supposes about 10 cwt. to the acre. Results: Very good; won a great number of prizes at South Kensington, Richmond, and other shows with fruit, flowers, and vegetables grown with it."

General BOILEAU, *Bognor.* January 24, 1885.  
"Used for almost all garden crops, Peas, Beans, Lettuce, Asparagus, Tomatoes, Carrots, Turnips, Salsify, &c., Strawberries. Results: Very good, with all vegetable, fruit, &c."

WILLIAM APPLETON, *Sipton, Slough.* Feb. 5, 1885.  
"Used for Strawberries at the rate of half a ton per acre. Results: Season very dry; not a fair trial; where used the Strawberries were more free from mildew."

J. E. HAINSWORTH, *Devisbury.* January 19, 1885.  
"Used for Vines. Results: Great improvement. I think the manure good for many kinds of things—Roses, Geraniums. I have used it for Camellias that have not bloomed for a long time without retopping. Crops this year good: Peaches, Figs Nectarines. It must be used with reason."

W. PATERSON, *Beech Grove, Sydenham Hill.* February 9, 1885.  
"Used for lawns, vegetables, Vines, flowers; grass thickly covered with the Guano (probably at half a ton per acre). Results: Very satisfactory. Having used your Guano for twelve years, I have no hesitation in saying that it has always answered well, and that my gardeners say they could not do without it, more especially for my grass slopes and lawns."

C. L. NICHOLSON, *Thatched House Club, St. James's, London.* January 24, 1885.  
"Used for lawn. Results: Excellent. Making out the area over which I used the manure, the crop of fine new grass compared most favourably with that portion of the lawn over which ordinary manure was applied. Our gardener desires a larger supply this season."

A. MARGETSON, *Victor Road, Teddington.* January 31, 1885.  
"Used for Beet, Onions, Lettuce, Celery, Turnips, Endive, Roses, Pelargoniums, Primulas, Cinerarias, Tomatoes. The results have been greatly to my satisfaction, especially in cases of Roses, Beet, and Celery. I have tried all other manures, but, considering the price you charge, I shall recommend it to all my friends."

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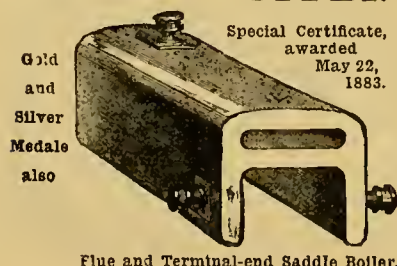
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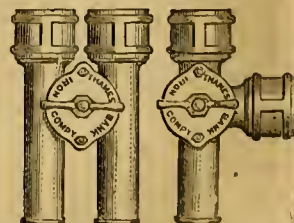
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school standing then on the present site of the famous college which the grateful Bishop himself founded. Those were days of great ecclesiastical splendour, and the immense possessions of the see of Winchester supported several palaces and manor-houses which William of Wykeham repaired and restored, such as Wolvesey, Farnham, Southwark, and Bishop's Waltham—all palaces; with the manor-houses of Merewell, Sutton, High Clere, Esher, Wargrave, and Taunton.

The first stone of William of Wykeham's famous school, known as St. Mary's College, was laid in Otterbourne Mede in 1387; New College, Oxford, having been commenced earlier. The cathedral was restored and the high road to London repaired after long neglect by the same improver, a man of great actions, admirable as bishop, statesman, and Christian. He died at the palace of Bishop's Waltham, and men still look with reverence on his recumbent effigy and noble features, knowing how great he was who lies in dust below.

We must pass on to later times with some abruptness. Several kings connected with Winchester have been already mentioned. In later times Charles II. was a frequent visitor here. He brought Nell Gwynne to Winchester, and when Thomas Ken, of this cathedral, refused to lodge the lady in his house, Charles had one built for her, which stood as lately as 1878 in Colebrook Street, near the cathedral. And afterwards, when the See of Bath and Wells fell vacant, Charles inquired, "Where is the good little man who refused poor Nell his lodging?" and Ken became a bishop. He was brother-in-law to Isaac Walton, and, like him, takes rank among the worthies. The verses inscribed on a tablet near Isaac Walton's grave in the north transept of the cathedral were written by him. The noted angler lived some time here at Wolvesey Palace with his friend Bishop Morley, and then moved to the house of his son-in-law, Prebendary Hawkins, in the Close, where he died, old and honoured, after a life devoted to innocent pursuits, and to such sweet retirement as all men love to dream of. Gilbert White, of Selborne, led just such a life, unnoticed, but well employed, and therefore happy. In spite of Byron's gibe, the excellent angler of the Itchen and the Dove was kind to all created things except worms and fishes! He died in extreme old age, beloved by numerous friends. "His well spent life did last," we read in his epitaph, "full ninety years and past."

Returning to Charles II., that chief saunterer among our kings, besides the house already noticed another was built for another of his female friends, the Duchess of Portsmouth, partly remaining in Peter Street. Charles himself was entertained on several occasions by one or another of the greater clergy, by Ken more than once. He liked the place, he enjoyed the healthful downs in the neighbourhood where he rambled, and the fishing in the Itchen; ships amused him too, and he was always partial to Portsmouth, both the town and Duchess, and Southampton was another place where he enjoyed himself, and both were easily reached from Winchester. Charles therefore purchased the ruins of the old castle and eight acres of land, and on this site Sir Christopher Wren was commissioned to erect a palace, and he had commenced the building when Charles died and the project was abandoned.

I cannot refrain from mentioning among many interesting recollections of Winchester that Bishop Patteson, who nobly met his death at the hands of the savage men for whom he had given up country, friends and home, says in his *Life*, "I know no such associations as those of Winchester Cathedral." As a little boy he had stopped at the Deanery, where he loved to play in the Dean's garden, known as "Paradise," within the buttresses of the old grey choir; and here he sometimes paused in his play and listened with awe and wonder to the solemn chant within.

These memorials may not be unfitted to a column where we have often maintained that the *genius loci* forms a heritable feature of every place of interest. Among the notabilities who were buried here, and whose tombs or memorials may be seen in the cathedral, are Cardinal Beaufort, whose capped effigy is in the presbytery with Norman nose and high, proud face, son of John of Gaunt, grandson of Edward III., brother of Henry IV., who died in Winchester at Wolvesey Castle, in 1447. At the im-

pressive deathbed scene of the ambitious prelate, a reference to his bad life drew from the king, according to Shakespeare's *Henry VI.*, a well known rebuke and just reflection. "So bad a death argues a monstrous life," says Warwick. The king replies, "Forbear to judge, for we are sinners all. Close up his eyes and draw the curtains close; and let us all to meditation." Others among the eminent that lie here are William Waynflete, Bishop of Winchester, Lord Chancellor of England, founder of St. Mary Magdalen's College, Oxford; who died at the same palace at Bishop's Waltham where William of Wykeham expired; Stephen Gardener, Bishop, Henry VIII.'s Chancellor in the period of his trusting youth, died 1555; Miss Mitford of Alresford, authoress of *Our Village*, and her still more eminent contemporary, Jane Austen, died in 1817, aged 41, having, at that early age delighted tens of thousands, including Sir Walter Scott, and merited her epitaph, which is as follows:—"She openeth her mouth with wisdom, and in her tongue is the law of kindness." Having omitted Hardicanute he must come in here among the ladies. His grave is at the extreme east end of the cathedral.

It might be said of the relentless Cardinal Beaufort, who made no sign when the king implored—"Make signal of thy hope"—that if he had been a gardener and had read the lesson of the spring when the vegetable world resumes its life, he might have felt such faith as shone undimmed in the last moments of John Knox, who as he lay dying, was asked, "Hast thou hope?" He was past utterance, but he raised his finger, pointed upwards, and so died. *H. E.*

## New Garden Plants.

IRIS VARTANI.\*

I HAD intended to leave the description of this plant to my friend, Mr. J. G. Baker, who has done so much to extend and correct our knowledge of this as of many other genera. But the flower which I purposed to send to him unfortunately failed; and as blooms may also fail next season I have thought it best, with his approval, to describe the plant myself, while the image of it is still fresh on my mind.

The bulbs have reticulate coats, like those of *I. reticulata* and *I. histrio*, but are in shape a longer, more pointed oval, and those bulbs which proved flowering bulbs were smaller than flowering bulbs of *I. reticulata*. In colour they seemed to be not so silvery-white, but more distinctly of a brownish hue.

A flowering bulb produces two leaves, each guarded at its base by two vaginal sheaths, the lower of which is colourless, the upper marked with faint green parallel veins. The leaf itself is about 1 foot or more long at full growth, 8 or 9 inches or less at flowering time, dark green, tetragonal, with concave sides and sharp angles, the inner side being the smallest, and the outer the largest; it is twisted once on itself in a long spiral, and ends in an opaque-white sharp point. One of the two leaves is at flowering time 2 or 3 inches shorter than the other.

The bud appears between the above two leaves, guarded by a vaginal sheath, which is pointed and colourless, or marked near its apex with a few faint green lines only.

The spathe valves, about 1½–2 inches long, are pointed and colourless, except for a few green veins in their upper part; one (the lower) is shorter than the other.

Tube about 2½ inches, colourless, or faint yellowish-green, slightly constricted below the short perianth funnel.

Whole flower about 3 inches across, not fragrant.

Fall, with narrow claw, suddenly enlarging into an ovate-lanceolate blade. In the middle line of the hinder part of the lamina is the crest, which, begin-

ning as an even ridge, is continued along the whole length of the claw as a ridge thrown into transverse folds like a frill. The crest is yellow, except at the extreme point, which in some cases is white; over the frilled or folded part are numerous black or dark brown minute spots or dots. The claw is on its upper surface yellow, with a tinge of green, becoming a deeper yellow at the edges, but not so deep as that of the crest, and is marked with diverging lilac in colour; i.e., pale blue, with a slight tinge of red. The yellow colour of the claw spreads on to the lamina on either side of the crest, and then dies gradually away into a white or cream-coloured ground marked with lilac or lavender veins, which, diverging from the claw and crest, become broader and confluent at the edge of the lamina, so that the whole lamina seen at a little distance seems lavender or slaty blue in colour, and indeed might be described as lavender or lilac broken by diverging bands of creamy-white. The under-surface of both claw and lamina is a greenish-yellow, marked by the veins shining through. The claw, which has a slight flange at its base, is placed at an angle of about 45° with the prolonged axis of the tube, so that the flower is turbinate; the lamina is bent at about right angles to the claw.

The standards are small, erect, not connivent, with a small narrow, almost linear, lanceolate, lavender-coloured blade, and a very slender completely canaliculate claw, yellow in colour, with a tinge of brown, and marked with brownish-lavender lines. On the lamina a few faint diffuse veins of deeper hue are seen.

The style, shorter and broader than the claw of the fall, which it overlaps, is very concave from side to side, lavender-coloured in the median portions, but becoming lighter on each side, and nearly white at the edge on both surfaces. It bears two pointed triangular crests one-and-a-half times or even twice as long as the style itself, divergent, with obscurely dentate or serrate edges, one crest overlapping the other at the base behind, the inner edge being continued as a ridge some way down the back of the style. Each crest is of a pale lavender colour, marked by conspicuous divergent veins of a deeper hue. The stigmatic surface is blind, and presents the form of two teeth of nearly white colour. The anthers, with blueish light lavender pollen, are longer than their filaments, which are white and short, and are expanded and flattened at their base. The concave style and the concave claw of the fall present a narrow tunnel, in which, however, owing to the style being shorter than the fall, the anther cannot be seen unless the fall be pulled down.

The perianth segments unite into a short (two or three lines) perianth funnel, which is by a slight constriction continued into the thin cylindrical tube.

The ovary being completely buried underground was not seen at flowering time, but after fructification was in due time thrust up, and then appeared to be rounded-trigonal, with shallow grooves in the middle of each side, and at each angle.

The dimensions are as follows:—Fall: claw, 1 inch by ½ inch; lamina, 1½ inch by ¾ inch. Standard: lamina, ¾ inch by ½ inch; claw, 1 inch by ½ inch; style, ¾ inch by ½ inch; crests, 1 inch or more by ½ inch; spathe valves, 2½ to 3 inches long; tube, 2½ inches long, or more, by ½ inch or more; leaves, 15 inches long by ½ inch or more broad.

The bulbs were kindly sent to me by Dr. Vartan, of the Medical Mission, Nazareth, under the idea that they were bulbs of *I. histrio*. The plant, however, differs from *I. histrio*, (1), in the bulbs being more pointed and of a longer, more slender oval form; (2), in the falls having a very narrow claw and a lanceolate lamina, whereas in *I. histrio* the claw is almost as broad as the lamina; (3), in the claw of the fall possessing an obvious crest, whereas in *I. histrio* the orange ridge or "signal" on the lamina of the fall sinks away on the claw into an inconspicuous bar, hardly visible without the help of a lens; (4), in the very long triangular pointed crests of the style, these in *I. histrio* being shorter and more obtuse; (5), in colour.

Indeed, this plant, as I will explain in a subsequent note, seems much more distinct from both *I. histrio* and *I. reticulata* than either of these from the other. It, like *I. histrio*, is a native of Palestine, but Dr. Vartan has not yet been able to tell me its exact habitat.

The plant flowered with me in October, as did also

\* *Iris Vartani*, sp. nov.—Bulbi ovato-acuti, tunicis fibroso-reticulatis; foliis 1–2, flore longioribus, tetragonis, faciebus concavis inequalibus; spathæ unifloræ valvulis linearis acutis; floribus sessilibus, tubo exserto, limbo pallide lilacino; perigonii segmenti externi lamina ovato-lanceolata lactea, venis pallidis lilacinis crebris, ungue linearis, cristâ flava, sparse nigro-punctata obsita; segmenti interni, lamina linearis linearis-lanceolata, ungue linearis, cauculata, brunneo-flava; stylis cristatis, longis triangularibus acutis, margine serrata, venisque lilacinis conspicuis instructis; anthera filamentis longioribus, polline pallide lilacino. Ovario (2); capsula cylindrico-trigonalis.—Habitat, Palestina. (See *Gard. Chron.*, p. 524, vol. xxii., 1884.)



one of the bulbs which I sent to Mr. Max Leichtlin; but I am inclined to think that its real time of flowering in this country has yet to be ascertained.

This new Iris will not, I think, prove a very valuable addition to our gardens. The form is commendable, but the colour is poor, the whole flower presenting at a distance a slaty-blue hue. If it always flowers in October, at a time when the eye is rather weary of Composites, and other flowers are rare, and if it proves easy of cultivation, it may be useful. But I fear it will be difficult to grow if it persists in flowering in October, for then its leaves will, in their very prime, have to bear all the "slings and arrows of an outrageous" English winter. How can we expect them under such circumstances to manufacture plump, sound, bloom-hearted bulbs? I confess I feel a pang of conscience, as if I had done a cruel deed, when I worry my far-off friends to send me bulbs and roots, and having received some thing of beauty from a happy sunny clime, kill it by exposing it to the muddle of frost, rain, darkness, thaw, wind, mist, and mugginess, which we call winter. *M. Foster.*

#### ERIA ELWESII, n. sp.\*

This tiny little dwarf is a great curiosity, well deserving to rank under the genus. Its almost lenticular depressed pseudobulbs are covered with fibrous sheaths without prominences. The small light brown flower has the ovary surpassed by a wide cucullate bract. The outer perigone is connate and three-toothed. Petals rhomboid, with exceedingly minute denticulations at the upper part. Lip oblong, retuse, with two rounded lobes at the base, nearly three lines in length. The leaves are nearly an inch long. They are stalked, oblong acute, nearly membranous. It is a discovery of the King of the Lilies, Mr. Elwes, and I have received it several times since February, 1883, from Sir C. W. Strickland, Hildenley, Malton. *H. G. Rehb. f.*

### GARDEN PALMS.

(Continued from p. 410.)

*Cocos*, L.—About thirty species are included in this genus, two-thirds of which are cultivated at Kew. In the characters of the foliage and of the fruit, and also in the size and habit of the different species, there is a much wider range of variation than is found in any other genus of Palms. Thus we have the graceful plumose type of foliage with the segments aggregated and arranged irregularly along the rachis, and which is represented by *C. plumosa*, *C. flexuosa*, &c.; the Areoid type with the leaf-segments somewhat rigid and lanceolate and arranged in regular series on each side of the rachis, as seen in the Cocoa-nut (*C. nucifera*); the stiff glaucous plumes of *C. campestris*, the graceful Fernlike foliage of *C. Weddelliana*, and the spire-clothed rachises of *C. schizophylla*. The stems vary in like manner, from the tall columnar trunks of the Cocoa-nut to the thin walking-stick-like stems of *C. Weddelliana*, or the flattened decumbent Sabal-like stem of *C. perambucana*. Some of the trunks are almost smooth, and marked with the scars of the fallen leaves, whilst others are clothed with the stout persistent bases of the old foliage, as in *C. capitata*, *C. schizophylla*, *C. coronata*, &c. The fruit varies in size from that of the well-known Cocoa-nut to the small Pea-like drupes of *C. campestris* and *C. Weddelliana*; wide differences in shape are shown by the spherical form of some, the peg-top shape of others, and the long-pointed barley-shaped drupes of a third group, represented by *C. Procopiana*. The pericarp of all the species is brown and fibrous as in the Cocoa-nut, the seed itself being generally smooth, hard, dark brown, and marked at the base with three scars or punctures, as in *Bactris*, *Astrocaryum*, &c. The fancied resemblance of the seed thus marked to the head of a monkey is said to have suggested the generic name *Cocos*, from *Cocos*, or Coquin, monkey. The seedling leaf is simple and erect, and whilst some of the species, such as *Weddelliana*, develop pinnate foliage immediately after the first leaf, others, such as *C. flexuosa* and *C. australis*, continue to produce only ensiform leaves for several years after germination.

\* *Eria Elwesii*, n. sp.—Aff. *Eria* (*Cryptochilo*) *reticulata*, Parishii, Wightii et (C.) Mellicr. Pseudobulbo leontocari minute costato, vaginato; foliis petiolatis oblongis acutis, floribus bractea cucullata acuta, ovarium pedicellatum superante; sepalis in tubum tridentatum connatis; tepalibus rhombis acutis obtusangulis supra minutissime denticulatis, labelli lobis lateralibus semioblongis, lobo antico ligulato retuso; columba brevissima. *H. G. Rehb. f.*

It is hardly necessary here to do more than refer to the many and varied uses to which the Coco-nut Palm is applied. Cultivated, or growing wild, in every part of the Tropics in the vicinity of the sea, there is probably no plant, except perhaps the Bamboo, which supplies man with so many important necessities of life. Every part of the fruit and its envelopes is put to some good use; the leaves and stems are employed in numerous ways, and the sap affords the beverage known as "Toddy." Geographically this Palm is interesting from its being plentiful in both the Old and the New Worlds. If we except the genus *Eleis*, which is a near ally of the *Cocos*, and which is represented in Africa and also in Central America, there is no genus of Palms, as now classified, the species of which are not confined to either the one or the other world, except the *Cocos*. The range of *C. nucifera* is the more remarkable when it is remembered that the remainder of the *Cocoses* are confined to tropical America. The tribe *Cocoinae*, which includes the genera *Bactris*, *Desmoncus*, *Astrocaryum*, *Acrocomia*, *Eleis*, *Diplorhynchium*, *Cocos*, *Maximiliana*, *Scheelia*, *Attalea*, *Jubaea*, and *Orbignya*, is exclusively American, except only *Cocos nucifera* and the *Eleis*.

For garden purposes the majority of the species of *Cocos* are of known value, the most popular in this respect being *C. Weddelliana*, which is too well known to require describing here. Next in importance come *C. plumosa*, *C. flexuosa*, and *C. botryophora*, which are tall, slender growing Palms, with very long, erect, and graceful dark green foliage, most effective in groups of foliage plants, and suchlike. *C. insignis* is very like *C. Weddelliana*, but owing to its being rather difficult to cultivate as compared with the easily managed nature of the latter, the recent introduction does not appear to be much sought after. A tropical moist temperature suits all the *Cocoses*; their seeds germinate readily if sown in a heated bed, and kept very moist. *C. nucifera* is not easily cultivated in glass-houses. It was successfully managed at Syon House about twenty-five years ago, where it flowered, but the extraordinary high temperature both at the root and overhead which was applied to this plant before such a result could be obtained was such as does not fall within the means of any ordinary garden (see *Gardeners' Chronicle*, 1862, p. 189, with fig. At Kew there are two rather large plants of the Cocoa-nut, and it is hoped that the high temperature now kept in the Palm-house will prove sufficient for them. According to Seemann it was not unusual years ago for this Palm to thrive under cultivation in plant-stoves until it attained the age of eight or ten years, when it invariably sickened and died. There may be a useful hint in the saying of the Cingalese, that "Cocoa-nut trees do not thrive unless you walk and talk amongst them," indicating that the trees require constant and careful attention. Possibly the aid of sea-water, with which the roots of these trees are frequently watered in tropical countries, is needed for their successful management here.

- C. amara*, Jacq. (*Syagrus amara*, Mart.)—West Indies.
- C. australis*, Mart.—South Brazil.
- C. Blumenavii*, Hort.—South Brazil.
- C. Bonnetii*, Hort.—Hab.?
- C. botryophora*, Mart. (*Attalea grandis*, Hort.)—Brazil.
- C. Butoi*, Hort.—Hab.?
- C. campestris*, Mart.—Brazil.
- C. comosa*, Mart.—Brazil.
- C. coronata*, Mart.—Brazil.
- C. flexuosa*, Mart.—Brazil.
- C. Gaertneri*, Hort.—Hab.?
- C. insignis*, Mart. (*Glaziova insignis*, Hort.)—Brazil.
- C. Mikaniana*, Mart.—Brazil.
- C. Marie-Rose*, Hort.—Hab.?
- C. nucifera*, Linn., "Cocoa nut,"—Tropics.
- C. perambucana*, Lodd.—Brazil.
- C. plumosa*, Lodd.—Brazil.
- C. Procopiana*, Hort.—Brazil.
- C. Romanzoffiana*, Cham.—South Brazil.
- C. Sancona*, Hook. f. (*Syagrus Saocona*, Karst.)—Brazil.
- C. schizophylla*, Mart.—Brazil.
- C. Weddelliana*, Wendl. (*Glaziova elegantissima*, Mart.; *G. Martiana*, Glaz.; *Leopoldina pulchra*, Hort.)—Brazil.
- C. Yuramaguas*, Lind.—Brazil.

(To be continued.)

### LYCOPODIACEÆ.

PTERIDOLOGISTS will be pleased to learn that two very interesting Lycopods have recently been added to the collection of living Ferns at Kew; they are *Phylloglossum Drummondii*, a truly remarkable little plant, not much more than 1 inch high when fully developed. The root is composed of two ovoid tubers, each of which will produce a plant, and develop a pair of tubers the year following; these tubers are as small as a pin-head, and are white and fleshy. The leaves, which are deciduous, are terete and subulate, half an inch long, and are arranged in a little rosette, from the centre of which an erect cone-bearing peduncle is developed. This cone is composed of imbricating scales, in the axils of which are the capsules containing the spores. It is stated that nothing is known of the process of fertilisation or reproduction in this plant, and it is for the purpose of obtaining knowledge on these points that these plants have been procured by the Kew authorities. The second plant is *Tmesipteris Forsteri*, which has a habit somewhat similar to the allied Lycopodiums, but differs in having the leaves arranged in threes and in their being large, falcate, and bilobed, with the capsule seated in the base of the fork. This capsule is large (quarter of an inch long), and contains the spores; altogether a very singular plant, as may be seen by the Kew specimen of it, which is placed in a case along with Filmy Ferns. Some spores of this plant have been sown at Kew, and as these appeared good—having been ripened on the plant before it was imported—there is some hope of their vegetating. It would be worth the while of any one possessing any plants of Lycopodium or Psilotum to sow their spores under various conditions, as it does not appear that any one has ever yet succeeded in raising plants from spores of any of the genera belonging to Lycopodiaceæ, except *Selaginella*. It seems not improbable, however, that the spores produced under artificial cultivation are not perfect; I have tried such spores in various ways, but have never had any success. There is great scientific interest attached to the reproductive process in the plants of this order. *W. A.*

### THE CULTURE OF THE POTATO.

FIELD CULTURE.—The field crop is the one of the greatest interest to the nation, and as matters stand at present that crop can only be reckoned as a paying one when it is up to or over the average as regards quality and free from disease; on the other hand, when there is a general good crop the prices rule very low. At the end of the season last year I purchased Potatoes of the best quality (that designated "ware" by the growers near London) at 3s. per hundredweight. Later they were sold as low as 2s. 6d. The next quality, "middlings," were 6d. less, and "chats" were 1s. less. At the highest price this would give an average of £2 10s. per ton, and, say, the average of the crop over a large farm was 7 tons per acre, it would give £17 10s. per acre, and this allows nothing for waste. Now I am in a position to state that the cost of producing an acre of Potatoes in the district where the above crop was grown averages £20 per acre; that, of course, includes rent, rates and taxes, manure, labour for cultivating the ground, &c., as well as delivering to the consumer. The cost of manure is usually a heavy item, and the land is expected to grow the following crop without manure, but the Potatoes take the largest share of it, especially if the crop happens to be of the "Champion" variety.

The farmers are very careless in the way they treat the Potato plant, especially towards the end of the season. The latest sets are perhaps "snibbed" twice, and shovelled from one place to another during the process. The operation of planting is generally done at so much per acre, and the men hurry over the work. They use as a dibber an implement shod with a round iron head, which, driven into heavy wet soil, makes a hole that will almost hold water; a boy follows, dropping a Potato into each hole. The result of careless cropping, combined with bad management of the tubers, is often seen in an irregular crop. Some of the farmers have a belief in certain dates to begin planting. The 14th of February is a popular date, and on large farms the planting period extends over six weeks or more. It behoves farmers, market



gardeners, and those in charge of private gardens, to make the most of the Potato crop. The sets ought to be put in the ground in such a way that no water will lodge around them before they sprout, and the soil should be well and deeply cultivated to permit of the roots growing away freely at first, and the tubers to form without any check to their growth. A former President of the Royal Horticultural Society (Mr. Thomas Andrew Knight) experimented very much with the Potato, both as a field and garden crop. He was very careful to be exact in his experiments, else one would be inclined to doubt the correctness of some of his statements. He planted some Ashleaf Kidney Potatoes in his garden, and the produce calculated per statute acre was 670 bushels of 80 lb. each, that is at the rate of 24 tons per acre, and in his letter he says:—"To obtain these vast crops of the Ashleaf Kidney I always plant whole Potatoes, selecting the largest I can raise, and for a very early crop those ripened early in the preceding summer and kept dry. I usually plant them on their ends, to stand with the crown end upward, and place them at 4 inches distant, from centre to centre, in the rows—the rows 2 feet apart, and always pointing north and south." He says further:—"I plant my large Potatoes much in the same way, but with wider intervals, according to the height which the stems attain; thus, one which grows a yard high, at 6 inches distance from centre to centre, and 3 feet 6 inches or 4 feet between the rows, never cutting any Potato, or planting one of less weight than a quarter, but generally half a pound. By using such large sets, I get very strong and large plants, with widely extended roots, very early in the summer." Mr. Knight further adds, "The blossoms take away a good deal of sap, which may be better employed in forming tubers; and whenever a Potato produces seeds I think it almost an insuperable objection to it." The time of planting is of great importance, but it is at the same time very difficult to decide when to do it. Before the disease came in 1845 late planting was more the rule than it is at present. By late planting we escape the spring frosts, but we are more likely to catch the disease. Frosts of considerable intensity are not uncommon in the first and second week of May, and I read in the *Horticultural Register* for 1831 that they were prevalent at that time. The Editor of the *Domestic Gardeners' Manual* says that the fatally destructive frost of May 6, 1831, destroyed every Potato leaf that had emerged from the ground. In 1860 we had 8° of frost on May 8. In 1867 a severe frost killed the Potatoes on May 8, after the thermometer the week previous had been 85° in the shade. Taking these chances into account the farmers think it is better to plant early and risk the frost rather than to plant late and risk a probable loss by disease.

#### GARDEN CULTURE.

To obtain the best results the preparation of the ground is of very great importance. The ground should be well dug up as soon as the previous crop has been removed, in order that it may be well pulverised by the winter frosts. Our earliest crop is planted in two ways: one set of tubers is placed in single layers in boxes, and the boxes, in which have been placed 2 inches deep of fine soil, are placed in a cool greenhouse, vinery, or Peach-house; they are not covered with the mould, but merely pressed into it. When sprouted an inch or two they are carefully planted out without injuring the growths. The other portion is planted out on the first favourable opportunity after February 1 on an early border. The ground having been deeply dug and manured in the autumn, we begin at one end and lightly fork it over, planting the Potatoes as the work proceeds; this system does away with the necessity of treading on the ground afterwards. Another plan is to draw drills, as for Peas; place the sets in the drills and then draw the earth over them, forming a ridge. I am planting for the earliest crop this year the old Ashleaf, Uxbridge Kidney, and Veitch's Improved Ashleaf. The two round varieties are Sutton's Early Regent and Lady Truscott. They gave great satisfaction last year. Victoria is still a great favourite with us, and for the latest of all Champion. I do not cut the tubers of any kidney Potatoes, nor of Victoria. I ventured to cut some very large tubers of this last-named variety one season to make them plant more ground, but a large number of the cut sets did not grow at all, and there were many blanks. I would urge the importance of waiting if necessary until the ground is dry before planting Potatoes on it. The plants are not likely to do so well when planted on wet ground; this remark applies more particularly to heavy soils. J. Douglas.

### THE EUCHARIS MITE.

[WE are now enabled to publish illustrations of this mite, taken from Mr. Michael's paper in the *Journal of the Royal Microscopical Society*, and have added a copy of the figures given by Claparède, making the necessary correction.]

There is another member of the family of Tyroglyphidae (*Rhizoglyphus Robini*) which has been making itself unpleasantly conspicuous in this country in 1884. It was first described by Claparède\* in 1868; he found it upon Hyacinth, Potato, and Dahlia roots; he describes it, names it, and figures both the male and female with his accustomed skill and exactitude, but, by some strange error, he has misplaced the

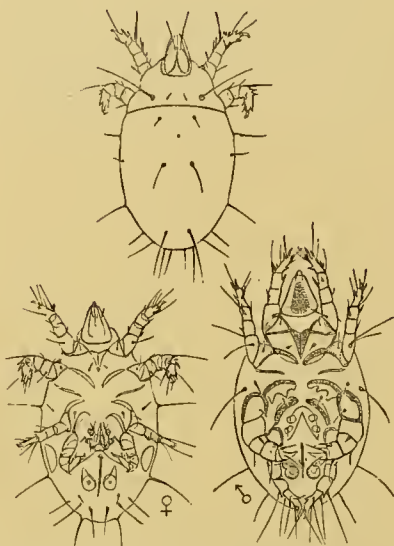


FIG. 77.—THE BULB MITR: GREATLY MAGNIFIED; ♂ MALE, ♀ FEMALE, AFTER CLAPARÈDE.

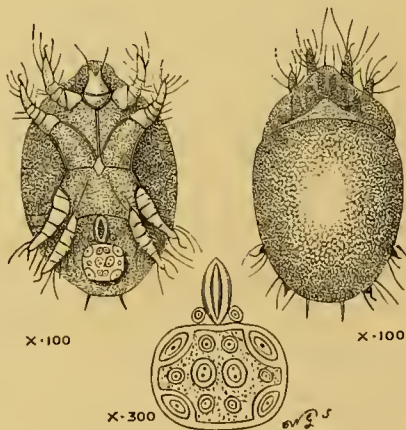


FIG. 78.—HYPOPIAL FORM OF THE BULB MITR: DORSAL AND VENTRAL SURFACES.

The detached sucker-plate magn. 300 diam. After Michael.

sexes, calling the male the female, and *vice versa*. I have not even noticed the species in England until 1884, but it may probably have existed, for I have not ever searched for it. In the latter half of 1884 I have been receiving it from numerous quarters, always accompanied by complaints of the damage it was doing. The first instance came from the Duke of Sutherland's famous hothouses at Trentham. Mr. Stevens, the skilful and energetic head of that establishment, found the Eucharis bulbs in their hothouses attacked, and sent some to Mr. E. Bostock, of Stone, for microscopical examination. That gentleman detected a *Rhizoglyphus*, and despatched the bulb to me in order that I might identify the species. Mr. Bostock also sent me about the same time a Hyacinth bulb for examination for other purposes, which I found to be swarming with the same *Acarus*. About the same time I received it from Exeter, from Mr. Parfitt, and from numerous other sources. The mite not merely attacks the exterior of the bulb, but also forces itself in between the scales, and thus devours the fleshy parts of the interior, the wounds thus caused becoming coated in the case of the Eucharis bulbs with a hard brown gummy matter. The Hyacinth bulbs were utterly destroyed. It would seem wise therefore that at present importations of Dutch or other European bulbs should be submitted to some examination before being mixed with other bulbs of value; and that, if they be infected, sulphur, carbolic acid, or some other insecticide should be tried.

In keeping the present species, I soon began to breed Hypopi from the nymphs. The Hypopus is very different from that of *T. corticis*, not only from its greater size, but also from its shorter and broader form, different sucker-plate, the entire absence of the eye-like organs, and many other particulars. In this instance again I found what seems to me strong confirmation of my view as to the circumstances under which Hypopi are produced. The *Rhizoglyphus* was swarming on the Hyacinth bulbs; both sexes were thriving; breeding was going on very much more freely than the owners of bulbs would approve of; the creatures were all only too healthy, and were not in any way dried up or subject to any adverse circumstances; and yet Hypopi kept on appearing in large numbers, and, at the moment of writing this, they are swarming in my cells, accompanied, both there and on the bulbs, by numerous smaller Hypopi, being those of some species of the genus called *Serrator* by Ménézin (his original *T. rostro-serratus*), *Philostoma* by Kramer, and *Histiostoma* by Canestrini and Berlese. A. D. Michael.

### CHRYSANTHEMUM LA NYPHE.

THE illustration on p. 441 (fig. 79) represents a fine specimen of an imbricated white variety flowered last autumn by Mr. E. Wills, gardener to Mrs. Pearce, Bassett, Southampton. It is stated that the variety lends itself capably to the culture imposed by specimen growing, the habit being profuse as regards lateral shoots, which in the plant figured were much less stiffly trained than is usually witnessed in the imbricated section of the Chrysanthemum. The flowers are white, and the plant speaks itself for its abundant blooming habit.

### PEACH TREES UNDER GLASS.

As Peach tree forcing is sometimes disappointing to the inexperienced, it may be well to point out the chief causes of failure, as well as suggest the best and readiest means of overcoming them.

#### THE HOUSE.

Supposing a Peach-house intended for very early forcing is about to be erected, I would recommend that it should be either a lean-to or a hip-roofed house, supported by a back wall. The house should be from 13 to 15 feet wide inside; the front wall should be about 3 feet high, and the front sashes about 2 feet 6 inches or 2 feet 9 inches deep; the front roof springing from these should be placed at an angle of about 35° or 37°. This elevation of roof may be greater than the general run of those for early Peach-houses, and may be objected to by some practitioners as being calculated to produce too arid an atmosphere, but I would here remark that early Peaches succeed admirably under such a roof because the sharp pitch catches every ray of sunshine at mid-winter and early spring, which is of far greater importance to them at this season than a stiller and moister atmosphere would be. For the same reason the position selected for the house should either face due south or incline a little towards the south-east, and it should be in an elevated position where neither trees, buildings, nor other objects can possibly intercept a single ray of sunshine. Whether the house be constructed of wood or iron—and I must admit, for this special purpose, I would give the preference to the former—it should be constructed so as to admit as much light as possible. With the present improved method of glazing there is no necessity for thick bulky rafters, provided they are

\* "Studien an Acariden," *Zetschr. f. Wiss. Zool.*, xviii. (1868), p. 506, pl. 38, figs. 7-11.



sufficiently strong, with the assistance of the internal truss-rods or supports, to give stability and security against all weathers; that is all that is required.

#### GLAZING.

As to the methods of glazing there are now so many systems in force that it is rather difficult to determine which is the best, but my own experience leads me to recommend that system which is now termed the dry method, where the upright edges are simply butted against each other, and where a lap of at least  $1\frac{1}{4}$  inch is allowed at the bottom of each square, where the purlins to which each square is secured by two or more clips of well prepared wire,

houses as being both chilly and drippy, and therefore quite unsuitable for the purpose of early forcing. I cannot help thinking that such persons have either not proved them personally, or else they have had experience only of such as have been badly constructed; be that as it may, I can only assert that they have as early peacheries far exceeded my most sanguine expectations. For the last six years I have found no difficulty in ripening Peaches in them by the end of April without an unusual amount of fire-heat which fact speaks for itself. As to the charges of coldness and drip they are simply incorrect. If the angle of the roof is what I have recommended, the glass good, carefully chosen, and

at the base of the house, at the back as well as at the front; the top ventilators should open about 2 feet wide the full length of the house: these lights may be all on one side of the ridge or in alternate lengths of about 4 feet on either side, as may be thought advisable. The ventilators at the base should be made of sliding shutters about 2 feet long, with similar intervals between them; they should be arranged in the front and back wall, immediately below the hot-water pipes, so as to ensure the air in cold weather being warmed as it enters the house; the front sashes should also open, although it will not be necessary to use them except in the hottest weather. Four 4-inch pipes will be required



FIG. 79.—CHRYSANTHEMUM LA NYMPHE. (SEE P. 440.)

or other similar material, should be fixed to the rafters, and which should be the exact thickness of the lap, *i.e.*,  $1\frac{1}{2}$  inch. The weight of glass should be fully 21 oz. to the foot, and if the position be a particularly breezy one, 26 oz. to the foot will not be any too stout. In purchasing the squares, which should be exactly 24 inches long by 18 inches wide, care should be exercised to select those only whose edges are perfectly straight and even, and in arranging them on the roof the convex side of the squares should always be placed uppermost, nor should the junction of any two squares be in an exact line with that of the two immediately below them. The wire or other metal clips are usually secured to the purlins by  $\frac{3}{4}$  inch screws, but for many reasons I would recommend flat-headed copper tacks of the same length, as being equally secure and more preferable. I am well aware that many good authorities condemn these dry glazed

properly fixed, there need not be any doubt about them answering perfectly. They possess a few important advantages over sashed houses or such as are glazed on to the rafters, inasmuch as there is a gentle stream of air passing through the roof at all times, which effectually prevents the possibility of a stagnant atmosphere, even when the ventilators are closed; this in Peach forcing is most beneficial. Much less wood is required in forming the roof, the light is consequently greatly increased. Repairs are almost *nil*, and as there is but little wood exposed to the weather, painting is reduced to a minimum.

#### VENTILATION.

The internal arrangements have now to be considered. In the first place ventilation should be ample, not only at the apex of the roof, but also

along the front of the house, and two 4-inch along the back and ends, so as to ensure a sufficiency of heat in the severest weather without the necessity of having the pipes too hot.

#### TRELLISES.

The form and method of arranging the trellises will also have to be considered; longitudinal ones, describing an arc from the front to the back path and immediately below the glass, are generally preferred, and doubtless when heavy rafters and small squares were in use this was the only arrangement calculated to ensure sufficient light for their successful growth. Since this objection need no longer exist, there is no reason why this form of trellis should be used, as in these modern built houses there is more light admitted at their base than there was in the former ones immediately under the roof.



This being the case, transverse trellises placed under each rafter at intervals of about 5 feet 6 inches, extending from the front to the back wall, leaving an arch over the back path, not only give an increased surface for training, but by this arrangement another great advantage is gained, as the light on the back wall is in no way obstructed, while experience has proved that the fruit at the base of the trees not only swells, but colours and ripens to perfection. Double trellises under each rafter placed about 6 inches apart, and where the trees are placed back to back, have also been tried with the best results, and without any ill effects being perceptible. This of course gives double the amount of training space, a greater number of varieties can be planted, thus ensuring a greater variety, and a much longer succession of fruit. Two shelves can be arranged to the full length of the house along the front, one at the base of the sashes and one immediately under the rafters, while two more can be arranged over the back path near the ventilators, and one on the back wall. These five shelves will be exceedingly useful for forcing Strawberries, or for the growth of any other plants needing an intermediate temperature. The preparation of the borders next demands attention, and as this is perhaps the most difficult work to perform, at least to amateurs and young gardeners with but little experience, I must take another opportunity to describe the method of preparing them. T. J. C.

## Orchid Notes and Gleanings.

### ORCHIDS AT LAKE HOUSE, CHELTENHAM.

G. NEVILLE WYATT, Esq., has a model collection here, which, while containing no failures, can boast of having obtained a great number of victories over subjects which are generally wont to be troublesome, and several of which are now in bloom. Among these may be noted well-flowered plants of the beautiful *Oncidium Phalaenopsis*, with flowers 2 inches in length and snow-white labellum over  $1\frac{1}{2}$  inch across—lovely and marvellous sprays of flowers for such tiny plants to bear. One of them has flowers with the petals and base of the labellum heavily blotched with violet, and another is simply dotted over with the same colour. It, as well as all the other of the *O. cucullatum* section, is a fine plant for a cold house. *O. cucullatum giganteum*, with its large rose-coloured lip, and other fine forms of it, are in bloom and doing equally well. *Lælia harpophylla*, too, is a blaze of orange-scarlet, some of the flowers being 3 inches across, and nine on a spike; they arrange very effectively with the beautiful *Dendrobium Jamesianum* and the magnificent varieties of the snowy waxlike *Odontoglossum pulchellum majus*. *L. harpophylla* receives special treatment at Lake House, and as under it weak plants grow into strong ones it may be well to note it. The plants are grown in a still shady corner of the north side of the intermediate-house, where they are liberally watered when growing, and not allowed to get dry when at rest. Want of water and too much sunlight is here supposed to be the commonest causes of failure with this plant. *Odontoglossum Edwardii*, which is supposed to be a difficult plant to grow, is producing its heavy sprays of violet-coloured sweet-scented flowers under similar treatment to that given to *L. harpophylla*, but in a cold house.

The principal range is divided into four compartments, the first being for East Indian plants, the second for those requiring intermediate temperature, such as some *Cypripediums*, *Bolles*, *Pescatoreas*, *Odontoglossum vexillarium*, *O. Roelzii*, *O. Phalaenopsis*, *Cymbidiums*, &c.; and the third and fourth to cool Orchids, of which a very sound and clean lot are there established. Among the warm-house plants *Aërides Lecanum*, *Phalaenopsis violacea*, *P. grandiflora*, *P. Schilleriana*, and *Angraecum sesquipedale* are fine. In the next division the massive white blooms of *Cymbidium eburneum*, 5 inches across, are superb, and tell well in the contrast with *Lælia harpophylla*, *Odontoglossum pulchellum majus*, *Cypripedium villosum aureum*, *C. Boxallii*, *C. Lowii*, *C. Sedeni*, *C. concolor*, *C. lævigatum*, and *C. insigne* and barbatum varieties. The cool-houses have fine spikes of *Odontoglossum Alexandræ* varieties, *O. Andersonianum*, *O. bictoniense*, *O. cirrosum*, *O. gloriosum*, *O.*

*Halli* (one a grand yellow-lipped variety, with eighteen flowers on a spike), *O. Hallii*, *leucoglossum*, *O. Insleayi*, *O. roseum*, *G. Rossi majus* and *rubescens*, *O. Oerstedii*, *O. Pescatorei*, and the beautiful *O. Sanderianum*, with its fine branched spike of sweet-scented flowers, which are like a good odoratum, with blandum lip. The *Oncidium cucullatum* varieties, *O. dasytle*, many scarlet *Sophronitis*, *Masdevallia ignea*, *M. igoea rubescens*, *M. chimæra*, and well-flowered *Lycastes* are also in excellent form.

Another span-roofed range, 43 feet by 13 feet, in two compartments, contains the *Dendrobes*; in the warmer half among them, well in bloom, being many good *D. Wardianum*, *D. nobile*, *D. Fytchianum*, fine forms of *D. infundibulum*, and *D. Jamesianum*, *D. cretaceum*, *D. Findlayanum*, *D. fimbriatum*, *D. crassinode*, *D. luteolum*, and *D. chrysotoxum*. In the cooler division, *Vandas*, *Lælias*, &c., are grown. In it *Cymbidium Lowianum* has four fine spikes of eighteen to twenty flowers each, and the *Cœlogyne cristata*, *Trentham* and *Chatsworth* vars., are very fine, some of the flower-spikes of the latter bearing seven flowers. The *Cattleya*-house, 35 feet long, has some fine forms of *C. Trianae*, *C. Percivaliana*, and *C. Walkeriana* in flower and a good show of buds, sheaths, and clean healthy foliage. The plant-houses and vineries at Lake House also contain various Orchids, including *Dendrobium bigibbum* and *D. Bensoniæ*, and at one end of the Melon and Cucumber-house, over a tank of water, *Dendrobium Dathousianum* thrives wonderfully well, having growths on it about 6 feet high. *Peristeria elata* (the Dove Orchid) also grows and flowers well in the same. The *Azalea*-house is used for resting *Dendrobes*, &c. Everything which comes into Mr. T. Simcoe's (the gardener) hands seems to be so sensibly and skillfully treated that it at once settles comfortably down, and in due time gives its flowers in more than usual profusion as a reward for the care bestowed on it—as witness the grand specimen of *Dendrobium Falconeri* growing on a tree Fern stump which sometimes bears nearly 300 of its large showy flowers; the superbly bloomed *D. superbiens*, *D. bigibbum*, *D. Fytchianum*, *D. Jamesianum*, *Epidendrum bicoloratum*, and many other things which certainly want good culture to grow and flower well.

### ORCHIDS IN FLOWER AT THE YORK NURSERIES.

When walking through the houses at the Messrs. Backhouse's lately, I was particularly struck by the fine display of flowers of *Cattleya Trianae* in the large *Cattleya*-house, which has been described in your columns on several occasions. The plants are grown, as has been aforesaid, on the non-shading system. I am informed the percentage of bloom-sheaths is larger than usual this year, thus proving that the late hot summer has not in any way injured the plants, as was feared by some orchidists who visit these nurseries in the summer season. It is perhaps only right to mention that the plants are much further from the glass than is general in smaller houses that do not let in such a flood of light and that an abundance of air is given when the weather is at all favourable. There were about 800 flowers open when I was in, amongst them were some very fine varieties, one named "magnifica" being especially so. It is a fine bold flower, with pinkish-rose petals and sepals, and a splendid magenta-purplish coloured lip with a handsomely frilled white margin, the flowers were fully 8 inches across, and the plant had nine flowers open in an 8-inch pot. Amongst other *Cattleyas* there were fine varieties of *venosa*, *aureum*, and *citrina*, the latter growing on small blocks hung up near the glass in an intermediate-house, and here *Lælias* of sorts were in good health. In the same house were also a fine batch of *Cymbidium eburneum* in bloom. In the *Odontoglossum*-house I noticed some very fine varieties of *O. crispum* and *Pescatorea*, and the plants generally were in a good healthy state. H. J. C.

### ORCHIDS IN FLOWER AT KINGSBURY HOUSE, SHORTLANDS: E. HARRISON, ESQ.

A grand display of *Cattleyas* is now in flower in the houses here—between 200 and 300 expanded flowers in one house—the greater part of which are of the *Trianae* section. The innumerable varieties vary considerably, some having the fine form of *C. chocoensis*, one particularly noticeable being a white form, very fine; *C. Warszewiczii* also is open, some *C. Mossiæ* also; amongst others, several fine forms of *Cattleya citrina*, *Lycaste Skinneri*, *Trichopilia suavis*, *Odontoglossum Roelzii* and *pulchellum*,

*Bletia hyacintha* and *Cœlogyne cristata*. In the cool house some fine varieties in great number of *Odontoglossum Alexandræ*, *O. Rossi majus*, some very good, deep, well-marked varieties; good *O. gloriosum* and *O. triumphans*, and a fine form of *O. Andersonianum*. There are a great many spikes showing, and a good display will be kept up for some time. This collection is doing remarkably well, and of late years has been very much increased. Great credit is due to Mr. King, the head gardener, for the practical manner he handles this collection. A. O.

## FORESTRY.

### NURSERY WORK FOR APRIL.

THE present month may be considered that in which the annual routine of forest work should be wound up for the year, but as, in all probability, there will be arrears in various departments, no effort should be spared to get these attended to before commencing the important operation of bark stripping. Nursery work will still demand great attention to finish the sowing of seeds, the transplanting of seedlings, and grafting of ornamental trees. As a guide to seed sowing we may state that about 1000 seedling plants to the square yard is considered ample nursery space; also that a sample of coniferous seeds of average quality under favourable circumstances produces about two-thirds of good germinating seeds. The number of seeds contained in 1 lb. each of the different kinds is about as follows:—Larch, 64,000; Scotch Fir, 69,000; *Pinus austriaca*, 24,000; *P. Strobus*, 31,000; *P. Pinaster*, 11,000.

### PRUNING.

The pruning of all evergreens should be completed as soon as possible, and as has been before stated under this heading, every precaution ought to be taken to prevent cattle, horses, or sheep, getting access to the prunings. Yew and Laurel or *Rhododendron* trimmings are especially dangerous, more particularly when in a half-withered state, and should be burned as the work of pruning proceeds. Remove Ivy from trees, walls, and other objectionable places, and where an annual trimming or pruning is given, the present will be found the best time to proceed with the work. Prune off dead and twisted branches, and paint the wound, after being carefully dressed with an adze or sharp knife, with tar or one of the several compositions specially prepared for the purpose. All rival leaders on coniferous and other trees should now be removed, as well as straggling side branches, so as to produce a well balanced head. In the nursery management of trees pruning is too often neglected, but this should not be so either as regards branch or (in the case of several hardwoods, notably the Oak) root.

### FENCING.

The duties of the fencers will now be many and varied, such as the guarding of newly planted trees and shrubs against the attacks of hares and rabbits, staking or wiring of recent transplants, reparation of tree-guards, and attending to plantation fences generally. Rabbits and hares have a particular relish for trees when newly transplanted from the nursery border, and it requires the utmost vigilance on many estates to guard against their depredations. Surrounding the clumps or single trees with wire netting is certainly the most effectual preventive against injury by game, but where extensive planting is engaged in from year to year this method is both troublesome and expensive. In the case of shrubs, we find it a good plan to stick a few branches amongst them, which are painted with tar every week, the smell being a powerful agent in keeping these pests at bay. Tarring the stems of trees and shrubs is highly objectionable, not only as regards the injurious effect on the plant's system, but from a point of appearance as well.

### HEDGING.

Hedges of various kinds may still be formed, but the Hawthorn, being of early growth, should not now be disturbed. Holly, where care is taken in the removal, may now be planted with success, as well as Yew, Box, Privet, *Berberis* of various kinds, the *Ma-honia*, *Laurusticus*, and *American Arbor-vitæ*. For lawn or nursery purposes we find the Yew and *Arbor-vitæ* of great value, but the former should never be



planted within access of farm stock. Neglected or overgrown fences may now be cut over with advantage, but the sooner the better. Clean by hoeing or slightly forking over the sides of existing fences, which will materially assist in the producing of strong useful hedges. *A. D. Webster, Penrhyn Castle, North Wales.*

## The Flower Garden.

### ANNUALS.

This is the best time to sow seeds of all the many kinds of hardy and half-hardy annuals. Many of these are so beautiful, especially the many improved and new varieties, but far too numerous to mention in this notice; nor is it necessary, as they can be readily ascertained in seedsmen's catalogues. Of such things the tenderer kinds should be sown in pans or boxes, and placed in gentle heat, and when large enough they should be pricked off into other boxes or frames. The border kinds may be sown thinly in cold frames, and afterwards singled out, or they may also be pricked out. Many hardy kinds may be sown in the open flower-beds or borders at once.

### SOME VARIETIES OF ANNUALS.

Amongst the most beautiful of the hardy annuals are the *Clarkias*, *C. pulchella*, *C. integrifolia*, and *C. marginata*. These either sown now and carefully pricked off, or sown where they are to stand, make fine telling plants. Thus grown they look far better than when dotted all over the herbaceous and shrubby borders in little patches, where the effect is frittered away by endless and unmeaning repetition. *Salpiglossis variabilis*, in many fine varieties, is well worth growing. They are rather tall, and the markings of the trumpet-shaped blooms make them very beautiful additions to any garden. *Scabiosa* in many varieties should not be forgotten; these are good also for late autumn and winter in pots in the greenhouse. *Verbena hybrida* make pretty small beds, where masses of one colour are not required, the plants being very floriferous, possessing a more robust constitution than those from cuttings. *Acroclinium album*, *Alonzoa Warscewiczii*, the several varieties of *Anagallis*, of charming blue, lilac, and scarlet, are useful for rock-work and small beds; *Browallia elata*, either for pots or groups; *Eucharidium grandiflorum*, a miniature *Clarkia*, growing about 9 inches high, dark red, useful for margins and small beds; *Cosmidium Burridgeanum*, like brown velvet, with a golden edge; *Eschscholtzia*, in white, yellow, and rose, are useful things for beds and borders; *Tagetes patula nana*, *T. lucida*, *T. signata pumila*, the latter very floriferous, and well adapted for margins and small beds.

### GENERAL WORK.

The weather has been most favourable for completing all necessary work in this department; if any still remains to be done no time should be lost in completing it. Shrub pruning, turf laying, the sowing of grass seeds, edging and gravelling the walks, should now be finished, mowing being now at hand, which will leave but little time for the execution of such without neglecting the usual routine work. Nothing tends to enhance the beauty of a garden more than well kept lawns and walks. All recently planted trees and shrubs should be carefully looked to, and if loosened by the late gales they should be securely staked and fastened, and if not already mulched this should be done at once. *W. Smythe, The Gardens, Basing Park, Alton.*

## Plants and their Culture.

*BORONIA megastigma* will now be opening its deliciously scented flowers. Do not let this plant be exposed, particularly at this period, to currents of cold air. As soon as it is past its flowering stage and has been slightly rested it should be pruned similarly to *Epacris*. A little later on *Aotus gracilimus* will need the like treatment. As soon as all of these plants that we have advised to be cut back are fairly broken into fresh growth the potting of such as need it should be seen to at once. Sound fibrous peat and silver sand should form the chief materials in the mixture used for them, and firm potting must always be practised. I always keep the plants

at this season of the year in a late vinery, which will now soon be closed, the treatment given to the Vines suiting these plants for the next few weeks. Later on, when the temperature has become higher, they must be removed, to prevent weak growth.

### RETARDING GREENHOUSE PLANTS.

It will often happen about this season of the year that a large quantity of flowering plants will advance more rapidly than is desirable, causing for a while an over-abundance of flower. In order to obviate this, some of the hardier plants should be retarded by as cool a course of culture as is safe in each respective case. Indian Azaleas will be secure in any place where the frost can be just excluded. A late batch of these is always welcome at the end of May and the early part of June. A north house or cold pits having the same aspect are useful for such purposes. In the latter a late batch of *Cinerarias* could be kept back, along with various other things. Having an extra good number of *Lachenalia tricolor* this season I have transferred a portion to a cold frame, finding this beautiful bulbous plant very durable as well as being suitable for our conservatory. The latest of the Dutch bulbs, *Spirea (Hoteia) japonica*, *Dielytra spectabilis*, and other early spring blooming plants should likewise be kept in check as much as possible, as a late batch is frequently the most useful. It is not safe, however, to retard *Deutzia gracilis*, as this useful early shrub does not develop such fine spikes of flower if kept too cool. *Azalea mollis*, and the late flowering *Rhododendrons* can always be kept in check with safety, and a few pot Roses are also useful when allowed to bloom just before those of outdoors.

### SOFT-WOODED GREENHOUSE PLANTS.

Many of these will now need extra attention, the *Pelargoniums* in various stages particularly so. These should have all the light possible and be kept near the glass, but this cannot always be done, and in such cases it is therefore best to keep them on the shelves as long as they do not touch the glass. When they are seen to be knotting for flower a liberal amount of manure water will be of much service. *Fuchsias*, if not already started into growth and repotted, should be seen to at once. Aphides will now become more troublesome among the greenhouse stock; a sharp watch need be kept against their increase. It will be found far better for the plants to give occasional doses than to leave this work till the enormous increase of the pests compels strong fumigation, &c., to be resorted to for their destruction. *James Hudson, Gunnersbury House Gardens.*



## THE VINERY.

### THE BORDERS IN THE EARLY HOUSES.

THE Grapes in early started vineries will now be near the time when they will take the final growth; before this proceeds it is very important to be well assured that the inside borders are in a proper state, and especially as regards moisture; therefore without unnecessarily disturbing many roots this should be ascertained. As Vines at this period need even more nourishment and support than at almost any other time, unless this matter is duly attended to it cannot reasonably be expected that they will perfect the fruit in the way desired—in fact, it is a customary practice to give liberal supplies of much diluted guano or other stimulants in water in a tepid state at this period every year, and no harm can possibly ensue if the drainage of the border is perfect and permits the excess to pass away freely. By this time the surface-dressing of manure ought to be well permeated with the feeding roots; if this is so, the material should be moderately watered as often as necessary, to prevent it becoming at all dry.

### VENTILATION.

The state of the weather will, at this season, often render a considerable amount of fire-heat indispensable—so much so that at certain times the heat at night would be excessively high, which should be avoided as far as possible during the time the Grapes are colouring, and counteracted by means of a chink of air being left on throughout the night when the

thermometer will not fall below 60° at daybreak, when the ventilators should be closed until such time as the temperature regains 70°; at this point it should be put on again, and be gradually increased as the temperature rises to 85° or 90°. At this point a little air should be admitted at the front ventilators; as the heat declines the quantity of air should be reduced in like manner, and the house be closed at 80°, when all suitable surfaces in it should be sprinkled over, but not in a way to overcharge the atmosphere with moisture.

### SUCCESSION-HOUSES.

In these the Vines, aided by solar heat carefully economised, will push forth leaves and make growth rapidly. In order to secure a sturdy habit with compact branches the houses should be freely ventilated. We strive to keep a little air on constantly at the apex of these houses, and do so unless the thermometer goes below 55°, when it is better to close for a time, and at 65° have all the ventilators opened. These consist of openings in front and at the top of about 18 inches square, which are gradually shut as the day declines, and the front ones entirely closed in the evening at about 6 o'clock. As soon as the Vines come into flower we keep the houses considerably warmer, and later apply the same treatment as recommended for early vineries, only giving more air considerably at all times when it can be done without ill effects. Attend regularly to stopping the shoots before they become strong. We pinch these at the second leaf above the lowest bunch, and remove the laterals entirely below it, and stop those above at the first or second leaf according to the vigour of the foliage, and to fill up any vacant space over the trellis. These, as well as the terminal shoots, are allowed to extend further where space admits. Give timely attention to thinning, which should be begun at the earliest moment possible in order to keep the matter well in hand, and to promote a sturdy growth in the foot-stalks of the berries. Moderately sprinkle over the borders about twice every day, and see that those inside borders do not want for water. *G. T. Miles, Wycombe Abbey.*

## The Kitchen Garden.

### ASPARAGUS PLANTING.

THE roots will soon be commencing growth, which should determine the time of transplanting and forming new beds. When moving them spread the roots out well in their new position before placing on them any soil, which should be well worked amongst them with the hand, making it quite firm immediately around each plant as it is placed in its new position, then cover the roots to a depth of 3 or 4 inches. A good mulch of rotten manure should be given before the shoots come through the soil. Finely crushed bones is a capital manuring, and should always be applied above the roots as a top-dressing.

### BEETROOT.

A few rows may now be sown for early autumn use, but the main crop to supply roots for use throughout the ensuing winter and spring should not be sown till the first or second week in May. To obtain properly sized roots for salad purposes a somewhat poor piece of ground is best, which should receive a dressing of soot and salt, applied a short time before the seed is sown. It is difficult during rainy seasons, even after late sowing, to prevent the roots getting too large. Large coarse roots, usually the result of early sowing, are generally light in colour and stringy.

### FRENCH BEANS.

A sowing should be made about the middle of this month, in a sunny position. Allow plenty of space between the rows, to secure room for moving between them when fully grown to gather the crop. One yard is none too much for varieties such as *Canadian Wonder*. A larger sowing should be made at the end of the month. *G. H. Richards, Somerley Gardens, Kingwood.*

THE TRUMPET OF JUDGMENT. — According to the *Moniteur d'Horticulture*, *Datura arborea* is called in France, "*Trompette du jugement dernier*," in allusion to its large white flowers. Of the two, we prefer the Latin name.



## APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, April 8	Royal Caledonian Horticultural Society's Spring Show (two days). Sale of Hardy Plants and Bulbs, at Stevens' Rooms.
THURSDAY, April 9	Sale of Carnations, Pinks, Roses, &c., at the City Auction Rooms 38 and 40, Gracechurch Street, E.C., by Protheroe & Morris. Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY, April 10	Sale of Valuable Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY, April 11	General Meeting of the Royal Botanic Society, at 3.45 P.M.

THE schedules of prizes offered by the ROYAL HORTICULTURAL SOCIETY at the series of exhibitions of plants, flowers, fruits, and vegetables, arranged to be held in the great conservatory at South Kensington during the present year, have been distributed, and doubtless have been scanned with no inconsiderable interest in many a gardener's home. That many other societies hold much larger exhibitions is indisputable, but no other society holds at least so many shows in the season, nor do any other shows create so much national interest, or secure higher average quality in the exhibits.

Apart from the fact that these shows are held in connection with the Royal Horticultural Society, they derive special interest and prestige from the place in which they are held, and their association with those remarkable and truly international exhibitions now being held annually at South Kensington, and which are visited by such numbers of the people. Thus it happens that the garden produce exhibited in competition or otherwise at South Kensington during the summer months is seen by such myriads of visitors that even in that respect alone horticulture should derive stimulus and benefit from the Royal Horticultural Society's exhibitions.

Last year, without doubt, the series of exhibitions held in the conservatory under the control of the Council, but really through the liberality of the Healthieries' Committee—of which that excellent amateur gardener, the Duke of BUCKINGHAM, was chairman—presented on the part of South Kensington, a new departure, the which, it is satisfactory to find, is this year to be well maintained. In some respects the shows of the present year will prove to the gardener more interesting, because they are not so entirely as last year laid in familiar lines. Then, to be *en rapport* with the Healthieries, it was largely essential that the horticultural products should be in the form of food; hence, many of the shows displayed monotony in the exhibits.

This year more variety is introduced, as, for instance, one show—that of June 9, is entirely devoted to those aristocratic exotic flowers, Orchids; and no doubt the liberal prizes offered will be instrumental in bringing together some beautiful collections. Some of our readers, perchance, will remark with surprise that the anticipated Orchid Conference of two days' duration is to be held a month earlier, and not on the date of the Orchid show, but there may be good reasons for such an arrangement—amongst others, perhaps, the instructive fact that the Conference will doubtless create an attractive exhibition without much pecuniary aid.

The shows of the Auricula and Carnation Societies come in as in previous years, and to the latter is added a number of attractive prizes for Begonias and other allied plants, so that these now exceedingly popular summer flowers may then be looked for in fine form. We have yet to see what Begonias can produce in the way of specimen plants, and hope then to have the desire to some extent gratified. The National Rose Society also holds its London show again at South Kensington this year, so that the queen of flowers will reign supreme in the conservatory for one day at least. A cottagers' show is also fixed for August 25, and

remembering the remarkable success which attended last year's display of such garden produce, can but rejoice the cottagers of the country are to have another chance. Probably some who saw last year's show thought that if this is the product of cottage gardens our professional growers must look to their laurels. It is to be hoped that in all cases the exhibitors really were what they professed to be, and that their produce was genuinely home-grown.

To gardeners generally, however, there can be little doubt that chief interest will centre round the three last shows of the schedule, and specially to the one of September 8 and 9, which is devoted to Grapes and Dahlias. Curiously enough—and the departure is one to rejoice over in this case—there are no collections of Grapes, therefore there are no special gifts for the few big growers. There are no less than twenty-six classes for named kinds of Grapes, and one other for "any other variety" after the twenty-six kinds have been staged. Well, some other kind may be produced, it is true, but we fancy the compilers of the schedule were, in arranging this latter class, indulging in a quiet chuckle anticipatory of the "other varieties" proving to be one or other of those previously scheduled. Perhaps exception will be taken to thus giving, as it were, tacit encouragement to so many kinds of Grapes, not a few of which are of no great merit. It is obvious, however, that the classes are intended to have an educational result, and it is hoped may lead to much needful revision in Grape nomenclature. In some classes, no doubt, the competition will be large, in others indifferent. According to the list of prizes good classes and bad ones are to fare alike, but it is hoped that, should some fail to fill well, the savings will be bestowed in the form of extra prizes where the competition is large and good.

The show of October 13 and 14 is devoted to Apples and Pears, and, having regard to the present fruit prospects, a really grand display of these serviceable fruits may be looked for. That there are fifteen single dish classes in each section of fruits shows that the competition will be varied, and produced from a wide area. The other October show, devoted chiefly to vegetables, is to be associated with a Potato Conference, of which more perhaps is expected than will be realised. In any case this show of edible garden produce will fitly close the season, and will doubtless not be the least popular one.

— THE ROYAL HORTICULTURAL SOCIETY has issued the following programme of the Orchid Conference, to be held [in the Conservatory] at South Kensington on Tuesday and Wednesday, May 12 and 13, 1885:—

## THE EXHIBITION.

Programme of the Exhibition (open to Fellows at noon on May 12, and at 10 A.M. on May 13)—

## Class I.

Collections of Orchids in flower. With a view to economy of space, exhibitors are requested to show duplicates as little as possible.

## Class II.

1. Species and varieties of the genera *Cattleya* and *Lælia*.
2. " " genus *Odontoglossum*.
3. " " " *Masdevallia*.
5. " " " *Cypripedium*.

## Class III.

1. Species and varieties of the genus *Oncidium*.
2. " " " *Epidendrum*.
3. " " " *Dendrobium*.
4. " " " *Vanda*, *Saccolabium*, *Aërides*, and *Stanhopea*.

## Class IV.—Single plants of any Orchid.

## Class V.

Hybrid Orchids—i.e., those raised by cross fertilisation. It is hoped that the parents will be shown, if possible, with the hybrid.

## Class VI.—Orchids in fruit.

## Class VII.

1. Orchids indigenous to Great Britain.
2. Hardy Orchids from any other countries.
3. Cut flowers of Orchids.

In order to ensure uniformity and accuracy, it is requested that the plants exhibited bear the labels which have been specially prepared for this Conference, and with which, through the kindness of Mr. Pollett, the Society is prepared to provide the exhibitors. Exhibitors are requested to apply for these at the Society's office on or before May 1, giving the exact name of the plants which they intend to exhibit [on a form to be had on application to the Secretary].

## CLASS VIII.

Materials, such as sphagnum and other mosses, peat and other soils, baskets, rafts, pots, pans, labels, &c., used in the cultivation of Orchids.

## THE CONFERENCE.

Programme of the Conference, Wednesday, May 13, at 10.30 A.M.:—

- Introductory remarks by the President.
  - 1. Communication from Professor Reichenbach.
  - 2. Discussion on the Hybridisation of Orchids. Opening paper by Mr. Harry Veitch, F.L.S.
  - 3. Discussion on the Cultivation of Orchids. Opening paper by J. O'Brien.
  - 4. Discussion on the Nomenclature of Orchids.
- N.B.—Two Veitch Memorial Medals will be awarded at the Conference on the recommendation of the committee.

The following gentlemen are members of the Orchid Conference committee:—

Colonel Biddome, Hon. and Rev. J. T. Boscawen, J. C. Bowring, W. E. Brymer, M.P., The Right Hon. J. Chamberlain, M.P., John Day, W. T. Threlton Dyer, F.R.S., Sir Nathaniel De Rothschild, Bart., M.P., Professor Michael Foster, F.R.S., Hulbrook Gaskell, George Hardy, E. Harvey, J. S. Hirst, Sir Trevor Lawrence, Bart., M.P., William Lee (of Downside), Major F. Mason, Rev. John B. Norman, Alexander Paterson, M.D., Frederick A. Philbrick, Q.C., Baron Schröder, W. Thompson.

## THE DINNER.

The Conference Committee have arranged for a dinner in connection with the Conference, to take place at the "Albion," Aldersgate Street, on Tuesday, May 12, at 6.30 for 7 o'clock precisely. Gentlemen wishing to be present are requested to send their names to W. LEE, Esq., Downside, Leatherhead, on or before Friday, May 8.

— THE DAFFODIL COMMITTEE.—In order that the Daffodil Committee, at its meeting at the Royal Horticultural Society, on Tuesday, April 14, may have an opportunity of examining as many new forms of Daffodil as possible, it is hoped that amateurs and others will not be frightened by the larger collections of the growers, but will send up any forms which they think to be new, even if they are able to send one form only. Mr. BARRON will take care that all such sendings are duly attended to.

— THE HAARLEM BULB SHOW.—We have received the following letter from Messrs. BYVOET:—

"We felt much surprised at reading the report of the Quinquennial Exhibition at Haarlem, in No. 587 of the *Gardeners' Chronicle*, p. 414, and fully trusting to your impartiality in such matters, we take the liberty of requesting you to insert the following rectification in the next number of your paper.

"Not Messrs. J. H. KERSTEN & Co. were the principal prize-takers, but Messrs. GEBROEDERS BYVOET.

"The highest prize was not awarded for class No. 1 of the schedule, but for class No. 9, being a Gold Medal and 50 fl.; and the Hyacinths wherewith GEBROEDERS BYVOET got the 1st prize in this class were universally pronounced the best of the entire exhibition.

"Excepting one class, in which Messrs. KERSTEN were 1st, Messrs. BYVOET secured the 1st prizes (seven Gold Medals) in all the principal classes for Hyacinths, and obtained the Gold Champion Medal given by the 'Gartenbau-Verein,' at Hietzing, near Vienna, to the highest prize-taker for Hyacinths at this exhibition.

"GEBROEDERS BYVOET."

We regret the occurrence of the errors in question, which are attributable to our scanty knowledge of the Dutch language. We trust that on another occasion an abstract of the schedule and prize list be given in French or English.

— PEARS FROM THE CAPE.—This fruit is being consigned to our markets now, some of it in fairly good condition, so that the seasons for Pears will probably overlap each other, or nearly so. We are indebted to Mr. WEBBER, of Covent Garden, for this information, that gentleman having brought for our inspection fruits of *Beurré Superfin* and *Glou Mor*.





FIG. 80.—*IMPATIENS HOOKERIANA*: FLOWERS WHITE, WITH CRIMSON SPOTS. (SEE P. 446.)



ceau. The former had been sent in rather too ripe a state, and, being unskillfully packed, had suffered in consequence. The latter, not nearly ripe, was almost unhurt by the long journey, and both were of fair size, with clear healthy rind.

— **CINERARIAS AT WOODSIDE, FARNHAM ROYAL.**—It is not too much to say that in the work of improving the Cineraria, extending over the last twelve or fifteen years, Mr. J. JAMES has made a mark beyond all contemporary florists. As a leading and successful exhibitor of Cinerarias some years ago Mr. JAMES found the tall growing types then in cultivation somewhat inconvenient for the purpose, as there was a necessity for so much tying down and out in order to secure a symmetrical shape. It is true we were then getting from the Continent a dwarf strain of Cinerarias, but they were not suited for exhibition purposes, as the flowers were by no means up to the standard of form then prevailing among our home strains. Mr. JAMES had already made some headway in the direction of procuring better formed and stouter flowers, and it occurred to him that if he could add somewhat to the dwarf and then almost pigmy growth of the Continental strains, but keeping it reasonably short and at the same time vigorous, and also develop in plants of this character flowers of the finest form, texture, and brilliant colours, he would attain to something of a highly valuable nature. That he has succeeded even beyond his most sanguine expectations was shown at the last meeting of the Royal Horticultural Society by the presence of a large batch from Woodside. Nothing was wanting in point of habit; the flowers were very large, remarkably stout, brilliantly coloured, and produced in what must be considered wonderful heads of bloom. For market and decorative purposes the strain can scarcely be improved upon; but the florist—that somewhat troublesome person who may be old-fashioned and far behind in the march of progress in a certain direction—could not look upon this strain with satisfaction, for with size had come coarseness and roughness, the presence of which is apparent to no one in such a pointed manner as it is to Mr. JAMES himself. He deserves great credit for what he has done, but he regards it only as an earnest of what he hopes to do in the future. A recent visit to Woodside enabled us to see not a few of the seedlings both of last and present year. No spot could be more appropriate for the culture of this valuable spring-flowering greenhouse plant. There is a pure air pregnant with breezy influences drawn from the woods and open fields, with not a taint of smoke to rob it of an atom of fitness; and high up near to the verge of the famous Burnham Beeches, from which one may be said to look down upon Windsor Castle lying some 8 miles southwards, no fog or damp can scarcely come. There is an abundance of turf from the gravelled country road sides, so gritty as not to need any admixture of sand; there is the best of leaf-mould from the beechen woods, and from the domain of Dropmore, lying a short distance off.

— **TEA ROSES AT HAREFIELD GROVE.**—How largely these are grown by Mr. J. GOUGH for cutting purposes is evidenced by the fact that at the present time there may be seen in two houses some 3000 plants in pots in 24 and 32-sizes, and all in the very best condition. About 1000 of this number consists of the following varieties:—Isabella Sprunt, Niphetos, Madame Falcot, Perle des Jardins, and Safrano. In addition there are all the leading varieties of Tea Roses. Etoile de Lyon, beautiful as it is, is of little value for indoor culture. Cutting commences early in January, and it is continued for about eight months in the year. In March the plants are top-dressed with some rich soil, and later on liquid manure is occasionally given. These Rose-houses appear admirably adapted for the culture of Tea Roses, and the plants are well attended to at all stages. On the back walls Maréchal Niel is planted out, where it grows and flowers with great freedom.

— **SHOREHAM PLACE, SEVENOAKS.**—The houses in the above gardens are now looking remarkably well. The Orchid-house contains many good plants in flower, notably some good Cattleya Trianae var., Coelogyne cristata, various Calanthes, a grand well-flowered piece of Dendrochilum glumaceum, suspended from the roof; Dendrobium nobile, Wardianum, and heterocarpum; Lycaste Skinneri, Lælia albida, Odontoglossums in variety; these, with some well-

flowered Anthurium Scherzerianum, and various foliage plants mixed with Ferns, beautifully arranged, produce a nice effect. At this time of year the green-houses are very gay with Cinerarias, Azalea indica and mollis, Ericas, Epacris, Primulas, and some well-flowered Cliveas, and other plants, well arranged, and looking remarkably well. The Rose-house is showing a fine crop of flowers, the other various departments being likewise well done. Peaches, Vines, &c., promise to repay Mr. BURT, the Head Gardener, for his pains in a very satisfactory manner.

— **GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT SOCIETY, WESTERHAM.**—The spring show of the above Society was held at the King's Arms Hotel, Westerham, on Thursday, March 26, the various plants and flowers exhibited reflecting great credit upon the exhibitors. It is a great pity the Society could not find a more convenient place, as the exhibits were far too much crowded—in fact, the show is well worthy of being held in a much better place. Hyacinths, Narcissus, and Tulips, were shown well, and a keen competition took place. The Cinerarias were very fine, as were also the Deutzias and Cyclamen; cut flowers were also well represented—in fact, the only drawback was the want of space to show things off better.

— **EUONYMUS JAPONICUS.**—We have frequently had occasion to note this shrub as one of the best, probably the best evergreen shrub for the sea coast, but till this year we had no idea of the extreme brilliancy of a particular variety, the young shoots and leaves of which are at this season of a brilliant golden-yellow colour, but which later on assume the deep rich green colour characteristic of the species. The gardens and plantations at Folkestone are at this moment resplendent with the golden radiance of this variety, which, when mixed judiciously with the ordinary kind, produces a splendid effect. Another fine golden shrub which will thrive in similar situations is *Spirea opulifolia aurea*.

— **MR. B. S. WILLIAMS' NURSERY.**—There is a capital show of Hyacinths, Tulips, Narcissi, and Cyclamen to be seen at this nursery. The plants are arranged on the side benches in the big show-house, and consist mainly of tried old kinds, with a few new ones intermingled. Amongst the Polyanthus varieties of Narcissi, Jaune Suprême was specially good. The Amaryllis at this nursery are coming into bloom in great numbers, exhibiting much variety in tint and form, and the display of Orchid bloom will be very abundant, judged by the great numbers of spikes appearing on Cattleyas, Vandas, &c.

— **HAREFIELD GROVE, UXBRIDGE: DINNER TO EMPLOYEES.**—A large number of workmen being employed in adding materially to the already extensive glass erections of this place, these, together with the gardeners of all degrees engaged on the place, were entertained at dinner by GEORGE WEBSTER, Esq., on the 25th ult., about 140 persons sitting down to an admirable dinner provided in the grounds. Mr. E. Bennett, of Potters Bar, was in the chair, Mr. J. Gough, the Head Gardener at the Grove, being Vice-Chairman. The company included some visitors, among them being Mr. B. S. Williams, Holford; Mr. W. Dean, Walsall; Mr. J. C. Mundell, Moor Park; Mr. G. J. Brush, High Grove; Mr. R. Dean, Ealing; and others. Testimony was borne to the liberality of Mr. Webster, and also to the admirable manner in which the gardens are managed by Mr. Gough. During the past year considerable additions have been made to the glass erections, and further additions are contemplated. It is already one of the most extensive places of the kind in the county of Middlesex.

— **FROST IN THE NORTH.**—A correspondent informs us that on the morning of March 31, the thermometer registered 9° of frost at Ulverstone.

— **GARDENING APPOINTMENTS.**—Mr. JOHN LANE, of the Loughborough Old Nurseries, as Gardener at The Brand, near Loughborough. — Mr. HAMSHIER, late of The Brand, Loughborough, as Gardener at Beau Manor Park, succeeding Mr. MACLEAN, who is resigning after forty years' service, and is liberally provided for by the family he so faithfully served.

## IMPATIENS HOOKERIANA.

THE flowering of this very handsome species—perhaps the largest flowered of all—is so rare, that a note of the culture of the plant in the Cambridge Botanic Garden, which produced the specimen here illustrated (fig. 80), may be of interest. It has lately flowered at Kew, but from the fact that it may grow and flourish in leafage for years without flowering, it has probably been the subject there of special culture. From Cambridge experience I find that it is by no means easily flowered, for last year we had a fine plant which produced buds only, that failed to reach any considerable size, and it, like our specimen of this year, was the recipient of every care and attention. We have now a plant 4 feet across and 2 feet high which has produced about forty flowers, during a period of about three weeks—sixteen flowers being the largest number open at one time. The cutting was struck in February and the plant was grown on till May, it was then rested in a greenhouse and kept fairly dry until September, when it was started, without repotting, on a shelf near the glass in the warm Orchid-house. When shifted the last time it was potted rather low down, so that the lower branches might root into the soil, which they had shown inclination to do; and now from this lowering in the soil the specimen presents the appearance of being made up of several plants. The main features of successful culture appear to consist in a period of thorough rest, and the giving of that liberal treatment which all Balsams love, during the season of growth. The reason why the buds of our plant did not mature last year is probably that culture in the spring was not commenced early enough. The result above described has been attained by the special care and attention devoted by Mr. A. Cowan, the foreman of these gardens. *Impatiens Hookeriana* was introduced to Kew by seeds from Ceylon, sent by the late Dr. Thwaites. It was flowered at Kew in 1823, and a figure was published in the *Botanical Magazine*, t. 4704. The umbels are described as producing from four to six flowers, but in no case had we more than five. The flowers are chiefly white, but spotted and clouded with blood-red on the lower part of the flower towards the orifice leading to the spur. Including the spur the flowers are 3 inches in vertical diameter; without that addition they measure 2 inches, and they are 1½ inch across. Our illustration shows their fine character. *R. Irwin Lynch.*

## FRUIT NOTES.

**KING OF THE PIPPINS APPLE.**—I, like your correspondent Thos. Joos, was surprised that the Apple Congress should decide by such a large majority in favour of the above Apple. I take great interest in Apple culture, and have had great opportunity of testing the quality of Apples grown in the Midland Counties, and am of opinion that King of the Pippins as a dessert Apple is quite third-rate; its principal point is appearance, but even in that it is distanced by many, among others Wyken Pippin, which is superior in appearance, aroma, sugar, and market value. Cox's Orange Pippin is certainly one of the very best dessert Apples all round in this locality for crop, shape of fruit, and flavour. *John Pope.*

### FRONTIGNAN GRAPES.

How seldom one sees our old friends, Grizzly Frontignan, Chasselas Musqué, and Purple Constantia, at horticultural shows; and yet in flavour they are simply exquisite. Many country gentlemen will not allow any other Grapes to appear at dessert whilst the Frontignans are in season, as they prefer perfume and flavour to mere size. The new Grape, Dr. Hogg, and Purple Constantia, are like all the Frontignans, well adapted for pot culture, and do not crack, but they are little known in the country. The Frontignans are very fruitful, come into bearing early, and some of them will thrive in any sunny corner of greenhouse or viney. Purple Constantia is worthy of the Muscat-house. The writer has backed his opinion by offering special prizes for the best collections of Frontignan and Round Muscat Grapes. See schedule of the Royal Horticultural Society, South Kensington, for 1885. *W. R.*

### PEAR, BEURRÉ FLON.

On p. 308 we figured this Pear, which, according to all we can learn about it, appears to be a synonym of Bonne Antoine. The description of this latter in *Leroy's Dictionary* differs from that of the former but slightly, and these variations are such as might be induced by climate or season.



## THE PHILIPPINE ISLANDS.

THE Philippine Islands are well known as the home of several beautiful species of *Phalenopsis* and *Cypripedium*, of the superb *Vanda Sanderiana*, and of several other handsome Orchids which ornament our gardens; and also some of those marvels of the vegetable kingdom—the *Rafflesias*. Consequently we should anticipate that an outline of the vegetation of the islands generally would reveal some interesting particulars. Until recently very little reliable information on this point has been available, beyond that contained in Blanco's *Flora de Filipinas*, and in various scattered publications. The late Mr. Benthham wrote, in the *Flora of Hong-Kong*:—"Looking to the Philippine Islands, it is very difficult to obtain any definite notion of their vegetation. We have no serviceable general Flora of the Philippines, for Blanco's species require re-identification." A new edition of Blanco's work has recently been published, with a Latin translation, and 468 chromo-lithographed plates, both of which materially enhance the value of the work. An appendix to this work contains an enumeration of the plants believed to grow in the islands, with an attempt to re-identify Blanco's plants. The work is well conceived, but unfortunately it falls far short of the ideal; for the species are identified from book descriptions only, without comparison of specimens, and the result is that a large number of plants are included which there is good reason to believe do not grow in the islands at all. In a recent number of the *Journal of the Linnean Society* is a paper by Mr. R. A. Rolfe, of the Kew Herbarium, "On the Flora of the Philippine Islands, and its probable Derivation," from which we condense the following:—

The Philippines form a large group of volcanic islands, situated between Formosa and Borneo, and extending over 9° of latitude and 14° of longitude; or, if the Sulu Archipelago be included, which now, in common with the rest of the group, belongs to Spain, they extend over 16° of longitude. They are for the most part surrounded by deep sea, though with several submerged banks, which indicate former connections with neighbouring islands. One of these banks stretches northward in the direction of Formosa, a second from near Manila by a long chain of islands to the northern point of Borneo; a third by way of the Sulu Archipelago from the southern point of Mindanao to north-east Borneo; and a fourth from the south-eastern point of Mindanao to the remarkable island of Celebes. The two largest islands, Luzon and Mindanao, are each of about the same extent as Ireland, and each contains a number of high volcanic peaks, where a few *Rhododendrons*, *Vacciniums*, and other tropical mountain plants are found; while the lower elevations are clothed with dense forests of tall vegetation. The fauna has been pretty well worked out. The terrestrial mammalia are very limited—twenty-one species, but of these nine-tenths are peculiar to the islands. Of land birds two-thirds are peculiar to the islands, and of water birds one-tenth; a larger proportion of peculiar species than is found on any of the Malayan islands. This would lead us to infer that a study of the vegetation would reveal some equally interesting facts. A set of about a thousand plants was brought to Kew by Don Sebastian Vidal, conservator of forests in the islands, and it fell to Mr. Rolfe to assist this gentleman in the elaboration of the plants, the outcome of which is the aforementioned paper. After an outline of the various works dealing with Philippine plants we find a census of genera and species, with a column showing the endemic element in the flora. This table shows the number of flowering plants to be 3466 species, belonging to 1002 genera, of which six genera and 915 species are peculiar to the islands, or a proportion of over one-fourth endemic. The number of Ferns growing in the islands appears to be 467, of which fifty-two are endemic—a fact which stamps the islands with a marked individuality, as Ferns generally have a wider range than most plants. The Orchids are estimated at 460 species, of which 110 are endemic. The small number of endemic genera, as compared with some of the neighbouring islands and with the large number of species, is pointed out as a remarkable feature.

The affinities of the flora with neighbouring countries is next pointed out. The general features are decidedly Malayan, many of the genera having a wide range in the Indo-Malayan region, while some

have a more limited range. On the other hand, a very large number of typical Malayan genera do not appear to reach the Philippines. The same thing holds good with respect to the Philippine animals—a fact which is attributed by Mr. Wallace to extinction by submersion, of which there is abundant evidence in the presence of raised coral reefs in various directions.

One of the most striking features in the flora is the presence of a few plants of decidedly Australian type, as *Osbornia octodonta*, a remarkable monotypic genus of Myrtaceæ, hitherto only known from Australia; *Xanthostemon Verdugonianus*, a new species of a genus formerly thought to be confined to Australia and New Caledonia; *Stachhouisia muricata*, a representative of an order otherwise limited to Australia and New Zealand, besides others of less importance. A slight connection with New Guinea and with some of the smaller Pacific islands is also traced.

Next to the Australian the northern element in the flora is, perhaps, the most interesting. We find a *Lilium*, a *Pinus*, a *Viburnum*, a *Scutellaria*, and a *Privet*; all endemic species, outliers of these typical northern genera which are well represented in the opposite Chinese region. Three endemic species of *Carex* are also mentioned. There is a second *Pinus*, *P. Merkusii*; but this occurs also in Sumatra. In comparing the plants with those of surrounding islands it is pointed out that a few Philippine plants occur also in Borneo, a few others in Celebes, and others in Java, Sumatra, and the Moluccas, respectively, though not yet known from elsewhere—a condition of things pointing to connections with these islands in the past. Between the different islands of the Philippine group themselves there seems to be a certain amount of individuality, owing to long isolation, for no less than six of the smaller islands are mentioned as having endemic species growing upon them. Future research will, no doubt, extend the area of some of these supposed endemic plants, but while so many new species keep turning up it is quite likely that some will ultimately prove to be extremely local, as is the case elsewhere. A new genus and several new species are described; the former, belonging to the Rubiaceæ, is illustrated with a plate, and is named *Villaria*, in commemoration of the labours of Father Fernandez Villar in the production of the third and much improved edition of Blanco's *Flora*.

The one remaining point to be noticed is the probable derivation of the existing flora. The conclusions of Mr. Wallace respecting the Philippines, and which were largely based on a study of their fauna, were, that they are truly insular, while the Malay islands are really continental in the essential features of their natural history. This opinion was afterwards somewhat modified, for in his *Island Life* he says:—"It is evident that the Philippines once formed part of the great Malayan extension of Asia, but that they were separated considerably earlier than Java. The reason of their comparative poverty in genera and species of the higher animals is that they have been subjected to a great amount of submersion in recent times."

It is the former of these two conclusions which Mr. Rolfe considers best supported by a study of the flora, for it is suggested that submersion sufficient to have caused such wholesale extinction of the animals would have probably destroyed many of the plants which still survive. His contention is, that as the Philippines are almost entirely volcanic, and as nearly all the genera have their headquarters elsewhere, that the flora has reached its present location by migration. He also attempts to trace the lines of migration, the principal one, comprising the bulk of the flora, from the Malayan region; a second from the Australian region, through the Moluccas—a few of the plants extending even to China; and a third from the Chinese region, southward; which latter may have taken place during the cold of the glacial period. The large number of endemic species is held to indicate that the migration took place at a sufficiently remote period for the species to have become differentiated under changed conditions. However this may be it is certain that some interesting facts of distribution are coming to light, and more yet remains to be done. The future may have something to say on this point; indeed, we believe that an additional collection of Philippine plants has recently been received at Kew, which, when worked up, may yield additional information.



## The Rosery.

WORK IN THE ROSE GARDEN IN MARCH OR APRIL.

THIS is an important month to the Rose grower, whether he be an exhibitor or simply a lover and grower of the flower for his own special delectation and that of those who come to visit him in his garden, and a good deal of the work to be done will depend as to the manner of doing it—as to whether the person who operates be an exhibitor or not. Take now, for example, the dressing and arranging of the beds. A person who intends to exhibit will not consider whether his beds look very tidy or not, and will at this season give them a good mulching of stable manure or cow-dung, as it may be at the owner's disposal. A Rose garden thus treated is not an æsthetic object, however good it may be for the plants, and when blackbirds have their "wicked way" over it and scratch it all about to find worms and grubs it requires a little extra care to keep it in anything like condition; yet the Rose exhibitor will feel that above all things he must feed his pets, and everything else must give way to this. He will rake off all the mulching which has served for a winter covering (the longer, part of it will do excellently for putting under Strawberries), will fork the beds lightly over, and then put on his supply of fresh manure for the spring and summer feeding; but the non-exhibitor feels he shall get good, nay, beautiful Roses—some of them, indeed, fit for an exhibition stand—without this; and so he, too, rakes off the longer portion of the litter, and then forks them over, but in so doing goes a little deeper and forks the manure in, adding nothing more for the summer supply. The beds are then marked out afresh, the walks looked over, and all then looks neat and tidy, requiring only to be carefully watched and weeded as the summer goes on. This is the way my own are treated, and I am very well satisfied with the blooms that I obtain.

But there is more important work than dressing the beds to be considered, and that is pruning, about which there is so much difference of opinion that we may apply to it the Latin saying, "*Tot homines, totidem sententie*." The great bugbear, the terror, the Old Man of the Mountain to the Rose-grower, is the treacherous spring frost; if we could fix his coming—if, as in America, we could know to a day when the change would come—it would be all right; but it is its uncertainty that makes it so dangerous. For some years we had a cold wave about May 20, and most disastrous it was. Last year we had one about April 24, and sad havoc it made; those who had pruned early found that all the young shoots of their Roses which had freely pushed and were some inches in length were completely blackened, and the pruning had in many cases to be done over again—those who pruned late escaped completely free. If the frost comes at the end of May the earlier pruned trees have more stamina in their shoots, and are better able to resist frost than those which were pruned late and would be in the same condition as the earlier pruned ones would be with an April frost. Here then one must say "Let every man be fully persuaded in his own mind," let him study his climate, his situation, and soil, and then act according to what he thinks best; no hard and fast line can be laid down, but I suppose, taking Rose growers in general, nineteen out of twenty prune in the month of March.

And now as to pruning. There are some who advocate what is called hard-pruning and some more gentle treatment. Here I think a good deal will depend on whether a person is an exhibitor or not: in the former case he is looking simply for the quality of the bloom totally irrespective of the quantity—if each plant will give him three or four show blooms he is satisfied, and as he believes this is effected better by hard pruning he adheres to that. The non-exhibitor has



more thought for the blaze of beauty and colour in his garden than for super-excellent blooms, although he is glad to get these when he can, and so he leaves his shoots longer, looks to a greater number of heads on them and consequently to a larger number of Roses. There is one thing which each class of grower may do with advantage, that is, cut out all the weak and spindly wood. Last year's wood may, in the case of Roses that have grown well, be safely cut away. Two or three good healthy shoots have come away from the bottom, and on these dependence must be placed for this year's blooms; and in this way it is that dwarf Roses are so valuable. Attention must be, of course, paid to the individual habit of each plant, and, however tedious it may be, it is justified in principle, and amply repaid in the end; the pruning that would be suitable for Marie Baumann would be utterly unsuitable to Etienne Levet. It may be taken for granted that when a Rose is of a delicate habit it will require more pruning than a vigorous growing variety.

As a rule a good pruning knife is the best implement to employ, it makes a clean cut and does not hurt the bark; but the *scateur* is useful in getting at the interior of the bush and cutting out the more weakly shoots. Some people are very much afraid of bleeding and of the injury it does to the plant; I cannot say that I have seen any bad effects from it, and certainly the dread of it would not prevent my putting off pruning if I thought all other circumstances were favourable to so doing. *Wild Rose*.

### THE EARLIEST AMERICAN BOTANIC GARDENS.

To the series of descriptions and illustrations of botanic gardens in various countries which we have been enabled to give from time to time we are now enabled, thanks to the courtesy of Prof. Sargent, to add illustrations of the two earliest gardens of this kind in the States (figs. 80, 81.) The interest attaching to them is mainly historic, and in the memorials of J. S. Bartram, and Humphry Marshall, published by the late Dr. Darlington, in 1849, and dedicated to the Pennsylvania Horticultural Society, we find many interesting details respecting these pioneers, from which we condense the following particulars.

About 1730 John Bartram began to make collections of American plants for his friend, Peter Collinson. He probably detected more undescribed plants than any of his contemporaries. "He was perhaps the first Anglo-American who conceived the idea of establishing a botanic garden for the reception and cultivation of the various vegetables, natives of the country as well as exotics, and of travelling for the discovery and acquisition of them. The Bartram Botanic Garden, established in or about the year 1730, is most eligibly and beautifully situated on the right bank of the river Schuylkill, a short distance below the city of Philadelphia."

Bartram's travels in search of plants were extensive, and in those days dangerous. Bartram was appointed Botanist and Naturalist to the King, at the instigation of Peter Collinson, in 1765, with a salary of £50 per annum. From Bartram's correspondence with Collinson we learn that Bartram had proved by experiment the nature and office of the pollen in a species of *Lychnis*. In reference to this matter Collinson writes as follows (1740), giving the history of the mule Pink:—

#### THE MULE PINK.

"My experiment of the usefulness of the farina is very curious and entertaining. Where plants of a class are growing near together they will mix and produce a mingled species. An instance we have in our garden, raised by the late Thomas Fairchild, who had a plant from seed that was compounded of the Carnation and Sweet William. It has the leaves of the first, and its flowers are double like the Carnation, the size of a Pink, but in clusters like the Sweet William. It is named a mule—per analogy to the mule produced from the horse and the ass."

Bartram, in 1763, anticipated the scarcity of timber, which Darlington, writing eighty years after, repudiated, but which the experience of the present day tends to justify.

#### DAFFODILS.

Referring to the white double Daffodils, Collinson writes with enthusiasm to Bartram, "I waited almost all my lifetime to get this rare flower. I read of it

and saw it figured in books, but despaired of ever possessing it. But about seven years ago my botanic genius carried me into a garden where I expected to find nothing; on a sudden my eyes were ravished with the sight of this flower, and my heart leaped for joy that I should find it at last."

To this Bartram replies, October, 1763, "If I had known the white double Daffodil had been such a rarity with thee, I could have sent thee large quantities thirty years ago. Our first settlers brought them with them, and they multiply so that thousands are thrown away."

In 1773 the second botanic garden within the British provinces of North America was established by Humphry Marshall, a cousin of Bartram's, in the township of West Bradford, Chester County, Pennsylvania, he having previously collected and cultivated useful and ornamental plants.

In 1785, Humphry Marshall published his *Arbustum Americanum*, a description of the forest trees and shrubs, natives of the American United States. This is believed to be the first strictly American botanical work, that is to say, the first treatise on American plants, written by a native American.

Marshall's house and garden have remained in the family until last year, when they were sold, and will doubtless be destroyed. Bartram's garden is now pretty well surrounded by the city of Philadelphia, and must soon go, unless arrangements can be made for its preservation. In Marshall's garden there still remains, or did till recently, a noble specimen of *Magnolia acuminata*, while the great feature of Bartram's garden is a grand *Taxodium distichum*, and which Bartram brought with him from the lower counties of Delaware in his saddle-bag.

### HOME CORRESPONDENCE.

**The Doubling of Daffodils.**—There is I think some misconception respecting the doubling of Daffodils from roots that have incontestably proved to have previously produced single flowers. I have no belief that such an occurrence has ever happened, or is likely to happen under any process of cultivation: of course I leave out the probability of a double variety being obtained from seed, as that is not the question. About two miles from here is a well known wood containing a grove of magnificent Beech trees, in which from time immemorial have grown large tracts of Lily of the Valley, but unfortunately from continued depredations the roots have become so weakened as to produce very few or no flowers. Near the same wood is an old grass field which for the same long period has been equally prolific in producing single Daffodils in such abundance, that just now dozens of people may be seen in the road between there and Southampton carrying large bunches of the gay yellow flowers, but notwithstanding the length of time the Daffodils have grown and propagated in that field they have never, that I am aware of, changed their nature from single to double. *W. N. Rogers, Southampton.*

**Eucharis Disease.**—My observations on this quite coincide with A. Macdonald's experience, viz., that decay is the cause of the mites, not the mites the origin of the decay. About Christmas, 1882, my *Eucharis*, after flowering heavily during the year, began to show signs of exhaustion, and before the days were long enough to commence repotting they were in very bad condition, having what few leaves remained more or less marked with the red spots. I repotted in the usual way, and had the satisfaction of seeing them soon come round to their usual health and vigour. They have remained in the same pots until quite recently, when they again showed signs of the red mites on several plants, which had borne a heavy crop of flowers about Christmas. On close examination of bulbs, I have come to the conclusion that it is the decay of the flower-stalk taking place in winter, in old bulbs, which are naturally weak through having flowered two or three times during the season, that is the primary cause of the attack of the mites and so-called disease. Consequently those plants which have all the young bulbs taken from them yearly, and subjected to extremes of temperature to induce them to flower at given periods, soon exhaust themselves, decay sets in, and is little less in its effects than a disease. If a *Eucharis* grower must, in this grasping age, take three crops of flowers off

the same plants yearly, it would be well if he prepares himself with a stock of young plants, as he will certainly need them at least every two years, if not oftener. But if grown and allowed to flower and form young bulbs naturally, and subjected to the usual routine of other plants as to change of soil, &c., we should soon hear nothing of the *Eucharis* disease—at least that is the impression I have come to. *J. Wilkes.*

**Dendrobium Wardianum.**—In answer to N. Blandford I write to say I have one growth 4 feet 6 inches long bearing forty flowers—two flowers more than your correspondent (p. 377, March 21). The plant is growing in a pot. *J. Child, Garbrand Hall.*

**Melon Culture: Canker.**—In reply to Mr. Miles I may state we have grown Melons, and late ones, in and out of pots with equal success; also on hotbeds in frames, adopting the same system of earthing-up. Last year I utilised a 4-light pit, 16 ft. x 8 ft., for a late batch of Melons that had been used earlier in the season for Cucumbers, and in which I was unable to use pots. The plants were planted out on July 26, in a very narrow ridge of soil, with a division of loose bricks between each plant, and the earthing up carried out as the plants progressed similarly to those grown in pots, a little Clay's Fertiliser being used in preference to liquid manure. Out of this pit we cut thirty-eight good Melons, the last being used on or about November 20. In our Melon house proper we adhere to the pot system, both for early and late batches, keeping plants ready for planting as soon as others have done fruiting. I should like Mr. Miles to try one or two plants earthed up in the way previously described, in comparison with those wearing the zinc collars, and give the results. Does Mr. Methven (p. 383) mean that previous to using the glass collars for woodlice he was troubled with canker, and after their use it disappeared? *C. H.*

**Orchids from Rosefield at the Royal Horticultural Society's Show, March 10.**—I beg to send you a correction which I hope you will insert relating to my exhibits at a late show of the Royal Horticultural Society. *Cattleya Trianae* Crawshayana bore four flowers of very large size and an exceedingly deep purple lip of very large size and very long in the expanded portion. The above specimen is described as "a *Warszewiczii* carrying four flowers;" and then "another with three of a paler colour," relates to *Cattleya Warszewiczii* superbissima carrying a three-flowered spike of blooms 8 inches across, with a lip 4 inches long and 2½ inches wide in the expanded portion, the side lobes being square and not rounded as usual, the whole flower one soft pink-mauve. The above plant was considered the most extraordinary variety that any one had seen. *De B. Crawshay.*

**Azalea indica, Deutsche Perle.**—I don't know how long this variety has been grown—I only noticed it last year for the first time—but find that this season it is offered for sale much more extensively. It is the best variety I have seen for bouquets or buttonholes. It is semi-double, pure white, and, when three parts open, much resembles a Rose-bud. It is a good grower and free bloomer, and cannot fail to find its way into every garden. It is one of those acquisitions which will find favour with every admirer of flowers, and hold its own. *D. C. Powell.*

**Methoda of Starting Japan Lilies when Received.**—I am sure it must have often amused, if not surprised, you as to how opinions and methods differ on almost every conceivable subject. The discussion which you have permitted in your columns in reference to the treatment of the *Eucharis* is an illustration, and if another were wanting your readers have had it in the above. Some months since in the *Gardeners' Chronicle*, I believe for the first time, I drew attention to what I considered a fungus in newly imported bulbs. Whether cause or effect I was not prepared to say, nor am I yet, though Mr. Rogers, of Southampton, confidently asserts bruising in packing and transit is the cause, and the fungus or rot merely an effect. This opinion Mr. Dean seems to agree with in your last issue. Dr. Wallace, of the New Plant and Bulb Company, thinks the contrary, and clinches the discussion by announcing that he and his Company have found a remedy, which they apply before serving their customers. I certainly cannot think "bruising" the explanation, for then some would escape, or the bulb merchants and Japanese



growers would long since have found a remedy. But the methods of treatment, which is alter all the most important, differ most of all. One would pot immediately when received, but this is no remedy. Another uses peat-mould to plunge in temporarily, and with more reason. A third would treat much like Hyacinths and Tulips, and after potting cover with coal-ashes for months until flowers appear. All these methods mean to allow the fungus and rot to do their worst. Mr. Shepherd's proposal (p. 370), to scrape away decayed parts and dress with charcoal and lime is far better, but I submit your advice to me more than a year ago—to plunge in cocoa-fibre and examine at short intervals until roots appear—with our present information—is the best of all. *W. F. Murphy, Clonmel.*

**Sprekelia glauca.**—On reading the advertisement in a recent number respecting the dozens, hundreds, thousands, of bulbs of this plant which Messrs. Krelage & Son had for sale, I was a little puzzled when I came to the words, "It (*S. glauca*) is a parent of the well known Jacobean Lily (*S. formosissima*)."  
Some errors we set down to the errors of the press, in other cases we see the right meaning peeping from behind, whilst a few, occurring now and again, are allowed to pass un-

in 1593, figured by Parkinson in 1629, and placed by him among the Daffodils. According to Curtis this plant is not kept in good health unless cultivated under glass. He says, "Stoves and greenhouses were then unknown; no wonder, therefore, it did not thrive long." Yet in these days of acres of glass the Jacobean Lily is cultivated satisfactorily in a sheltered border out-of-doors, such as, for instance, the *Belladonna Lily* thrives in. Planted about 6 inches below the surface in a warm sunny border against a greenhouse or stove, if possible, the Jacobean Lily will be quite at home, growing all the summer and flowering after its winter's rest in about the month of May. The curiously contracted arrangement of the lower flower segments of this plant distinguish it from all its relations. *S. glauca* was considered a good species by Lindley from its having smaller flowers and distinctly glaucous foliage, which characters, however, Bentham thought insufficient to justify its being retained as a species. A note by Dean Herbert on the treatment that he found this and the type thrive under is worth quoting. He says:—"The bulbs are perfectly hardy, and appear to like a low temperature, but they will not flower willingly unless they have a season of drought. They succeed well against the wall of a stove in the open ground, flowering in the spring and sometimes

sensational podders to the neglect of some prolific, well-flavoured, trustworthy kinds. ED.]

—Mr. Gilbert's suggestion as to a Congress of Peas is, like most of the thoughts which emanate from Burghley, original, but which, I fear in this case, is scarcely practicable. In this particular case it is so very unlikely that the suggestion will be acted upon, and even if it were who would accept as conclusive any results arrived at? The best practical Congress of Peas is a trial in growth side by side, for there are other important features in Peas to be tested than mere flavour, size of Pea, or number in a pod. We want to know more about synonyms first, then of classification into sections, and the best of those sections; then of height and average cropping qualities, and finally of flavour. It is very doubtful whether even the most exhaustive trial of this kind in any one place would suffice. We want half-a-dozen in diverse parts of the kingdom, all impartially and intelligently conducted; and then the results, tabulated and compared, might be productive of valuable and reliable information. *A. D.*

**Pruning Orchids.**—Without waiting for the already pruned plants to be shown at South Kensington, as suggested by "T. B.," could not every



FIG. 81.—EARTRAM'S HOUSE. (SEE P. 443.)



FIG. 82.—MARSHALL'S HOUSE. (SEE P. 443.)

corrected because they are of little consequence. But when M. Krelage, one of the chief bulb growers in Holland, or in the world, which amounts to the same thing, writes that the old Jacobean Lily owed its origin to the skilful manipulation of a hybridist who practised before the time of Parkinson, we pause to wonder how it comes that we never heard of this before we see it in an advertising column. The mystery was beyond my power to unravel, so I went for an explanation to Mr. Baker at Kew. On stating my case he at once blamed the printer [too bad], but when he read the advertisement he at once saw where the flaw was. "It's Krelage's English: he has used the word 'parent' in its French signification, which is simply that of relation, and of course he is in that sense quite right, though in any other totally wrong." No doubt Mr. Krelage will pardon me for presuming to set him right, seeing how much is involved in the meaning I gave his advertisement; and at the same time English bulb growers will be glad to learn what Mr. Krelage means when he calls *Sprekelia glauca* a parent of *S. formosissima*. Mr. Bentham considered these two plants so closely related that he makes only one species of them, to which the genus *Sprekelia* is now limited. We find three plants figured under the name *Sprekelia*, viz., *S. formosissima*, Heist., *Bot. Mag.*, t. 47; *S. glauca*, Lal., *Bot. Reg.*, 1841, t. 16; and *S. cybister*, Herb., *Bot. Mag.*, t. 3872. The first of these is a native of Mexico, according to Linnæus, first known in Europe

again in the autumn, if the summer has been very dry. They rarely blossom if watered through the winter in a greenhouse; but if kept dry and warm for a few months, they will flower as soon as they are watered in the spring." The third *Sprekelia*, so called by Herbert, is now referred to the genus *Hippeastrum*, although so far as I can see this plant has many characters in common with the recently introduced *Callipsyche aurantiaca*, lately figured for the *Botanical Magazine*. *W. W.*

**Peas.**—I for one shall be pleased to assist in getting at "the fact as to which is the best Pea." Here Peas are highly valued, and I may say I have grown some hundreds of bushels of fine pods. It would be strange if I did not, seeing that I serve one of those noblemen who cares not what Pea is grown, or what its name is, so long as it is a good one, neither am I expected to go to the Stores, but can pay a good price for a good article; therefore I should be glad to know if I am growing the best or not. It often puzzles me to understand why people do not pay more attention to varieties, and also to culture, for to my mind there is nothing looks worse than a miserable lot of Pea-rows, and there is decidedly nothing that gives better results in all quarters than well-grown good Peas. *G. M. W.* [Our correspondent really assumes too much; for we believe gardeners pay much attention to the sorts of Peas they purchase, but there is perhaps too much running after

Orchid grower who has a score or two of plants or upwards put the matter to a practical test for himself, and thus obtain actual and not *ex parte* evidence one way or the other? The pruning treatment naturally infers that certain Orchids are purely herbaceous, and that the old bulbs are but stems that, having performed their required functions, may be cut away as useless. Non-pruners, on the other hand, hold that these old and perhaps decaying bulbs do serve some not merely useful, but important purpose, in Orchid plant life, but in what way or form nothing clear is shown. Do these old and exhausted bulbs in decaying give back to the plant something which they have abstracted, and thus furnish nutriment and strength to newly forming bulbs? If that be the case, then the position of the non-pruners is proved up to the hilt. If it be not so, then wherein lies the use or value of old bulbs? *A. D.*

—In reply to "T. B." on p. 417, asking why the correspondent who has *Dendrobium nobile* with growths 3 feet long cannot send them to the Royal Horticultural Society's meeting at South Kensington, I beg to inform him I shall have great pleasure in doing so provided my employer does not object, and if "T. B." will undertake to pay all expenses connected with the same, and make good any damage to the plants in transit. To show that what I say is correct, I send herewith a growth for you to see, which has twenty-eight flowers on it. Though this is by no means one



of the finest growths I have, I think it will be quite sufficient to convince any one (even "T. B.") that *D. nobile* can be grown with the old growths—the pseudo-bulbs—cut away far better than by leaving them on the plants. The plant from which I cut this one has more than 300 expanded blooms on it, and some of the growths I have measured exceed 2 feet 10 inches in length. On some of these I counted as many as forty-two flowers. My plants have not "been pruned for the occasion," but all the growths have been cut away annually exactly as the one I send you. A large quantity of my *D. nobile* have to be cut for Easter decorations; they will have to travel about 150 miles by rail; so by the time this reaches you the best of them will have been cut off the plants. However, I shall still have some plants uncut, and if "T. B." would really like to see them, I shall have great pleasure in showing them on the conditions named. *D. M.* [A beautiful spike, more than 2 feet 3 inches long, leafy for a fourth of its length, and with thirteen racemes, with two to three flowers in each, twenty-nine in all, each flower about 3 inches across. Ed.]

## Reports of Societies.

### CRYSTAL PALACE SPRING SHOW.

AN exhibition of spring flowers was held at the Crystal Palace on Friday, March 27, in the north transept. A large marquee was erected, or, rather, suspended, and in this an excellent array of flowering and foliage plants was very tastefully arranged; the colours of the flowers showed to better advantage in the soft light of the marquee than they would have done if exposed to the full light of day. Sloping benches were provided, and on these the exhibits were staged to great advantage, besides dispensing with the "fearful and wonderful" contrivances exhibitors in other instances have to resort to in order to "show off" their specimens satisfactorily. The general arrangement was, as usual, all that could be desired, and reflected great credit on Mr. Head, the able Superintendent, and his staff. The classes were for the most part closely contested, and the exhibitors generally of a high order of merit. The awards were as follows:—

In the open class, for thirty-six Hyacinths Messrs. H. Williams & Son, Fortis Green, Finchley, were 1st, with a well grown lot, good in size of pip and truss; Grandesse, Lord Macaulay, Ida, Grand Maltre, Voltaire, Rubra Maxima, Mont Blanc, Moreau, King of the Blues, Czar Peter, Baroness von Tuyl, Lord Derby, Grandeur & Merveille, Marie, Vuurbak, L'Innocence, Von Schiller, Gigantea, and King of the Yellows being his principal varieties. Mr. H. R. Wright, Lee, Kent, was 2d, very little behind, with good Grand Maltre, Rubra Maxima, Von Schiller, Mont Blanc, and others. Messrs. W. Cutbush & Son, Highbate, were 3d.

For thirty-six Tulips Messrs. W. Cutbush & Son were 1st, with a splendid lot, including Van der Neer, white Pottebakker, white and purple Joost van Vondel, rose Gris de Lin, Or d'Ophir, Proseperie, Globe de Rigaud, Kaiser Kroon, Vermilion Brilliant, Cottage Maid, Hector, Fabiola, &c. Messrs. H. Williams & Son were 2d, with a good collection of similar sorts. Mr. H. R. Wright, Lee, Kent, was 3d.

For twenty-four Narcissus, Messrs. H. R. Williams & Son were 1st, with a dwarf, compact, well-flowered lot of the usual show varieties; Mr. H. R. Wright a close 2d, and Mr. W. J. Watson, Newcastle-on-Tyne, 3d. The class for thirty-six Cyclamens made a fine display, Mr. H. B. Smith, Ealing, carrying off 1st honours with a fine telling lot, including some very distinct types; Mr. R. Clark, Twickenham, was 2d, with slightly smaller but very bright coloured examples; Mr. F. J. Hill, gr. to H. Little, Esq., Hillingdon Place, Uxbridge, was 3d. For twelve Amaryllis, Messrs. Paul & Son, The "Old" Nurseries, Cheshunt, Herts, were 1st, with Venus, very bright claret, flaked white; Roderigo, flaked deep crimson, green star; Albion, small bright crimson flower, white star; Pallas, deep claret, white star; Minima, good flower, white, flaked with claret; Cupid, bright scarlet; Bendigo, a flower of good substance, velvety dark crimson, green star; Vulcan, scarlet; Robert Browning, a starry flower, deep claret, white tipped, distinct, green eye; President Grevy, very bright scarlet; and Merry Maid, small, white, flaked with claret and green eye; 2d, Mr. F. J. Hill, with a small lot, Mrs. H. Little being the best. For twelve Cinerarias, Mr. J. Ford, gr. to J. C. Lanyon, Esq., Birdhurst, South Croydon, with twelve fine plants, having large heads of bloom and fine dark green foliage; Messrs. T. Todman & Son, Rose Park Nursery, Upper Tooting, were 2d, and Mr. F. J. Hill was 3d. For twelve 8-inch pots of Lily of the Valley, Mr. H. R. Wright was 1st, with a fine lot; Messrs. H. Williams & Son, were 2d; Mr. W. J. Watson, Newcastle-on-Tyne, was 3d. For twenty-four Anemones.—Mr. C. Turner only staged a collection which was worthy the 1st prize allotted to it—Royal Purple, Dr. Horner (Read), Lord Beaconsfield, Privateer (Grimes), Eliza Sarah (Turner), Thetis, The Prince, Mrs. Llewellyn, Charles Perry (Turner), and the rest fine seedlings. Messrs. H. Lane & Son, Berkhamstead, were the only competitors in the class for twenty-four Rhododendrons, the collection being also considered worthy the premier award; the varieties were Mrs. Russell Sturgis, Marchioness of Lansdowne, Cynthia,

The Queen, The Maroon, Mr. John Penn, Wm. Milton, Earl of Shannon, Mr. G. Brown, Bianchi, Baroness Rothschild, The Star, Snowflake, Geo. Peabody, Mrs. W. Hankey, James Bateman, Mr. T. Longman, Roseum Pictum, Mrs. Home, and Lord Eversley. For twenty-four greenhouse Azaleas, Mr. C. Turner, Slough, was 1st with an excellent lot of well flowered specimens, including Jean Vervaine, Apollo, Borsig, Comtesse de Flandres, Lady F. Hastings, Charles Enke, Duchesse de Nassau, Roi d'Holland, Mademoiselle Marie Leleuvre, Madame Van der Cruyssen, Sigismund Rucker, Mrs. Turner, Stella, Jules Verne, Cordon Bleu, Ceres, and Fürstin Bariatinski; 2d, Mr. H. James, Lower Norwood, who had amongst others, Vittata crispiflora, Comte de Flandres, Charles Enke, Ceres, John Gould Veitch, &c. For eighteen pots of Mignonette, grown in the usual market style, Mr. H. B. Smith, Ealing, was 1st with a fine dwarf lot with very large heads of bloom; Mr. J. Wiggins, gr. to W. Clay, Esq., Kingston-on-Thames, was 2d, and Miss Clay, Kingston-on-Thames, was 3d. For nine plants of Tree Mignonette, Mr. J. R. Bird, Lodge more, Alleyn Park, West Dulwich. Two fine groups of stove and greenhouse foliage and flowering plants were staged by Messrs. J. Laing & Co., Forest Hill, and Mr. H. James, Lower Norwood, the former receiving the premier award, and the latter 2d; both groups were very tastefully arranged, and the same class of plants for the most part were used by each, and consisted principally of Palms, Crotons, Azaleas, Dracaenas, Caladiums, Ericas, Orchids in variety, and Cyclamens, &c.

In the amateurs' class for twelve Hyacinths, Mr. John Horsley, 6, Selwood Place, South Kensington, staged the only collection, and was a 3d prize. For six Lily of the Valley Mr. W. Monk, gr. to W. N. Cheeseman, Esq., The Hall, North Dulwich, was 1st. For twelve Cyclamens, Mr. J. Wiggins was 1st with a nice lot; 2d, Mr. F. J. Hill. For twelve Cinerarias Mr. F. J. Hill was 2d, no 1st being awarded.

Extra prizes were awarded to Messrs. Paul & Sons, The "Old" Nurseries, Cheshunt, for a magnificent bank of pot Roses, conspicuous amongst them being Souvenir d'un Ami, Duke of Teck, Marquise de Castellane, Catherine Soupert, La France, and others; and also for a fine group of alpine. Mr. H. P. Wright, Lee, for a fine collection of Tulips. Mr. H. B. Smith, for a large collection of Cyclamens. Messrs. J. Laing & Co., Forest Hill, for a nice collection of decorative plants. Messrs. Barr & Son, Covent Garden, for a large collection of Narcissus, &c. Mr. R. Clark, Twickenham, for a collection of Cyclamens. Mr. C. Turner, Slough, for a stand of four dozen Carnations. Mr. J. R. Bird, Lodge more, West Dulwich, for a collection of Tree Mignonette; and to W. J. Watson, Newcastle-on-Tyne, for thirty-six Hyacinths and thirty-six Tulips respectively.

Miscellaneous exhibits were staged by Messrs. Hooper & Co., Covent Garden—hamper of Carnations; Mr. J. James, Farnham Royal, Slough—two boxes of fine blooms of Cinerarias; Messrs. J. Carter & Co., Holborn—Valotta purpurea, Sempervivum, &c.; and Mr. C. Turner, Slough—Violet Welliana.

Certificates were awarded to Mr. H. B. Smith, for Cyclamen The Major, a fine bold flower, creamy-white, deep purple tip; and Miss Nightingale, rosy-purple; Messrs. Barr & Son, for Chionodoxa sardensis, Narcissus pallidus præcox, and N. Barri conspicuus.

### THE ROYAL CALEDONIAN HORTICULTURAL.

THIS old-established Society has recently issued its prize list for the present year, which contains some features of improvement, and a more ambitious programme than anything it has yet attempted in the way of a season's ordinary work. The Royal Caledonian Horticultural Society was instituted in 1809, and Incorporated by Royal Charter on August 18, 1824, and consists of ordinary, honorary, corresponding, and foreign members. The affairs of the Society are managed by an Executive of nineteen members, consisting of President, four Vice-Presidents, twelve Councillors, Secretary, and Treasurer. Two of the Councillors and all the other members of the Executive are elected annually at a general meeting of the Society held on the first Thursday of December. Every person interested in horticulture is eligible for election as an ordinary member on payment of a 10-guinea life subscription, or 1 guinea annually, which secures to the members certain extra privileges in connection with admission to the shows—a payment of half a guinea annually entitling a member to half those privileges. Pass tickets, admitting to all the shows of the season, are issued to professional gardeners on payment of 2s. 6d.—a valuable privilege considering that four shows are now held in the season, and each open for two days. Such liberality to the profession might be followed with advantage by more of our horticultural societies. The prizes offered by the Society are open free to all, British or foreign, who choose to compete, and who comply with the regulations of the Society. For new productions of special merit the Council awards the Society's Certificate at all the shows.

The foregoing particulars are gathered from the second page of the Society's prize list for 1885, now before us, and are followed by an excellent code of regulations for competitors and exhibitors—new features in the schedule which will be much appreciated by the members of the Society as well as by the horticultural public in general. The arrangement or regulation which has been in vogue with the Society for some years, by which the prizes won by competitors are paid the same day, is one of special advantage to exhibitors, and where it can be carried out is worthy of general adoption. The Society is under the special patronage of the Queen; with the Marquis of Lothian, K.T., President; John Stewart, Esq.,

Secretary; and P. Neil Fraser, Esq., Treasurer. For the first time we believe for many years, the Society has decided upon holding four regular exhibitions in the course of the season, each of two days' duration. They are to be held, as usual, in the Waverley Market, Edinburgh—a spacious covered area of nearly 2 acres, adjoining the Waverley Railway Station, and affording unrivalled facilities for the holding of horticultural exhibitions. On ordinary occasions this capacious hall is used as a vegetable market—the Covent Garden of Edinburgh—and attended by all the market gardeners of the district with their vanloads of produce. On the occasion of a flower show the exhibitors drive their plant vans alongside of the stages, both when setting down and removing their plants, which entirely saves the laborious work of lifting, and the long carry of heavy plants by men, so prevalent at most flower shows.

At the ensuing spring show in April, £339 is offered in prizes for 141 different articles, distributed as follows:—98 for plants, 18 for cut flowers, 9 for fruit, and 16 for vegetables. The summer show in July has £256 offered in prizes for 142 articles—Plants, 62; cut flowers, 49; fruit, 14; and vegetables, 17. At the autumn show in September, £283 is offered for 175 articles—Fruit, which leads at the autumn show, 54; plants, 53; cut flowers, 33; vegetables, 23; and bees and honey, 12. At the new winter show, in November, £232 is offered for 198 articles—Plants, 95; cut flowers, 31; fruit, 42; and vegetables, 30. Two prizes are offered for all articles, and for most of the leading exhibits three prizes are allotted. In all there is offered £1110 in prizes in 1885 for 656 articles, as follows:—Plants, 308; cut flowers, 131; fruit, 119; vegetables, 86; and bees and honey, 12—a programme extensive enough to satisfy the appetite of the keenest exhibitor. Ten years ago, in 1874, the prizes offered at the three shows amounted to £259 14s. 6d. for 200 articles.

The finances of the Society are apparently in a prosperous condition, and the funds at the disposal of the Council are quite equal to carrying out the programme set before it. Previous to 1878 the Society held its exhibitions in the Music Hall, and the "abstract of accounts of the Society" for the year 1877—the last year in which all the shows were held in the Music Hall—shows the state of its funds in that year to have been—Receipts, £713 14s. 1d.; payments, £697 6s. 10½d.; and the total reserve funds of the Society £534 11s. 9d. For the year 1884 we observe that the receipts are £1551 11s. 9d.; the payments, £1540 2s. 9½d.; and the Society's reserve funds, £1249 0s. 5d.—a state of affairs in these times reflecting credit on the management of the Executive, and which, for the sake of horticulture, we hope will continue.

### LIVERPOOL HORTICULTURAL ASSOCIATION: March 24, 25.

THE spring show of this Society was held on the above dates in the St. George's Hall, and all the circumstances connected therewith were of a most pleasing and gratifying character. The weather was favourable and the company attending on both days was numerous, and so far the committee are to be congratulated. To the show as a whole, and of the details in their varied parts, we must award unstinted praise and commendation to all concerned in the magnificent collection of plants and flowers gathered together under the roof of this fine hall. It would perhaps be difficult to get in one hall a finer lot of colour than was here presented. The large specimen Azaleas, Orchids, forced Rhododendrons, masses of Azalea Mollis, Ghent varieties, with bulbs (of which there was a fine display), contributed to make this show as it was generally admitted, the finest floral display ever got together in Liverpool in early spring.

The schedule was divided into fifty-one classes, and in almost every instance there was strong competition. In some of the classes six and even eight competitors entered for the prizes offered; added to this were many extra groups and subjects not stated in the schedule. We will take the classes somewhat in order as they appear in the official list.

#### OPEN CLASSES.

For a group of miscellaneous plants, arranged for effect, to occupy a space of 50 feet, the 1st prize was awarded to W. H. Walls, Esq., Wavertree (gr., Mr. A. R. Cox); 2d, C. W. Neumann, Esq. (gr., Mr. W. Mease); and 3d, F. H. Gossage, Esq., Woolton (gr., Mr. J. Jellicoe); these each in their way made up their groups with flowering plants nicely contrasted with Palms, Crotons, and Ferns. For ten hardy herbaceous and bulbous plants the collections staged were each admitted to have been deserving of a 1st prize; after considerable care and attention had been bestowed upon them the prizes were awarded, 1st, to J. Dickson & Sons, nurserymen, Chester; 2d, to W. B. Bowring, Esq. (gr., J. Hurst); 3d, C. W. Neumann, Esq. In the 1st prize group were splendid plants of Narcissus Sir Watkin, with thirty-six flowers; N. Emperor, with twenty-five; Tulipa retroflexa, with nine of its bright yellow blossoms; a large Delytra spectabilis, well bloomed; Narcissus moschatum, and good pans of Primula rosea and Aubrietia—a very showy and effective group. In Mr. Bowring's group were fine plants of Iris germanicus, Telemachus, and The Beauty; Muscari botryoides, with fifty spikes; Primula cortusoides lilacina marginata, and Narcissus bulbocodium, with thirty flowers. Mr. Neumann's group also contained N. Sir Watkin, N. Horsfieldi, Primrose Harbinger (very fine), and Iris reticulata with several blooms. For six Azaleas, C. W. Neumann, Esq., was 1st, having good plants of Grandis, Iveryana, Flower of the Day, Souvenir de Prince Albert, Dieudonne, Spa, and Madame Vervaine; 2d, Mrs. Lockett (gr., Mr. W. Evans); 3d, J. Lewis, Esq. (gr., Mr. W. Bustard). For one bouquet, T. Robinson, Mossley Hill, was 1st;



G. Downes, Lodge Lane, 2d; and B. Hall, Wavertree, (gr., A. Crosbie), 3d. The excellence of the Liverpool bouquets is well known, these and also others in the amateur classes were exceedingly well done. Passing now to the amateur classes, the 1st and only prize for twenty-four Hyacinths was awarded to R. Singlehurst, Esq., Aigburth (gr., Mr. J. Kelly). This was the only bulb class where only one exhibitor put in an appearance, and the remarks here applied may be taken as referring to the bulbs as a whole—they were well done, spikes standing well up, not drawn out and so detracting from the beauty, but just nicely up above the erect foliage, which in the majority of cases was of a stout and vigorous character. In this group, Lord Derby, Grandiflora, Koh-i-noor, La Grandesse, Mimosa, Baroness Von Tuyl, Van Speyk, La Franchise, 11a, Prince of Wales, Blondin, Von Schiller, Mrs. B. Stowe, and Queen of the Blues, were prominent. For eighteen Hyacinths the 1st prize was taken by R. Singlehurst, Esq.; 2d, R. Cornelius, Esq. (gr., Mr. T. Stephenson); 3d, W. B. Bowring, Esq. Twelve Hyacinths.—1st, W. H. Watts, Esq.; 2d, Mrs. Aitken (gr., Mr. C. Waring); 3d, J. Woolright, Esq. (gr., Mr. E. Green). For six Hyacinths, W. P. Sinclair, Esq., was awarded 1st. For six pots of Hyacinths, three in a pot, —a very effective way of showing them—the 1st prize was taken by Mrs. Barnsley (gr., Mr. P. Barber); 2d, Mrs. Lockett. Narcissus were well shown, the 1st prize being awarded to Mr. W. P. Sinclair; 2d, Mr. S. S. Parker; 3d, Mr. R. Cornelius. The Tulips, both single and double, were numerous and good: Mr. R. Cornelius was 1st for twelve pots of single, among which we noticed Chrysolora, Vermilion Brilliant, Proserpine, white and yellow Pottebakker as very effective; the 2d, prize went to H. Nash, Esq.; 3d, J. Woolright, Esq. For six pots, single Tulips, the 1st prize fell to S. S. Parker, Esq., who had La Precieuse, Kaiser Kroon, and Canary Bird, in fine form. Ten pots, double Tulips.—1st, T. S. Rogerson, Esq.; 2d, S. S. Parker, Esq. Here we met Tournesol, Imperator, and Rex Rubrorum, Raphael, Duke of York, very good; Princess Beatrice, and Purple Crown. Six pots of Crocus were shown by Messrs. C. W. Neumann, J. Woolright, and H. Nash, and prizes awarded in the order named. For six stove and greenhouse plants, C. W. Neumann, Esq., was 1st: here we noticed *Chorozema cordata splendens*, *Clivia miniata maxima*, *Croton Disraeli*, *Arcalutenscens*, and a fine *Azalea*; 2d, F. H. Gossage, Esq.; 3d, W. H. Watts, Esq.

## ORCHIDS.

The Orchids staged were remarkably fine. Such plants are not often seen at a spring show, and associated here with so much that was good, they were much admired and deservedly so. For four Orchids, C. W. Neumann, Esq., was 1st, with *Phalenopsis Schilleriana*, with two branching spikes; *Dendrobium Wardianum*, with twelve flowering bulbs; *Coelegyne cristata*, a yard across, a mass of flower; and *Dendrobium crassinode*, with four good flowering bulbs; 2d, Dr. Walker Rodney (gr., Mr. J. Edwards); in this group was a plant of *Dendrobium Wardianum*, with twenty-four flowering bulbs well covered with bloom; *Vanda suavis*, with three spikes; *D. thysiflorum*, and *Cattleya Trianae*. W. Holland, Esq., Mossley Hill (gr., Mr. W. Moss), was 3d, having *Phalenopsis Stuartiana*, with a fine branching spike; *Angraecum sesquipedale*, with two spikes; *Vanda tricolor* and a *Cattleya Trianae*. For one Orchid, E. Harvey, Esq., Aigburth (gr., Mr. T. Worth), was 1st, with *Dendrobium Aiosworthii* with nine flowering bulbs; 2d, C. W. Neumann, Esq., with *Phalenopsis Schilleriana*, a spike 3 feet long, with five laterals and several sub-laterals—flowers of good size, form, and colour; 3d, Dr. Walker, with a nice piece of *Dendrobium Aiosworthii*. A Cultural Certificate was awarded for a *Dendrobium fimbriatum giganteum* to Sir J. A. Pictou (gr., Mr. G. Blackmore). This was a fine piece, with growths 5 and 6 feet long, with about thirty-six spikes of its bright orange coloured blossoms.

Ferns were shown by Mrs. Horsfall (gr., Mr. G. Rhodes), who staged *Dicksonia squarrosa* and *D. antarctica*, *Cyathea medullaris*, and a large *Gymnogramma*, to which the 1st prize was awarded. The 2d went to F. W. Medley, Esq. (gr., Mr. C. Jooles), who had *Adiantum Cardiolobum*, a very fine; *Davallia dissecta*, *Nephrolepis exaltata*, and *Alsophylla australis*. For one Fern Mrs. Lockett was 1st, with *Goniophlebium subauriculatum*, with about sixty fronds 5 feet long; Mrs. Horsfall 2d, Mr. T. S. Rogerson 3d.

Three Azaleas were shown by S. S. Parker, Esq., who was 1st; C. W. Neumann, Esq., 2d; and H. Cunoingham, Esq., 3d. For one greenhouse Rhododendron H. Cunoingham, Esq., was 1st, with Countess of Haddington, a plant only 3 feet high, but with fifty trusses of bloom; 2d, A. Tate, Esq. (gr., Mr. R. G. Waterman), with a nice plant of R. Taylori; 3d, Mr. W. Holland. Forced Rhododendrons were numerous and well flowered, whilst of *Azalea mollis* and its varieties many good plants were shown. For four plants Messrs. C. W. Neumann, S. S. Parker, and J. Lewis competed, and prizes were awarded in the order named. The six forced hardy plants again brought C. W. Neumann, Esq., to the front; 2d, W. B. Bowring, Esq.; 3d, B. Hall, Esq. Primulas, Cinerarias, Lily of the Valley, Migonette, Cyclamen, and table plants were numerous, and generally good. The stands of cut flowers, in which class five competitors entered, were very good for the season. C. W. Neumann, Esq., was 1st, in whose stand we noticed good bunches of *Dendrobium Wardianum* and noble, *Cattleya Trianae*, *Anthurium Andreanum* and *ferriense*, *Rhododendron Gibsoni*, *Amaryllis*, *Cliveas*, *Clematis indivisa lobata*, *Camellia Lavinia Magi*, &c.; the 2d prize fell to S. Smith, Esq., M.P.; 3d, Mr. W. H. Watts.

Bouquets were shown by Mr. T. Robinson, Mr. B. Hall and Mrs. Walls, and were awarded prizes in order as the names appear.

## CERTIFICATES OF MERIT.

These were awarded to Messrs. T. Davis & Co., for a collection of plants and bulbs; to R. P. Ker & Son, for *Azalea James Veitch*, *A. Phobus*, *Mathilde*, *Madame Herman Seidel*, and also for a collection of miscellaneous plants, bulbs, &c. Cultural Certificates were also given to Messrs. J. Dickson & Sons for some grand pots of *Narcissus Sir Watkin*; to Messrs. R. P. Ker & Son, for *Choisya ternata*; Mr. G. Blackmore, for *Dendrobium fimbriatum oculatum giganteum*; also to Mr. Elsworth, for splendid bunches of *Black Alicante Grape*; to Mr. J. Jellicoe, for Mushrooms; and C. W. Neumann, Esq., for *Amaryllis*, in which were included *Junius*, *Achilles*, and *Empress of India*. The Liverpool Horticultural Company showed a fine lot of useful plants, including *Cinerarias*, *Hyacinths*, *Azaleas*, and *Orchids*.

## GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

The spring show of this Society, which took place in the St. Andrew's Hall on March 25, was a great success. Of late years the Society has been playing the game of the rolling stone, but now a well meant effort is being made to re-establish and popularise it, the number of plants sent both for exhibition and competition being a decided advance upon those of recent years. The tables of plants furnished by Messrs. Austin & MacLean and Messrs. Smith & Simons were effective arrangements of spring blooming plants. The latter firm had some good Palms, and the former a great variety of Japanese Acers, these elegant foliaged plants being deservedly admired at this season. A large table of plants was also sent by Mr. Peter McKenzie, nurseryman, Paisley, but this exhibit was almost confined to bulbous plants, for the cultivation and exhibition of which Mr. McKenzie has been celebrated for years, also a few Orchids, and eight enormous bouquets, which collectively brought out all the hues of the rainbow, but individually were made up of two or three colours only. Fern fronds being sparingly used in each case, and were much admired by the ladies. His *Cypripedium* and *Coelegyne cristata* were shown in large, round, very shallow, teak-wood tubs, with a neat wooden handle on each side: the plants were well elevated above the surface, and although about 3 feet across could be easily carried by one man. They are very durable, and well suited to plants of that nature. From Lady Campbell, of Garscube (Mr. R. Fleming, gr.), came one of the finest and best bloomed plants of *Dendrobium speciosum* seen in Glasgow for many years, most of the twenty-two spikes having perfectly developed flowers. Two bridal bouquets exhibited along with other floral decorations by Messrs. J. & R. Thyne, were especially noteworthy. Hybrid seedling Azaleas of the *amœna* type were extensively shown by J. B. Miles, Esq. (Mr. G. Russell, gr.); the best of those in commerce being shown alongside of Mr. Russell's seedlings, proved the general superiority of the latter, one large hose-in-hose, a cross between *A. amœna* and *A. Victoria*, named General Gordon, being of special merit.

For the collection of stove and greenhouse plants to fill a table 12 feet by 6 there were only two competitors. The 1st prize was awarded to Messrs. J. & R. Thyne, nurserymen, Glasgow, who arranged a very effective group, conspicuous amongst which were some splendidly coloured *Crotons* of the leading varieties, and for which this firm is justly celebrated. Their *Dracænas* were also equally well grown. Their best flowering plants were some fine forms of *Cattleya Trianae*, *Cypripedium Boxalli* and *C. Lawrenceanum*, the latter a grand variety with a large and deeply coloured dorsal sepal. John L. Henderson, Esq., West Bank, Partick (Mr. John Mathison, gr.), was a good 2d, with much larger plants, which were shown to disadvantage owing to the restricted width of the table; some of the Azaleas were also a little coarse; but the collection contained the best managed Palms and Cycads in the hall; his plants of *Dracæna indivisa* (the true broad-leaved form) and *D. Massangeana* were much admired. The 1st prize for six stove and greenhouse plants, distinct varieties, was easily won by John Gordon, Esq., of Aikenhead (Mr. Thos. Hogg, gr.), with fine plants of *Gleichenia spenceana*, *Rhododendron Countess of Haddington*, *Cypripedium Boxalli* and *C. villorum*, and two good Azaleas. The 2d prize was awarded to a much smaller collection from R. Ramsay, Esq., Langside House (Mr. James Clatworthy, gr.); this latter exhibitor, however, carried 1st honours for three stove or greenhouse plants, with fine plants of *Tremandra ericoides*, *Eriostemon pulchellum*, and *Azalea Ceres*—*Morris Carswell*, Esq., Murcia House, Pollokshields, being 2d: in this collection there was a large and highly coloured variety of *Clivia miniata*. R. B. White, Esq., of Ardarroch (Mr. Thomas Leslie, gr.), was 1st for three Orchids, exhibiting *Dendrobium nobile*, *D. thysiflorum*, and *D. Wardianum*—the latter species being particularly well bloomed. In the classes for Azaleas and Rhododendrons there was nothing worthy of special notice except a well grown and splendidly bloomed plant of *Azalea amœna*; and the 1st prize collection of Azaleas, restricted to pots not exceeding 8 inches; these came from the Aikenhead Gardens, and reflected great credit on Mr. Hogg, the gardener. Plants for table decoration were a great feature of the show, the entries being numerous, and the collections all good. Mr. John Sutherland, Victoria Nursery, Lenzie, was 1st with twelve plants (distinct varieties) in 6-inch pots, and which for beauty and symmetry of the individual plants could not be excelled; Alexander Raeside,

Esq., Vorkhill, was 2d. The gardeners' and amateurs' classes were equally well contested. Ferns were good, but the numerous other plant and cut flower classes contained nothing of special merit, except those confined to bulbs, and certainly these were in great numbers, and very good. The leading prize in the open class for eighteen Hyacinths (distinct varieties) was awarded to Mr. John Sutherland, nurseryman, Lenzie. In the gardeners' classes 1st honours were awarded to J. Young, Esq. (Mr. J. Buchanan, gr.), his spikes of bloom being of great size, very uniform, and of fine colour; this exhibitor also staged *Polyanthus Narcissus*, splendidly bloomed. The Tulips shown by Mr. James Heron, Pollockshaws Gardens, were also very meritorious. Prizes are offered by this Society in many classes of one, two, or three plants, cut flowers, bouquets, &c., to encourage small amateur growers, and it is pleasing to note that many of the prizes were well contested, but I am aware that your space is too valuable to admit of any attempt at further enumeration. R. B.

## BATH EARLY SPRING SHOW.

On the 25th ult., at the Assembly Rooms, the Floral Fête and Band Committee made their first venture in holding an early spring show, and judging from the number of exhibits, as well as their exceptionally fine quality generally, the enterprising gentlemen who form this committee, as well as the exhibitors, have abundant cause to be satisfied with the result, as it was in every respect a splendid exhibition. It is to be hoped such a signal success to commence with will be an inducement to them to continue these early spring shows, which are so deservedly appreciated by every one.

T. A. S. Dorrien Smith, Esq., of Tresco Abbey, Isles of Scilly, exhibited a magnificent collection of *Narcissus* (not for competition), which, although not quite so numerous in variety as that exhibited on the 18th at Clifton, was in much better condition and proved most attractive to the visitors. Messrs. Cooling & Son, also Mr. James Cypher, of Cheltenham, contributed some choice miscellaneous plants, consisting of early spring flowering plants, Roses, and other plants; the latter firm contributing some good Orchids, for which it is becoming justly noted.

The whole of the exhibits was pleasingly arranged in two large rooms. For eighteen Hyacinths.—1st, Mr. Wm. Taylor, gr. to S. P. Budd, Esq.; 2d, Mr. G. Marsh, gr. to M. Dunlop, Esq.; Certificate of Merit, Mr. W. Dobson. For twelve Hyacinths, Mr. Taylor was again 1st; 2d, Mr. W. Thomas. Six Hyacinths.—Mr. Taylor again carried the 1st prize; 2d, Mr. Dobson; Certificate of Merit, Mr. W. Thomas. For six Hyacinths, grown in glasses.—1st, Mr. Taylor; 2d, Mr. G. Garaway. For twelve pots of Tulips.—1st, Mr. Marsh; 2d, Mr. D. Dobson. Four pots of Tulips, single.—1st, Mr. Taylor; 2d, Mr. W. Thomas. Four pots of Tulips, double.—1st, Mr. Thomas; 2d, Mr. Dobson. For six pots of *Polyanthus Narcissus*.—1st, Mr. Thomas; 2d, Messrs. Geo. Cooling & Son. Six pots of Crocus.—1st, Mr. Dobson; 2d, Mr. Drummond. Three sorts of Lily of the Valley.—1st, Messrs. Cooling & Son; 2d, Mr. W. K. Wait; Certificate of Merit, Mr. Drummond. For three pots of *Ameryllis*.—1st, Mr. F. J. Walker; 2d, Mr. T. Jolly. For four hardy Rhododendrons.—1st, Messrs. Cooling & Son; 2d, Mr. Drummond. For three Azaleas.—1st, Mr. E. Bryant; 2d, Col. London. Six Azalea mollis, or Ghent vars.—Equal, Messrs. Cooling and W. C. Drummond. For a specimen Azalea.—1st, Mr. T. Jolly; 2d, Mr. Drummond. For three Orchids.—1st, Mr. James Cypher; 2d, Col. London. Specimen Orchid.—1st, Mr. Cypher; 2d, Col. London. Six Roses in pots.—1st, Gen. Doherty; 2d, Mr. Taylor. Six Cinerarias.—1st, Mr. Jolly; 2d, Mr. H. Pictou. For twelve Cyclamens.—1st, Mr. Taylor; 2d, Miss Charles. Collection of plants arranged for effect.—1st, Mr. Geo. Cooling; 2d, Mr. Drummond. Collection ditto by amateurs.—1st, Mr. E. Bryant; 2d, Gen. Doherty. For six ornamental foliaged plants.—1st, Mr. E. Bryant; 2d, Mr. Drummond. For four ornamental foliaged plants.—1st, Mr. R. B. Cator. For four stove and greenhouse plants in flower.—1st, Mr. Bryant; 2d, Gen. Doherty. Six exotic Ferns or mosses.—1st, Mr. Bryant; 2d, Gen. Doherty. For six plants for table decoration.—Mr. W. K. Wait; 2d, Messrs. Cooling & Son. For six Primulas.—1st, Mrs. Counsell; 2d, Col. Grant. For twenty hardy herbaceous plants.—1st, Messrs. Cooling & Son. For six pots of Violets.—1st, Mr. Jolly; 2d, Mr. Drummond; extra, Mr. S. Tredwell. Bouquet for the hand.—1st, Mr. W. H. Mould; 2d, Mr. W. Pethwick. Three buttonhole bouquets.—1st, Mr. H. Cooper; 2d, Mr. W. K. Wait. Spray for a lady's dress.—1st, Mr. Pethwick; 2d, Mr. Bryant. Vase of flowers for table decoration.—1st, Mr. Pethwick; 2d, Mr. W. Mardon; Certificate of Merit, Mr. Cypher. Twelve cut Roses.—1st, Mr. J. Mattock; 2d, Mr. W. Taylor, gr. to Alderman Chaffin, Esq.; Certificate of Merit, Messrs. Cooling & Co.

## FRUIT.

Best bunch of Grapes.—1st, Mr. W. Cooper. Best dish of Apples.—1st, Mr. F. J. Walker; 2d, Mr. S. Butler. Best dish of Pears.—1st, Mr. R. Hooper-Taylor; 2d, Mrs. W. J. Smith; Certificate of Merit, Mr. S. Butler. Best dish of Strawberries, Mr. Cator.

## VEGETABLES.

Brace of Cucumbers.—1st, Mr. G. Garaway; 2d, Mr. F. J. Walker. Dish of Mushrooms.—1st, Mr. James Stucky; 2d, Mr. G. Garaway. Dish of Seakale.—1st, Mr. Garaway; 2d, Mr. Landsdown Daubeny. Dish of Asparagus, fifty heads.—2d, Mr. H. Mardon. Basket of Salad.—1st, Mr. Garaway; 2d, Mr. Mould. Dish of Beans.—Certificate of Merit, Mr. S. P. Budd, T. S. C.



MASSACHUSETTS HORTICULTURAL :  
March 7.

The exhibition of flowers, &c., was excellent. John B. Moore & Son again showed some fine hybrid perpetual Roses, Jackson Dawson and William H. Spooner also brought hybrid perpetual Roses, and Delay & Meade a collection of Tea Roses. Mrs. Francis B. Hayes contributed a collection of Camellias, Azaleas, Rhododendron Veitchianum, and R. Veitchii laevigatum, Dendrobium nobile, &c. C. M. Hovey had a large Azalea plant in flower, also a collection of cut Azaleas and Camellias. Miss S. W. Storey exhibited a variety of cut flowers. Gratuities were awarded by the flower committee for all the above. James Cartwright showed a specimen of the Bourbon Rose Mme. Isaac Pereire. *A Correspondent.*

## MANURES.

The following, for which we are indebted to our correspondent, Mr. De Mar, is a paper which was read at a meeting of the Massachusetts Horticultural Society, and will be of interest to many of our readers resident near the great fishing stations and fish markets of this country.

The Hon. James J. H. Gregory was introduced to the meeting, and read a paper on "Nitrogen." After an introduction, showing the very small quantity of mineral matter in plants—a cord of wood, that might require two yoke of oxen to draw it and would be of the bulk of 100 bushels, yielding but a bushel of ashes, which the driver might carry on his shoulder—and the sources of this matter, he passed to the consideration of nitrogen, which makes up about four-fifths of the air mass that surrounds the earth for a depth of about 50 miles, the other fifth being oxygen. This gives unnumbered thousands of tons of nitrogen, right at hand, but never available, for human knowledge has not yet discovered a way by which nitrogen can be economically got from it for plant food. We have to depend for our supply wholly on what plants and animals have incorporated into their structure, using their waste in the form of manure, dead remains, either from land or sea, for our supply. The ammoniated liquor from the gasworks is but the waste produced from the remains of ancient forests which we burn as coal.

When nitrogen is combined with hydrogen in the proportion of three parts of hydrogen to fourteen parts of nitrogen, we have ammonia, one of the most common forms in which, from the waste of both animals and plants, nitrogen is fed to our crops.

The other most important source of nitrogen is nitric acid. This is a combination of nitrogen with oxygen; and nitrates, of which we see frequent mention in all works on manures, are a combination of nitric acid with soda, potash, and other materials called bases. It is well to fix in the mind that, in changing nitrogen to ammonia in any manure analysis, we must add about one-fifth to the quantity given. It appears to be the settled conviction among men of science, as the result of many experiments, that plants cannot take up pure nitrogen directly from the air. The theory is that they are able, in a greater or less degree, to get their supply through the water that carries it in some form in solution into the soil, and also from the air indirectly by the soil first separating it from the air that permeates it. Still another source of natural supply for plant growth is nitrogen in a latent condition, that has accumulated in the soil, set free by the action of such substances as lime and plaster. There is a general belief among agriculturists that plants have ways of collecting still but little known, while some extremists have gone so far as to declare that there is no necessity of feeding nitrogen to our crops, for they can of themselves collect from natural sources all they require. There is a growing belief that their power to supply their wants from natural sources is greater than has hitherto been credited to them. It is found also that different kinds of plants have different capacities for taking up nitrogen. Clover is an example, for though nitrogen enters largely into its composition, it has such a capacity to help itself to the good things which surround it, that it needs but very little artificial help from the manure pile, while Wheat, though it needs but little nitrogen, is so dainty a feeder that it insists on a large artificial supply from which it may pick out that little.

In regard to the sources from which the practical gardener can obtain nitrogen, Mr. Gregory first considered hen manure, which has by some been compared in value to guano, but he regarded this as an overestimate. He laid down a grand principle, that no

more nitrogen, phosphoric acid, or potash can be obtained from the manure of any animal than is contained in its food. An ordinary hen will eat about 2 bushels of maize a-year, and the larger breeds about one-half more. From this they must take the material for about 125 eggs annually, a change of feathers, keep up the animal heat, and make up the growth of the body, besides performing the various functions on which life depends. Now, subtracting what is required for these purposes, the waste element in our 2 bushels of maize shrinks to very small proportions. We must also take into account the fact that the droppings which we save are confined almost wholly to those made during half of the twenty-four hours. By analysis 2 bushels of maize contain, in nitrogen, potash, and phosphates, 46 cents in value. From this standpoint it will be seen that the droppings of a hen for a year cannot contain nearly the value sometimes claimed for them. For many years the essayist collected hen manure at a cost of 1 dol. per barrel, but afterwards reduced the price to 75 cents, and thought it at the latter price a cheap manure until he tested it side by side with an equal value of guano. Moreover, it is a sticky mass, difficult to handle, and it is worth any one's while to experiment, if it were only to realise the advantage in the handling of any commercial fertiliser over hen manure even in its finest state. It is generally composted with muck or dryish soil—three parts of muck to one of manure—and the compost should be made as fine as possible. A rake is the best tool to do this with, if it is sticky, and it should be turned over in three or four days, and a six-tined fork is a good implement for this purpose.

Sulphate of ammonia, a by-product where coal is used for the manufacture of gas, is one of the principal sources of nitrogen. It looks like rather coarse salt, and is often sold in huge casks weighing 1000 lb. or 1500 lb. It is readily soluble in water, but does not waste in the air. Nitrate of potash (saltpetre) is usually too costly a source of nitrogen to make it available. Nitrate of soda is a remarkably stimulating fertiliser, but if there is much rain it will waste before plants can take it up. In dry seasons, however, it is better and cheaper than sulphate of ammonia, as the latter needs a degree of moisture to make plant food; yet, on the whole, the latter is considered the better investment, for, first, it is not likely to be lost in the atmosphere; second, it is not too soluble; and, third, it has the power of clinging to the ingredients of the soil. Clay will hold it persistently, and even pure sand, when washed with water, will retain a large portion of it. Its ammonia is easily changed into nitric acid by ingredients in the soil. Nitrate of soda is very liable to be adulterated with white sand or broken quartz, and with common salt or the cheap potash salts. The purchaser should see that it dissolves entirely in water and does not taste distinctly of salt. Castor oil pomace affords a supply of nitrogen, but it must be kept from animals, as it is poisonous, and in spreading it care must be taken to go with the wind, as it is very disagreeable to the eyes or mouth. Cotton seed meal is better fed to stock, and the manure used, which will be nearly as rich as the meal before feeding. Occasionally spoiled meal can be found in the market, and this is as good for manure as the best, and is a very cheap source of nitrogen and phosphoric acid. Wood and horn shavings and leather are very rich in nitrogen, but it are not readily available, and therefore they have a low value as market articles. The last is excellent for mulching, and in time will decay and fertilise the ground, but if worked into tillage land it becomes a nuisance.

The waste of the fisheries is one of the principal sources from which manufacturers obtain the ammonia in their fertilisers. The largest portion is from the fish called menhaden, hardheads, moss bunks or fat backs. They are caught in immense quantities in nets, and boiled to secure the oil, in which they are rich. After pressing, the pomace or chum is packed in barrels or dried and ground. When a surplus of fish is caught they are sold to farmers, who put them directly on the grassland, where the effect is very stimulating for a few years, but the final result is that the soil becomes hard and the fish have less and less effect, and finally the crop is almost nothing. The fish are deficient in potash, and the result is what always comes from continuous manuring with any substance that is deficient in any one of the three essentials of plant food. The land can be restored by using potash. Other fish wastes are found in

the form of spoiled fish, and the heads, sound bones, and entrails of fish which accumulate at fishing ports. So immense was the waste of heads, bones, &c., of fish at the Isles of Shoals that the harbour had to be cleared twice by dredging them out. The essayist left a standing offer with a fisherman, a few years ago, of 25 cents per 100 lb. for all surplus pollock; the result was that 20,000 lb. of fine large fish, weighing from 8 lb. to 15 lb. each, just out of the water, was hauled to his manure heaps. All these substances are, however, very disagreeable and difficult to handle, requiring a vast quantity of soil to compost them. Where bay fishing is carried on on a large scale, liver or blubber chum can sometimes be found, and furnishes a very cheap source of nitrogen. It should be cut with sharp sand before composting, to make it fairly fine. Halibut chum is the refuse from the heads of halibut, which are cooked under high pressure to extract the oil, and the bones are left in such a state that they can easily be crumbled. It is especially rich in phosphoric acid. The skin, bones, and fins of salted fish, stripped and sold free of bone, are another form of fish waste, and the waste of herring and mackerel at the fishing stations is sometimes made up into chum. Dogfish, a small species of shark, are caught in immense quantities, and are very rich as manure, their muscles being very firm. The shells and other refuse of lobsters at canning factories are ground up and sold as plant food, and are especially rich in nitrogen.

All fish waste must be composted with a large quantity of soil, or the crops will be burned; and the compost, owing to its great richness, should be spread broadcast rather than used in the hill. Fish chum may be used broadcast or composted with poor manure to enrich it, or with soil, muck, or sawdust. It is surprising how penetrating is the ammonia from fish compost, and, therefore, in making a heap, the bottom layer of soil should be a foot or more in thickness. Cases have been seen when the fish was mixed liberally where the soil was full of ammonia for several feet below the surface. The layer of fish should be thick enough to just hide the soil, and the next layer of soil about 3 inches, and so on, scattering raw ground plaster over each layer of fish before covering with soil, at the rate of 50 lb. of plaster to 300 lb. of fish. The heap should be on level ground, with a little embankment around to catch the liquid that sometimes runs from it when the fish begin to decompose, or may be washed out by heavy rains, and it will be handy to fill up the holes that are apt to show on the top as decomposition progresses, letting out bad odours unless closed. Fish containing much oil are better composted with stable manure, and plaster should be scattered as before directed. If decomposition is slow to start, unleached ashes or lime may be mixed with the mass; but be sure to cover the heap with several inches of soil.

## Florists' Flowers.

## SELECTIONS OF BOUQUET DAHLIAS.

THE best twenty-four bouquet or pompon Dahlias will be found in Lady Blanche, white; E. F. Jungker, amber; Fanny Weimar, yellow, with slight edge of crimson; Isabel, bright orange-scarlet; Nemesis, dark maroon, occasionally tipped with white; Rosetta, purplish-magenta; Golden Gem, pure yellow; Little Prince, deep crimson, distinctly tipped with white; Mabel, lilac; Favourite, dark maroon, edged with crimson; Gem, intense rich scarlet; Little Duchess, white, edged with crimson; Guiding Star, white; Hedwig Pollwiz, red, distinctly tipped with white; Little Bobby, rich crimson; Pure Love, bright lilac; Rougier et Chauvière, bright blush, dashed with white; Sappho, dark crimson; Mdle. Valentine Falconet, white, striped with purple; The Khedive, deep crimson, suffused with white at the base of the petals; Wilhelm Nitschi, red, tipped with white; Brunette, shaded red, blotched and tipped with white; and Dora, pale primrose and white. The best twelve varieties would be Lady Blanche, E. F. Jungker, Fanny Weimar, Isabel, Nemesis, Rosetta, Golden Gem, Little Prince, Favourite, Gem, Little Duchess, and Mabel. Little Prince must not be confounded with Little Princess, they are quite distinct.

## SELECTIONS OF SINGLE DAHLIAS.

There is some difficulty in dealing with these because there are now so many raisers of new varieties, and such an enormous number of the latter, that in sketching



a representative group of select varieties some raiser or the other will be likely to feel aggrieved on the ground that certain of his flowers are left out. I cannot do better than fall back upon a selection of twenty-four varieties made at the Dahlia Exhibition held last year at the Crystal Palace, viz., *Admiral*, dark maroon, edged with lake, medium sized, distinct and striking; *Alba*, or *White Queen*, pure white; *Aurata*, pure yellow; *Coccinea*, bright orange-scarlet; *Dorothy*, white, suffused with rosy-peach; *Duchess of Westminster*, white; *Ellen Terry*, pale peach; *Evening Star*, bright crimson; *Falcon*, deep crimson, edged with bright purple; *George Clarke*, light purple, banded with deep crimson; *Harlequin*, deep rose, with purple stripe down each petal; *Juno*, rosy-lake, margined with silvery-rose; *Harold*, dark velvety-maroon; *Lucy Ireland*, rich magenta, suffused with crimson; *Magnificence*, pale silvery-pink; *Mauve Queen*, pale lilac; *Mrs. Goldring*, rosy-pink, rich and very pleasing; *Mrs. Bowman*, bright purplish-magenta; *Negress*, dark maroon; *Nora*, bright pink; *Paragon*, rich maroon, with purple edge; *Rob Roy*, bright scarlet; *Sunbeam*, deep yellow, very fine; and *Terra Cotta*, creamy-yellow, suffused with pale brown. A select twelve would comprise *Alba*, *Coccinea*, *Ellen Terry*, *Falcon*, *Harlequin*, *Juno*, *Lucy Ireland*, *Mauve Queen*, *Negress*, *Paragon*, *Magnificence*, and *Sunbeam*. R. D.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, MARCH 31, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEVIATIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from 32° Fahr.	Highest.	Lowest.	Range.	Mean for Day.	Departure from 32° Fahr.	Dew Point.		
Mar.	In.	In.	°	°	°	°	°	°		In.
25	30.09	+0.31	47.4	31.6	15.8	38.2	-4.1	30.9	75	E. 0.00
26	29.83	+0.06	50.9	34.0	16.9	41.2	-1.3	37.0	85	S.E. 0.00
27	29.80	+0.04	48.5	38.9	9.6	42.7	-0.0	34.9	73	W. 0.07
28	30.15	+0.39	48.5	38.4	16.1	39.8	-3.2	32.9	77	N.W. 0.00
29	29.85	+0.09	51.6	32.2	19.4	41.9	-1.4	36.7	84	S.E. 0.00
30	30.05	+0.30	53.6	36.3	17.3	47.2	+3.5	37.9	71	E. 0.00
31	30.18	+0.33	55.0	31.0	24.0	43.4	-0.6	32.7	66	E. N.E. 0.00
Mean	29.98	+0.22	50.8	33.8	17.0	42.1	-1.0	34.7	76	variable 0.07

March 25.—Very fine day; dull night.  
— 26.—Fine morning; dull afternoon.  
— 27.—Dull morning; fine afternoon.  
— 28.—Very fine day.  
— 29.—Fine day; very fine night.  
— 30.—Very fine day and night.  
— 31.—Very fine day; deep blue sky.

LONDON: *Atmospheric Pressure*.—During the week ending March 28, the reading of the barometer at the level of the sea was—decreased from 29.87 inches at the beginning of the week to 29.82 inches by 9 A.M. on the 22d, increased to 30.33 inches by 9 A.M., decreased to 30.30 inches by 1 P.M., increased to 30.32 inches by 5 P.M. on the 23d, decreased to 30.28 inches by 9 A.M., increased to 30.47 inches by 1 P.M., and decreased to 30.13 inches by 5 P.M. on the 24th, increased to 30.31 inches by 9 A.M. on the 25th, decreased to 29.93 inches by 9 A.M. on the 27th, increased to 30.30 inches by 1 P.M. on the 28th, and was 30.28 inches by the end of the week.

The mean reading of the barometer for the week was 29.86 inches, being 0.19 inch lower than last week, and 0.20 inch above the average of the week.

*Temperature*.—The highest temperature in the shade in the week was 50° 9, on the 26th; the highest on the 23d was 42°. The mean of the seven high day temperatures was 46° 8.

The lowest temperature was 25°, on the 23d; on the 27th the lowest temperature was 38° 9. The mean of the seven low night temperatures was 31° 6.

The greatest range of temperature in one day was 18° 7, on the 24th; the smallest was 9° 6, on the 27th. The mean of the seven daily ranges was 15° 2.

The mean temperatures were—on the 22d, 35° 6; on the 23d, 33° 7; on the 24th, 35° 7; on the 25th, 38° 2; on the 26th, 41° 2; on the 27th, 42° 7; on the 28th, 39° 8; and these were all below (excepting the 27th, which was the same as its average) by 6° 3, 8° 3, 6° 4, 4° 1, 1° 3, and 3° 2 respectively.

The mean temperature of the week was 38° 1, being 2° 5 lower than last week, and 4° 2 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 105° 6, on the 28th. The mean of the seven readings was 99° 7.

Rain fell on two days to the amount of 0.74 inch, of which 0.67 inch fell on the 22d, and 0.07 inch on the 27th.

ENGLAND: *Temperature*.—During the week ending March 28, the highest temperatures were 55° at Truro and Plymouth, 54° 5 at Cambridge; the highest at Wolverhampton was 48° 1, at Preston 48° 5, at Nottingham and Bolton 49° 7. The general mean was 51° 2.

The lowest temperatures were 25° at Blackheath, 25° 3 at Cambridge, 26° 2 at Wolverhampton; the lowest temperature at Plymouth was 33° 5, at Liverpool 33° 4, at Nottingham 31° 7. The general mean was 29° 7.

The greatest ranges were 29° 2 at Cambridge, 26° at Hull, 25° 9 at Blackheath; the smallest ranges were 17° 2 at Liverpool, 17° 5 at Preston, 18° at Nottingham. The general mean was 21° 5.

The mean of the seven high day temperatures was highest at Truro, 51°, at Cambridge 50° 2, at Plymouth 50° 1; and was lowest at Sunderland, 44° 7, at Wolverhampton 45° 2, at Bolton and Bradford 45° 5. The general mean was 47° 1.

The mean of the seven low night temperatures was highest at Plymouth, 38° 3, at Liverpool 37° 6, at Truro 37° 3; and was lowest at Hull, 30° 3, at Cambridge and Wolverhampton 31° 3. The general mean was 34° 3.

The mean daily range was greatest at Cambridge, 18° 9, at Hull 16° 8, at Blackheath 15° 2; and was least at Liverpool, 9° 4, at Sunderland 9° 8, at Newcastle 10° 8. The general mean was 12° 8.

The mean temperature was highest at Plymouth, 43°, at Truro 42° 9, at Liverpool 41° 1; and was lowest at Wolverhampton, 37°, at Hull 37° 5, at Brighton 37° 9. The general mean was 39° 5.

Rain.—The largest falls were 0.74 inch at Blackheath, 0.53 inch at Bristol, 0.52 inch at Bolton; the smallest fall was 0.07 inch at Cambridge, 0.10 inch at Nottingham. The general mean fall was 0.25 inch.

JAMES GLAISHER, F.R.S.

## Obituary.

WE have to announce the death, on March 30, of Mr. EDWARD ROWE, at the age of forty-six years. He was formerly gardener to the Viscountess Clifden, was a man of undoubted energy, a successful exhibitor of the Chrysanthemum and many other horticultural productions. His death occurred from consumption, at Northampton, in which town he had established himself as a florist.

## Enquiries.

"He that questioneth much shall learn much."—BACON.

NOTICE TO QUIT.—I took a few acres of land and a cottage on April 6, 1881. I have no written agreement, only a verbal arrangement that I was to use it as a nursery. I planted a portion of it with Quicks, Sycamores, and other trees. In April last year my landlord gave me twelve months' notice to quit. I paid a small amount on entry for ploughing, digging, and for Peas and Beans, to my landlord, who now refuses to pay me for anything except for ploughing. Am I entitled to compensation for trees, &c.? *Ernest*. [Consult a solicitor. Ed.]

## Answers to Correspondents.

BLIGHTED LAUREL: *G. Buchanan*. The plants are evidently affected by a disease common to Rosaceæ. There is no known cure for this mysterious malady, in which the skin is, as it were, lifted from the leaf. No fungus or insect has as yet been discovered to account for it; but by cutting back the wood severely, and by so doing getting a new growth entirely, the vigour of the tree or bush can be renovated.

BOULEVARD AND PLAYGROUND ASSOCIATION.—We are requested by Miss Wilkinson to correct a mis-

statement which appeared in our last issue, in reference to her having given £1000 to the Association. The lady states that, although she is desirous of helping that body in any way she can, the sum above named came from an anonymous donor, and not from herself.

"CHEMISTRY OF MANURES." *R. B. Dr. Voelcker* (not Faulkner) did not publish such a book; his papers are contained in the *Journal of the Royal Agricultural Society*.

CLIMBING PLANT: *W. Mount*. *Ipomoea purpurea* in many colours; *I. grandiflora*; *I. Nile*, corerulea blue; *I. violacea vera* (rubro corulea); *I. violacea vera* flore albo.

GLASS-HOUSE SHADING: *Jules Withergh, St. Nicolas*. Dissolve plasterers' size in water; sufficient of the former to be used so as to make the liquid slightly adhesive. Then mix into it as much Brunswick Green as will give the amount of shading you may desire, and if it should prove of too dark a tint on trial, put in a little powdered whitening.

MUSHROOMS: *E. C.* The sample was that of very superior Mushrooms, the flesh being close, fine-grained, and juicy, and without that thick and coarse appearance of the skin often seen in large examples.

MUSHROOM, DOUBLED: *A. R. L.* This occurrence is by no means rare.

NAMES OF FRUIT: *E. Thomas*. *Beurré Rance*.—*T. Taylor*. *Jean de Witte*.

NAMES OF PLANTS: *G. N. Gude*. *Carex*, probably the Japanese *C. Mounowii*; would be easier determined if in fruit.—*T. S. Thomasia solanacea*, *Fritillaria sewerzowii*. Thanks for the *Narcissus*, of which we shall give a figure.—*W. S. C. Sinuill*. *Saxifraga decipiens*, *Veltheimia viridifolia*, *Muscari conicum*, *Fuchsia fulgens*.—*C. E. J.* 1. *Acacia obliqua*; 2. *A. armata*; 3. *Aristotelia racemosa*.—*J. J. W.* This *Cirrhopteralum* we cannot venture to name specifically from the material. It is near *C. Wightianum*, &c.—*A. Brookes*. *Cornus mas*.

"ON THE CULTIVATION, HARVESTING, PRESERVATION AND DURATION OF THE VITALITY OF SEEDS." *F. C. Heinemann*. There is no such book in English, but you have several in German.

PEACHES NOT SWELLING: *W. O.* You must wait with patience till the stone is formed.

POTATO THE THORBURN: *J. M. Thornburn & Co., New York*. Potato received. We will get it tried here, and report in due season.

VINES AND ROSES: *F. O. S.* The Vine leaves were much eaten by thrips; with the roots there seemed but little the matter. The tissues of the Rose leaves were very thin—evidently the result of hard forcing and bad ventilation; a breath of cold air would cause the appearances noticed.

\* All communications intended for publication should be addressed to the "Editor," and not to the Publisher, or to any member of the staff personally. The Editor would also be obliged by such communications being written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

COMMUNICATIONS RECEIVED.—"West Wilts."—*J. N. Thornburn*.—*J. R.*—*J. M.*—*T. S.*—*Sir T. L.*—*W. E. G.*—*W. J. S.*—*C. K.*—*F. W. B.*—*C. S.*—*H. Corveon*, Geneva.—*H. Copenhaen*.—*J. D.*—*The Secretary of the Interior*, Washington.—*E. Crump*.—*R. D.*—*G. Malcolm*.—*Hon. Mr. Boyle*.—*H. S.*—*A. J.*—*F. I. J. W.*—*Valisea Flower Show*.—*W. C. P.*—*M. Sullivan*.—*J. D.*—*R. H. Evans*.—*J. Hughes*.

MARRIED, on Saturday, March 28, PIETRO TACAGNI to EDITH, only daughter of Worthington G. Smith.

## Markets.

COVENT GARDEN, April 1.

No alteration to quote, the holidays checking London trade. *James Webber, Wholesale Apple Market*.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 6-5 0	Lemons, per case	12 0-18 0
— Nova Scotia and Canadiana	12 0-21 0	Pine-apples, Eng., lb.	1 0-2 0
Cobs, per 100 lb.	50 0-55 0	— St. Michael, each	2 6-8 0
Grapes, per lb.	5 0-8 0	Strawberries, per oz.	6 0-9 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	4 0-6 0	Horse Radish, bun.	3 0-4 0
Asparagus, English, per bundle	3 6-10 0	Lettuces, Cab., doz.	1 6-..
— French, bundle	15 0-20 0	— French Cos, each	0 9-..
— Perpignan, nat., per bundle	2 0-..	Mint, green, bunch.	0 9-1 0
Beans, Eng., per 100	2 0-..	Mushrooms, p. basket	1 0-1 6
Beet, per doz.	1 0-..	Onions, per bushel	4 0-..
Cabbages, per doz.	2 6-2 0	— Spring, per bun.	0 6-..
Carrots, per bun.	0 6-..	Parsley, per bunch.	0 4-..
Cauliflowers, Eng., lb., dozen	2 0-4 0	Peas, per lb.	1 0-..
Celeriac, per root	0 4-..	Potatoes, acw, per lb.	0 6-1 0
Celery, per bundle	1 6-2 6	Radishes, per doz.	1 0-..
Cumbers, each	0 9-1 6	Rhubarb, bundle	1 0-..
Endive, per dozen	2 0-..	Salsify, per bund.	1 0-..
Garlic, per lb.	0 6-..	Seakale, per punnet	2 0-2 6
Herbs, per bunch	0 2-0 4	Small salad, per punnet	0 4-..
		Spinach, per bushel	4 0-..
		Tomatoes, per lb.	2 0-2 6
		Turnips, bun.	0 5-..

POTATOS.—All markets 5s. to 10s. per ton lower, with a bad trade.



## CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilon, 12 bunches .. 0 4 0	Marguerites, 12 bun. 3 0 6 0
Acacia, Fr., basket. 4 0 5 0	Mignoelette, 12 bun. 3 0 9 0
Anemone, 12 bunch. 3 0 9 0	Narcissus, Paper-
Arum Lilies, 12 blms. 3 0 6 0	white, 12 sprays .. 0 9 1 0
Azalea, 12 sprays .. 0 6 1 0	— French, 12 bun. 2 0 6 0
Bouvardias, per bun. 1 0 1 6	Pelargoniums, per 12
Camellias, per doz. 1 0 4 0	sprays .. 1 0 1 6
Carnations, 12 blms. 2 0 3 0	— scarlet, 12 sprays 0 6 1 0
Cinerarias, per bun. 0 6 1 0	Primroses, 12 bunch. 0 6 1 0
Cyclamen, 12 blooms 3 0 6 0	Primula, double, bun. 0 9 1 0
Epiphyllum, 12 blms. 0 4 0 6	— sinensis, 12 bun. 4 0 6 0
Eucharis, per doz. 4 0 6 0	Roses (indoor), doz. 2 0 6 0
Euphorbia jacquini-	— coloured, doz. 2 0 6 0
flora, 12 sprays .. 3 0 6 0	— French, per doz. 1 0 2 0
Gardenias, 12 blms. 2 0 6 0	Spiraea, 12 bunches. 6 0 9 0
Heliotropes, 12 sp. 0 6 1 0	Tropaeolum, 12 bun. 2 0 4 0
Hyacinths, Roman,	Tulips, 12 blooms .. 0 9 1 0
12 large bunches .. 30 0 48 0	Violets, 12 bun. 0 4 0 9
Lapageria, white, 12	— French, bunch. 0 3 1 0
blooms .. 2 0 3 0	— Parme, French,
— red, 12 .. 1 0 2 0	per bunch .. 3 0 5 0
Lily-of-Val, 12 sprays 0 9 1 6	Wallflower, 12 bun. 4 0 6 0
	White Jasmine, bun. 0 6 1 0

\* The prices of cut flowers vary very much this week, on account of Easter Decorations.

## PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0 24 0	Ferns, in variety, per
Arbor-vitæ (golden),	dozen .. 4 0 18 0
per dozen .. 6 0 18 0	Ficus elastica, each 1 6 7 0
— (common), dozen 6 0 12 0	Foliage Plants, vari-
Arum Lilies, dozen 9 0 15 0	ous, each .. 2 0 10 0
Azaleas, per dozen .. 18 0 42 0	Genista, 12 pots .. 9 0 18 0
Begonias, per doz. 6 0 12 0	Hyacinths, per doz. 6 0 9 0
Bouvardia, dozen .. 9 0 18 0	Lily-of-the-Valley, 12
Cinerarias, per doz. 9 0 12 0	pots .. 12 0 18 0
Cyclamens, per doz. 9 0 24 0	Marguerite "Daisy,"
Cyperus, per dozen 4 0 12 0	per dozen .. 8 0 15 0
Dacrydium terminalis,	Myrtles, per doz. 11 6 12 0
per dozen .. 30 0 60 0	Narcissus, 12 pots .. 12 0 18 0
— viridis, per doz. 12 0 24 0	Palms in variety,
Epiphyllum, doz. 13 0 24 0	each .. 2 6 21 0
Erica, various, doz. 9 0 18 0	Pelargoniums, scar-
— Cavendishii, per	let, per dozen .. 4 0 9 0
dozen .. 42 0 48 0	Primula sinensis, per
— ventricosa, doz. 6 0 12 0	dozen .. 4 0 6 0
Fuchsia in var. doz. 6 0 18 0	Spiraea, per dozen .. 9 0 18 0
Evergreens, in var.,	Tulips, dozen pots .. 6 0 9 0
per dozen .. 6 0 24 0	

## SEEDS.

LONDON: April 1.—Messrs. John Shaw & Sons, seed merchants, of 37, Mark Lane, report a strong growing demand for the leading varieties of farm seeds. All descriptions are now getting into narrow compass, and where values change the movement is upward. Grasses are in improved request. Sainfoin continues somewhat scarce. Of spring Tares there is now a better supply. Bird seeds sell slowly. Feeding Linseed keeps steady. Rape seed continues firm.

## CORN.

At Mark Lane on Monday, with the more pacific tenor of the political news, the animation of the previous Friday disappeared, and the advance then quoted was to a great extent lost. For English Wheat holders stood to the advance of 1s. on the week. Foreign Wheats were not quite so firmly held, but generally 6d. over the rates of Monday se'nnight was required, and on flour 6d. of the previous advance nominally remained. Maize and Oats were but just the turn dearer on the week; and Barley, Beans, and Peas unchanged.—Average prices of corn for the week ending March 28:—Wheat, 32s. 7d.; Barley, 31s. 4d.; Oats, 20s. 10d. For the corresponding period last year:—Wheat, 38s. 1d.; Barley, 31s. 3d.; Oats, 19s. 10d.—On Wednesday scarcely anything was done. Wheat, both English and foreign, was in quiet request, and prices had a weak tendency. Flour was quiet, at previous quotations. For Barley the demand was inactive, at late currencies. Oats were in fair demand, at late rates. Maize sold slowly, on former terms. Beans and Peas were quiet, at late prices.

## HAY.

Tuesday's Whitechapel market report states that trade was dull for everything except best hay, which continues in demand. Supplies were fair. Quotations:—Clover, prime, 85s. to 107s.; prime second cut, 85s. to 105s.; inferior, 46s. to 75s.; hay, prime, 76s. to 95s.; inferior, 25s. to 60s.; and straw, 22s. to 35s. per load.—The Cumberland Market report states that there was a moderate supply, and no demand for inferior quality. Quotations:—Clover, best, 90s. to 105s.; inferior, 60s. to 84s.; meadow hay, best, 80s. to 90s.; inferior, 60s. to 75s.; and straw, 29s. to 34s. per load.

## POTATOS.

The Borough and Spitalfields Market report states that there has been a slow trade, at the following quotations:—Scotch Regents, 80s. to 95s.; Kent ditto, 70s. to 90s.; Champions, 40s. to 50s.; Magnum Bonums, 55s. to 80s.; and Victorias, 60s. to 90s. per ton.

## COALS.

The following are the prices current at market during the week:—Debside West Hartley, 14s. 9d.; East Wylam, 15s.; Walls End—Type (unscreened), 11s. 3d.; Hetton, 16s. 6d.; Hetton Lyons, 15s.; Lambton, 16s.; Wear, 15s.; East Hartlepool, 15s. 9d.; South ditto, 15s. 3d.; Ravensworth West Hartley, 14s. 9d.

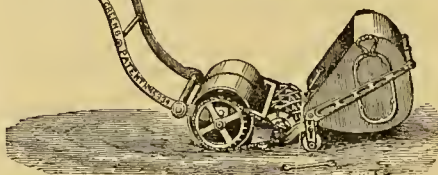
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Her Majesty the Queen and His Royal Highness the  
Prince of Wales.

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### "Silens Messor" and "Multum in Parvo" LAWN MOWERS

Have been proved to be the best, and they have carried off every Prize in all cases of competition.  
Every Lawn Mower is guaranteed to give entire satisfaction, otherwise they may be returned AT ONCE, free of cost to the Purchaser.

#### HAND MACHINES, "Silens Messor" Pattern.



To cut 8 in. wide .. £2 10 0	To cut 16 in. wide .. £6 10 0
To cut 10 in. wide .. 3 10 0	To cut 18 in. wide .. 7 10 0
To cut 12 in. wide .. 4 10 0	To cut 20 in. wide .. 8 0 0
To cut 14 in. wide .. 5 10 0	To cut 22 in. wide .. 8 10 0
To cut 24 in. wide .. £9 0 0	

For Donkey, Pony and Horse Machines, see Price List.

#### GREEN'S PATENT "MULTUM IN PARVO" MOWER.

Suitable for Small Grass Plots.

A most useful Machine.

Prices, with Grass Box:

£1 15 0
1 12 0
2 0 0

Prices,  
Without Grass Box:

To cut 6 in. .. £1 1 0
To cut 7 in. .. 1 8 0
To cut 8 in. .. 1 15 0

It is simple in construction, easily adjusted, is well adapted for mowing small plots, cutting borders, verges, round flower beds, the edges of walks, &c. It is a most handy, serviceable machine, and very easy to work.

#### GREEN'S PATENT GRASS EDGE CLIPPER.

With Chain and Wheel Motion.

A most useful Machine.

Price, £1 16s.

Packing Case, 2s.

SIZE,  
8 inches wide by  
7 inches diameter.



#### GREEN'S PATENT (No. 2412) LAWN TENNIS COURT MARKER.

Price 20s.

Small Bag of Marking Composition,  
Mat, and Packing, 1s. 6d.



Price List free on application.

The above Machines can be had of all respectable Ironmongers and Seedsmen in the United Kingdom, or direct from the Manufacturers.

## THOMAS GREEN & SON (LIMITED).

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Highest Award, Forestry Exhibition, Edinburgh.

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"Mr. Smith,—Dear Sir,—We have now tried your Insecticide on all the Insects we can find on any of our Plants, including Orchids, and used as directed by you we find it instant destruction to them all, while it neither stains nor injures the tenderest leaf. We shall in future use no Fire-tree Oil, or other Insecticide but yours.—We are, yours truly,  
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One Gallon of this Fluid, diluted with water according to directions, and applied with an ordinary watering-can,

Effectually Removes all Weeds, Moss, Worms, and Insects on Gravel Walks, Lawns, &c.

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FIBROUS PEAT FOR ORCHIDS, &c.—  
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LEMON OIL INSECTICIDE (Registered).

—Soluble in water. The cheapest, safest, and most effectual Insecticide extant. Harmless to flower and foliage, instant death to Mealy Bug, Scale, Thrips, Red Spider, Green and Black Fly, American Blight, Mildew, Ants, &c. As a winter dressing unequalled. See circulars, with testimonials, from many of the leading Gardeners on its behalf. Sold by most of the leading Nurserymen, Seedsmen, and Garden Maoure Manufacturers, in tins—per pint, 1s. 6d.; quart, 1s. 9d.; half gallon, 5s.; gallon, 9s. Directions for use with each tin. Wholesale, J. W. COOKE, Market Place, Winstford; and A. LAING, Rawcliffe, Selby, Yorks; also Messrs. OSMAN AND CO., 15, Windsor Street, Bishopsgate, London; and W. FRASER, 124, High Street, Perth.

Mildew and Other Hurtful Fungi, Red Spider, &c., Extirpated by

PHILIP HARRIS AND CO.'S specially prepared SULPHIDE OF POTASSIUM, which is very soluble. See article by E. TONKS, Esq., B.C.L., in *Gardeners' Chronicle*, February 23, p. 276, describing the great efficacy of this preparation, with which his successful experiments were made. Sold in Bottles, ONE SHILLING EACH (post-free), containing sufficient to make 32 gallons of solution, by the Sole Manufacturers PHILIP HARRIS AND CO., Wholesale Chemists, 9, Bull Ring, Birmingham.

Special quotations for large quantities.

PEAT.—Superior Black or Brown Fibrous PEAT, for Rhododendrons, Azaleas, &c., as supplied to Messrs. J. Waterer and other noted growers. Six tons, loaded on trucks at Camberley Station, S.W.R., £4 4s. Mr. W. TARRY, "Golden Farmer," Farnborough Station.



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and the JURY, in their REPORT,  
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"The 'ARCHIMEDEAN' did the  
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"The quickest, most simple, and  
most efficient mower ever used."—Vide  
*Gardeners' Chronicle*.

"We feel bound to recommend it to  
our readers as one of the best mowers  
we have as yet made acquaintance  
with."—Vide *Floral World*.

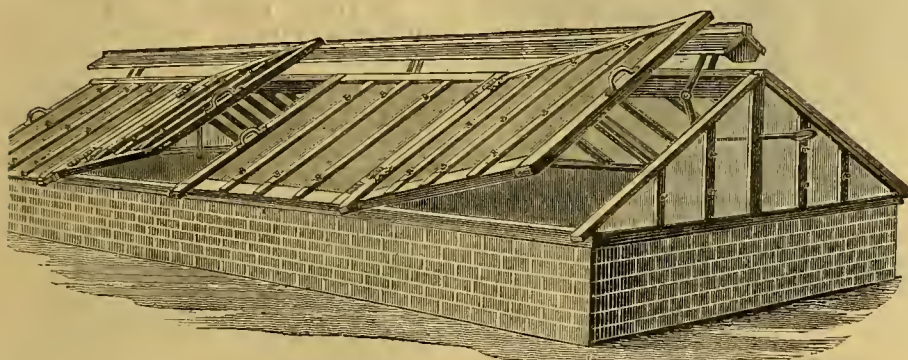
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The best and most effectual yet introduced.

**FOWLER'S LAWN SAND**, for destroying  
Daisies, Dandelions, Plantains, Ribbed Grass, Thistles,  
and other weeds on Lawns, Croquet Grounds, Bowling Greens,  
Parks, &c.: at the same time acting as a fertilizer, and improving  
the growth and colour of the grass. Price in tins, 1s., 2s., 6d.,  
and 5s.; kegs, 20 lb. 10s.; 56 lb. 10s.; 112 lb. 36s.

**GARDENER'S INSECTICIDE**, for destroy-  
ing all the various Insects infesting plants and trees. It  
is easily applied either by dipping, syringing, or sponging; will  
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for the special eradication of this most troublesome of  
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&c. It is easily and cheaply applied, and will not harm the most  
delicate plant. In bottles, 1s., 2s., 6d., 7s., and 12s. 6d. each.

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the prevention or destruction of Mildew on all plants. In  
bottles, 1s., 6d. and 3s. each.

**ELLIOTT'S IMPROVED "SUMMER  
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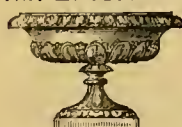
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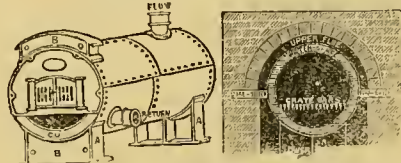
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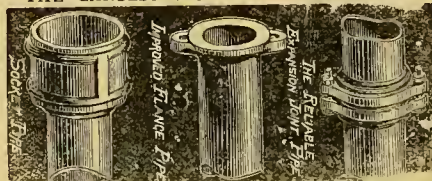
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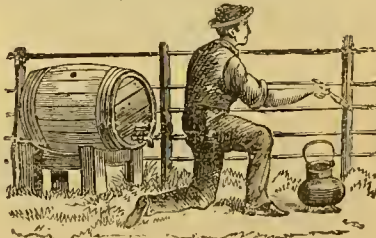
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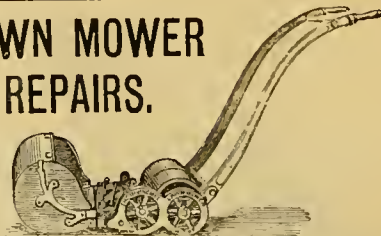
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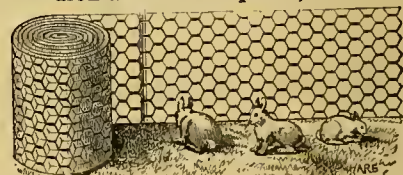
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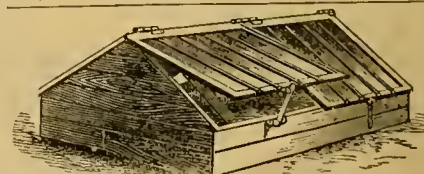


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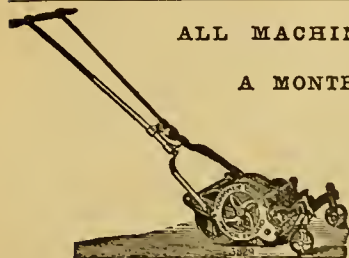
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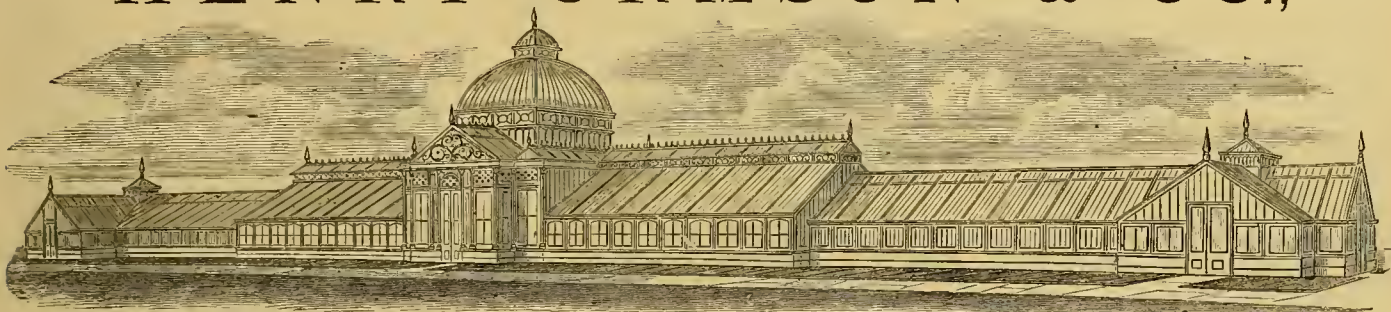
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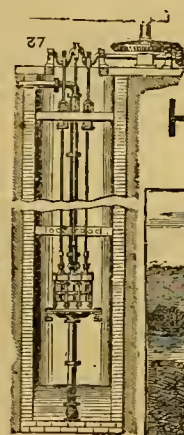
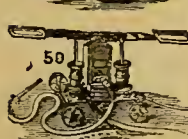
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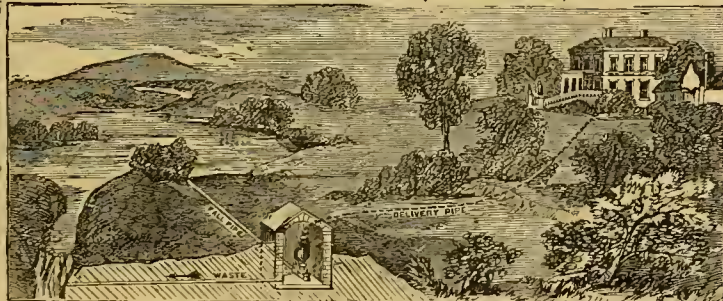


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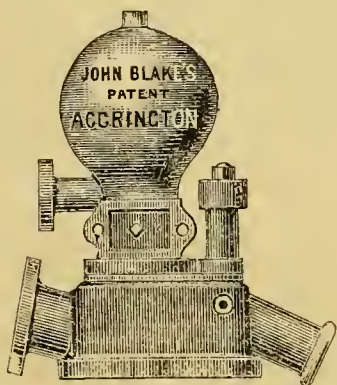
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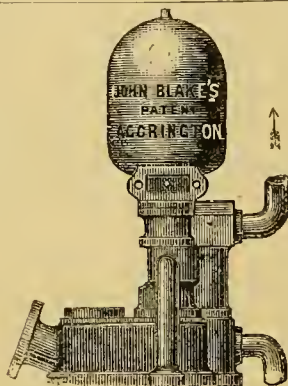
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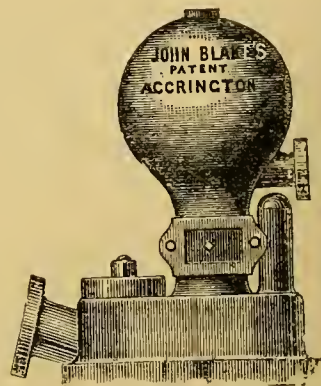
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GENERAL MEETING for the Election of Fellows, &c., at 3 P.M., on TUESDAY NEXT, April 14.  
Promenade and Small Band of the Royal Horse Guards from half-past 3 P.M. Admission 2s. 6d.  
N.B.—Entrances, N.E. Orchard House, Exhibition Road; and Exhibitors' Entrance west side of Royal Albert Hall.

## ABERDARE HORTICULTURAL SOCIETY AND COTTAGERS' SHOW.

The ANNUAL FLOWER, FRUIT, AND VEGETABLE SHOW will be held on THURSDAY, August 6 next. President: Right Hon. Lord ABERDARE. For Schedule of Prizes and full particulars, apply, on or after May 9, to  
D. DAVIES, } Hon. Secs.  
C. KENSHOLE, }

Aberdare, April 2, 1885.

## THE BURTON-UPON-TRENT CHRYSANTHEMUM SOCIETY

will hold its ANNUAL SHOW on NOVEMBER 18 and 19. For Schedules, &c., apply to  
R. B. BARRATT, Secretary.

Horninlow Street, Burton-upon-Trent.

## PELARGONIUMS.—10,000 fine, healthy,

bushy plants, in 5-inch pots, leading market varieties, 5s. and 7s. 6d. per 100; in bloom, 1s. 6d. per 100. Cash with order or reference from unknown correspondents.

Mrs. J. TURNER BROS., Nurserymen and Florists, Green Hill Nursery, Allerton, Liverpool.

## NEW RUNNER BEAN.—GIRTFORD GIANT (Laxton).—The finest and most prolific Scarlet Runner.

Special First-class Certificate at Shrewsbury, 1884, 2s. 6d. per half pint.  
T. LAXTON, Seed Grower, Bedford.

## Seed Potatoes.

H. AND F. SHARPE have still in stock all the leading kinds of SEED POTATOS, and are now offering them at reduced prices to clear out.

Seed Growing Establishment, Wisbech.

## Special Offer.

W. W. JOHNSON AND SON offer a few Tons of Sutton's Early Ashleaf Kidney POTATOS, good samples, true, and in fine condition.

Price 16 per ton, free on rail at Boston Station.

## CAULIFLOWER PLANTS, Autumn-sown,

hardy and vigorous, wintered under wall. Specially fine this season. 15s. per 1000 on rail; 2s. 3d. per 100 post-free.  
JAMES WILSON, Florist, St. Andrews, N.P.

## THE

Orchids.  
**PHALÆNOPSIS (the Moth Orchid), &c.**—Healthy, Specimen, and Smaller Plants, from 4 guineas a dozen. Offered through want of room.  
Address, A. BRIDGES, Adon Park, Dulwich, Surrey.

**EIGHTY THOUSAND CLEMATIS** in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.  
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

**FIVE THOUSAND PELARGONIUMS.** Must be sold. Clean, large bushy stuff, to flower early. Established in 48-pots, including all the best named varieties, as Dr. Masters, Duchess of Bedford, Bridal Bouquet, Kingston Beauty, &c., 7s. 6d. per dozen for cash. Also ditto in 60's, ready for 48-pots, at 4s. per dozen for cash.  
Address, MANAGER, The Hill Nurseries, Sandiacre, Notts.

**IRISH IVY**, strong, established in pots, 50s. per 100. **LIGUSTRUM**, 3 ft.; English YEW, 5 to 6 ft.; **LILAC**, 2 to 3 ft., and **COTONEASTER**. Prices per 100 to W. J. CHRISTIE, Leatherhead.

**Grand New Yellow Hybrid Perpetual Rose of 1885: GLOIRE LYONNAISE.**

**J. HOUSE** begs to offer splendid Plants of the above Novelty at 40s. per dozen. Cash with order from unknown correspondents.  
JOHN HOUSE, Eastgate Nurseries, Peterborough.

## SPRING CLEARANCE SALE,

to avoid planting.  
**LILIUM AURATUM**, SINGLE **DAHLIAS**, **IRIS**, **GLADIOLI**, **BEGONIAS**, and many other Bulbs, with some choice Seeds, at greatly reduced rates. Send for our Special Clearance LIST, No. 73.  
NEW PLANT AND BULB COMPANY, Lion Walk, Colchester.

## Hyacinthus candicans.

**BUDDENBROG BROS., BULB GROWERS**, Hillegom, near Haarlem, Holland, offer the above, splendid white flowering bulb, at 50s. per 1000.

**JERSEY CHRYSANTHEMUMS.**—All the best, New and Old. LIST free, from H. ELLIOTT, Springfield Nursery, St. Helier's, Jersey. Established 1834.

**CARNATIONS.**—Strong Seedlings, from a splendid Collection of Choice Named Flowers. All to bloom this year. Per dozen, 2s. 6d.; per 100, 15s.  
DANIELS BROS., Town Close Nurseries, Norwich.

**CARNATIONS, PICOTEES, CLOVES, PINKS, PANSIES**, in the very best varieties, strong, vigorous plants. Special Trade Quotations.  
SAMUEL HARTLEY, Headingly Nursery, Leeds.

## HERBACEOUS AND ALPINE PLANTS.

Now is the season to plant and insure success. Write for R. H. VERTEGANS' Pocket CATALOGUE, and make your choice from his unrivalled Collection.  
Chad Valley Nurseries, Edgbaston, Birmingham.

**CREEPERS** for Walls, Trellises, &c., in great variety. By planting what is suitable, an unsightly object may easily be made beautiful. Descriptive LIST and advice on application.  
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

**VERBENAS.**—Purple, Scarlet, White, and other best varieties, strong, well rooted cuttings, 6s. per 100, 50s. per 1000. Post-free for cash with order.  
KIRK ALLEN, The Nursery, Fen Drayton, near St. Ives, Hunts.

## LAING'S BEGONIA SEED.—GOLD MEDAL STRAIN,

from our Prize Plants. Sealed packets, CHOICE MIXED, from single varieties, 1s. and 2s. 6d. per packet; 5s. extra large packets. We regret to say we are sold out of Seed of Double varieties. COLLECTIONS, 12 named varieties, separate, 7s. 6d.; ditto, 6 named varieties, separate, 4s.  
LAING AND CO., Seedsmen, Forest Hill, S.E.

**GRAPE VINES**, well ripened, and SEAKALE. Low quotations to large buyers.  
WILL TAYLER, Osborn Nursery, Hampton, Middlesex.

**SQUELCH AND BARNHAM**, Long Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatos, Cucumbers, choice Flowers, &c.

**SQUELCH AND BARNHAM**, giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

**SQUELCH AND BARNHAM**, ACCOUNT SALES sent daily, and CHEQUES forwarded weekly.  
BANKERS and TRADE REFERENCES. BASKETS and LABELS supplied.

**WISE AND RIDES**, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS, CUCUMBERS, TOMATOS, FRENCH BEANS, Gros Colmar and Alicante GRAPES.

**SUTTON'S PRIZE LAWN GRASS SEEDS.** DIPLOME D'HONNEUR, AMSTERDAM, 1883.

**SUTTON'S PRIZE LAWN GRASS SEEDS.** Special Gold Medal, Melbourne, 1880.

**SUTTON'S PRIZE LAWN GRASS SEEDS.** Prize Medal, Paris, 1878.

**SUTTON'S GRASS SEEDS for GARDEN LAWNS.** Per bushel, 25s.; per gallon, 3s. 3d.

**SUTTON'S GRASS SEEDS for TENNIS LAWNS.** Per bushel, 22s. 6d.; per gallon, 3s.

**SUTTON'S GRASS SEEDS for CRICKET GROUNDS.** Per bushel, 22s. 6d.; per gallon, 3s.

**SUTTON'S PAMPHLET ON LAWNS**, their Formation and Improvement, gratis and post-free.

**SUTTON AND SONS, SEEDSMEN**, by Royal Warrant, to H.M. the Queen, and H.R.H. the Prince of Wales, Reading.

**TROPEOLUM SPECIOSUM.**—Strong Tubers. To ensure success now is the time to plant. Per dozen, 8s., post-free, Cash.

**HOWDEN AND CO., The Nurseries**, Inverness, N.B.

**TO EXHIBITORS.**—A Bargain.—Two extra large ANTHURIUMS to be sold cheap. In fine condition.  
THOMAS BURY, Arley Nurseries, Mellor, near Blackburn.

**Gardenias.**—Gardenias.

**JOHN STANDISH AND CO.** have to offer a splendid lot of GARDENIA PLANTS clean, bushy and well set, at the undermentioned prices for Cash with order:—In 5-inch pots, 18s. per dozen; in 6-inch pots, 27s. per dozen; in 8-inch pots, 40s. per dozen.  
Royal Nurseries, Ascot.

**GLADIOLI, PYRETHRUMS**, and **DAHLIAS**, the largest collections in Europe. CATALOGUES gratis.—KELWAY AND SON, Langport, Somerset.

**PAUL'S, WALTHAM CROSS.**—ROSES, TREES, EVERGREENS, SHRUBS, CLIMBING PLANTS, FRUIT TREES, GRAPE VINES, CAMELLIAS, BULBS, SEEDS, of every description, of the best quality, and low in price. See Priced Descriptive CATALOGUES, free by post.  
WM. PAUL AND SON, Paul's Nurseries, Waltham Cross.

**Plants for the Season.**

**CHARLES TURNER'S** Descriptive CATALOGUE, containing some fine novelties as well as the choicest selections of established kinds, is now ready. The present is the best time to procure plants of Carnations, Picotees, Cloves, &c., to ensure a good bloom. Plants are unusually fine this season. The Royal Nurseries, Slough.

**DWARF ROSES**, on the Seedling Brier, in leading Tea, Bourbon and Hybrid Perpetual Sorts, strong, well-grown plants at 20s. per 100, or 180s. per 1000.  
FREDERICK MÜLLER, Pinneberg, near Hamburg, Germany.

**BARR'S THAMES EMBANKMENT GRASS SEED**, as supplied by us to the London Embankments and Parks 21s. per bushel.

**BARR'S LAWN GRASS MIXTURE**, for Improving Old Lawns, Laying Down New ones, Cricket Grounds and Bowling Greens. Per lb. 1s. 4d., 25s. per bushel.

**BARR'S NEW MIXTURE of DWARF GROWING GRASSES** for very fine Lawns. 1s. 8d. lb.

**BARR'S GRASS MIXTURES** contain NO CLOVER.

**BARR AND SON**, King Street, Covent Garden, W.C.

**GRAPES THIS YEAR.** FRUITING and PLANTING CANES perfectly ripened without Bottom heat.

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

**CAULIFLOWER PLANTS**, Autumn-Sown, strong, 2s. 6d. 120, 18s. 1200. **CABBAGE PLANTS**, HERBS, LETTUCE, &c., PLANTS, cheap, carriage paid. LIST free of  
EDWARD LEIGH, Ivy House, Cranleigh, Surrey.

**Now is the Best Time to Plant.**

**EARLY PURPLE ARGENTEUIL ASPARAGUS.** The finest and earliest which comes into Covent Garden. Thirty stems, many 4 inches in circumference, have been grown on a single plant. 7s. 6d. per 100, seed 1s. 6d. per packet.  
T. LAXTON, Seed Grower, Bedford.

**Forcing Asparagus.**

**R. AND G. NEAL** beg to offer the above by the hundred or thousand (own growth, and transplanted last spring). Samples with Price on application. Also beg to call the attention of Nurserymen, Builders, and others to their exceptionally fine stock of FRUIT, FOREST, and ORNAMENTAL TREES and SHRUBS.  
The Nurseries, Wandsworth Common, S.W.



## SALES BY AUCTION.

Tuesday Next.

ODONTOGLOSSUM ROSSI MAJUS.

VEXILLARIUM.

EPIDENDRUM VITELLINUM MAJUS.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Messrs. F. Horsman & Co. to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheap-side, E.C., on TUESDAY NEXT, April 14, at half-past 12 o'clock precisely, a splendid importation of ODONTOGLOSSUM ROSSI MAJUS, their superb strain, in large masses; O. VEXILLARIUM, the beautiful spring and early summer flowering, rich-coloured form; EPIDENDRUM VITELLINUM MAJUS, true, large-bulbed strain, in fine masses; together with about 150 lots of CHOICE ESTABLISHED ORCHIDS, from Mr. J. E. Denny, of 82, Downs Park Road, Hackney, including many rare and valuable species.

On view morning of Sale, and Catalogues had.

Wednesday Next.

CARNATIONS and PICOTEES, ROSES, &amp;c.

**MESSRS. PROTHEROE AND MORRIS** will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheap-side, E.C., on WEDNESDAY NEXT, April 15, at half-past 12 o'clock precisely, 1000 LILIAM AURATUM, from Japan, 100 lots of choice CARNATIONS and PICOTEES from the celebrated Collection of Mr. Charles Turner, Royal Nurseries, Slough; 500 Standard ROSES of the best sorts from an English firm; ALEXANDER'S in bloom and other GREENHOUSE PLANTS, English-grown LILIES, an assortment of hardy BULBS and PLANTS for the garden, ANEMONES, GLADIOLI, PEONIES, and 400 GOLD FISH in suitable lots.

On view morning of Sale, and Catalogues had.

Friday Next.—Cattleya Mossiae.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheap-side, E.C., on FRIDAY NEXT, April 17, at half-past 12 o'clock precisely, a grand importation of CATTELEYA MOSSIAE, in finest condition; also Fifty Plants of a new variety of CATTELEYA MOSSIAE in flower and sheath, together with several large importations of MEXICAN ORCHIDS of value.

On view morning of Sale, and Catalogues had.

Ewell, Surrey.

By order of the Trustees of the late George Torr, Esq., IMPORTANT SALE of the celebrated Garbrand Hall COLLECTION of EXHIBITION STOVE and GREENHOUSE PLANTS, which have been exhibited at the leading Shows with such unprecedented success by Mr. J. Child.

**MESSRS. PROTHEROE AND MORRIS** are favoured with instructions to SELL by AUCTION, on the Premises, Garbrand Hall, Ewell, Surrey, on WEDNESDAY, April 22, at 11 for 12 o'clock precisely, the whole of the VALUABLE COLLECTION of EXHIBITION STOVE and GREENHOUSE PLANTS, including a large number of thriving young specimen Azalea indica, in grand order for successful exhibition; also fine examples of white Lapagerias, Stephanotis, Dracophyllum and other New Holland Plants; Tree, Filmy and other Ferns; the best Collection known of specimen Tuberosity-rooted Begonias, a large assortment of Bedding Plants, likewise a few unusually fine specimen ORCHIDS, amongst which may be specially mentioned:—  
Cypripedium Stonei (the charming Garbrand Hall variety, believed to be the only plant extant), 4 feet across.  
Aceris Fieldingii floribunda and A. Lobbi, both well-known plants.

Also Two One-horse Exhibition STANDS, complete. May be viewed the day prior to the Sale. Catalogues may be had on the Premises, of Mr. J. CHILD, and at the Auction and Estate Offices, 67 and 68, Cheap-side, E.C.

Flowering Orchids.—Special Sale.

**MESSRS. PROTHEROE AND MORRIS** beg to announce that their NEXT SPECIAL SALE of FLOWERING ORCHIDS will take place on TUESDAY, April 28, for which they will be glad to RECEIVE ENTRIES as EARLY as POSSIBLE.

Wednesday Next.—(Sale No. 6892.)

FLOWERING ORCHIDS.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, April 15, at half-past 12 o'clock precisely, a fine collection of ORCHIDS in flower, comprising many fine forms of Odontoglossum Alexandræ, amongst them one remarkably novel form, of which Professor Reichenbach's description will be shown; Dendrobium nobile elegans and D. intermedia, D. Jamesianum, Phalænopsis Stuartiana and P. speciosa, Masdevallias, Oncidiums, Cypripediums, &c.

On view morning of Sale, and Catalogues had.

Wednesday and Thursday Next.

10,000 LILIAM AURATUM, from Japan.

**MR. J. C. STEVENS** will include in his SALES, by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY NEXT, April 15 and 16, an importation of 10,000 splendid bulbs of LILIAM AURATUM, just received from Japan in the finest possible condition.

On view mornings of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6893.)

ESTABLISHED ORCHIDS.

**MR. J. C. STEVENS** will include in his SALE, by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 16, about 60 Lots of good established ORCHIDS, including many fine things.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6894.)

VALUABLE IMPORTED ORCHIDS.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY NEXT, April 16, at half-past 12 o'clock precisely, by order of Messrs. F. Horsman & Co., a splendid importation of LELIA ANCEPS, rich coloured forms; also CORVANTHES MACRANTHA, the finest specimens ever imported; SCHOMBURKIA TIBICINA, the finest specimens ever imported; CATTELEYA CITRINA, in large masses; EPIDENDRUM BRASSAVOLÆ, and ODONTOGLOSSUM ROSSI MAJUS—the finest strain in Europe.

On view morning of Sale, and Catalogues had.

Saturday Next.—(Sale No. 6894.)

Consignment of Plants from Holland.

**MR. J. C. STEVENS** will SELL by AUCTION at his Great Rooms, 38, Kings Street, Covent Garden, on SATURDAY, April 18, at half-past 12 o'clock precisely, a large consignment of SHRUBS, CONIFERS, RHODODENDRONS, KALMIAS, HOLLIES, EVERGREENS, ROSES, FRUIT TREES, and other plants from Holland; BORDER PLANTS in quantity, LILIIUM, GLADIOLI, &c.

On view morning of Sale, and Catalogues had.

**WANTED TO PURCHASE** during the next month or two, a good FLORIST'S, &c., Business within 10 or 15 miles of London. Must bear strict investigation. Reply in first instance to

A. H., Mr. Pearce, Station Road, Redhill.

Owing to Death of Occupier.

**TO BE DISPOSED OF, AT ONCE, LEASE, GOODWILL, and STOCK of MARKET GARDEN BUSINESS**, at Mickleover, consisting of Shop, Garden, and about 1600 super feet of Glass, heated by hot water, Garden well stocked with Fruit Trees. One mile from Mickleover Station, on G. N. R. (with or without Grassland). For particulars, &c., apply to

THOS. EVANS, The Green, Mickleover.

**Market Gardeners or Retired Farmers. TO LET, or to be SOLD, compact and small ESTATE**, at Bracebridge, about a mile from Lincoln, consisting of House, Garden, Barn, Cowsheds, Stable, &c., and 10 Acres of fertile Land.

**SMYTH BROTHERS, New Exchange Chambers, Lincoln. TO BE LET, or SOLD, about 4 Acres of MARKET GARDEN**, well cropped, with Two Cottages and Outbuildings. For terms apply to E. T., Elm Farm, Spring Grove, Kingston-on-Thames.

Stoke Newington, N.

**TO BE LET, a Small NURSERYGROUND**, with House containing 6 Dwelling Rooms, Glasshouse with Hot-water Piping, Boiler, &c. Rent moderate. Stock optional.

Apply to Messrs. BRAY, WEBB and CO., 14, Warwick Court, High Holborn, W.C.

**TO LET, The NURSERIES, Mill Hill**, near Hendon, Middlesex, late in the occupation of Mr. James Wright. There is a fair amount of Stock, &c., which would be offered on easy terms to a respectable Tenant. There is a cottage and about 5 Acres of Land. Application for terms, &c., to be made to

C. DRUMMOND, Estate Agent, Hertford, Herts.

**THE GATESHEAD PARK COMMITTEE** invite TENDERS for the ERECTION of a CONSERVATORY and PROPAGATING HOUSE in Saltwell Park.

Persons tendering are expected to furnish their own Designs, which must include the means of Heating and all other details. The Conservatory will front the West, on a nearly level frontage, and to the South on a slight inclination. A Plan showing the proposed site, with particulars as to level and inclination of ground, will be furnished on application to the TOWN SURVEYOR, Town Hall, Gateshead.

Tenders must be sent to the Town Clerk not later than APRIL 24. The Town Council do not bind themselves to accept the lowest or any Tender, nor will they pay any expenses which any person tendering may incur in the preparation of his Design.—By order, J. W. SWINBURNE, Town Clerk.

**PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS**, 67 and 68, Cheap-side, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

To Landed Proprietors, &amp;c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS. Plans prepared. 115, Listeria Park, Stamford Hill, N.

**JOHN KENNARD'S HORTICULTURAL SUPPLIES**, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

**CAMELIAS.—A Choice Private Collection** for Sale: 150 healthy Plants, in Tubs, from 3 to 7 feet high. GARDEN, 97, South Street, Exeter.

To the Trade.

**W. W. JOHNSON and SON, SEED GROWERS and MERCHANTS**, Boston, offer Choice Selected Stocks of Home-Grown SWEDES, Yellow and White fleshed TURNIPS, MANGELS, &c. Lowest price, stating requirements, &c., on application. Seed Warehouses, Bridge Street, Boston, Lincolnshire.

Clapton Nursery, London, E.

Bush Hill Park Nursery, Enfield, N.

At the above-named Nurseries are cultivated, in large quantities, Azaleas, Bouvardias, Camellias, Climbing Plants, Cyclamen, Epacris, Ericas, Ficus, Fruit Trees, Gardenias, Genistas, Grape Vines, Greenhouse Plants in variety, Orchids, Palms, Pelargoniums, Rhododendrons, Roses, Shrubs, Stove Plants in variety, &c.

The glass structures cover an area of upwards of 236,000 superficial feet.

HUGH LOW &amp; CO.

cordially invite Gentlemen interested in Horticulture to inspect the Nurseries.

**NOW IS THE BEST TIME TO PLANT BOTH.**

**PRICKLY COMFREY**.—We offer crown sets, which are superior to roots, at 2s. per 1000. The root is said to be an excellent remedy for coughs and colds in horses and other animals.

**GIANT ASPARAGUS**.—Splendid roots, from sandy loam, in four sizes, 15s., 21s., 30s. and 40s. per 1000.

Trade prices on application.

HARRISON &amp; SONS, Seed Growers, LEICESTER.

## CABBAGE PLANTS!—CABBAGE

PLANTS!—Fine autumn sown plants, Early Battersea, Enfield Market, Rainham, and Nonpareil, 3s. per 1000; Red Drumhead (true), 5s. per 1000. Sprouting and Spring BROCCOLI of sorts, BRUSSELS SPROUTS and SAVOYS, 3s. 6d. per 1000. The above are healthy and well-rooted. Delivered free on rail. Cash or reference must accompany all orders from unknown correspondents.

W. VIRGO, Womersley Nurseries, Guildford, Surrey.

Surplus Stock of Pelargoniums.

SHOW, SPOTTED, FRENCH, and FANCY.

**N. LAWRENCE and SON** have to offer a very fine stock of the above, in 48's, at the following low price for cash with order, including package free on rail; very fine bushy stuff, now full of flower-buds and ready to open, at 12s. per dozen, two dozen for 18s.; 50 for 30s.; sample half-dozen, 7s.; ditto, very good, to flower later, 9s. per dozen, 14s. for two dozen, and 25s. for 50; sample half-dozen for 6s., selection left to N. L. & Son. Much cheaper by the 100 or 1000. Their stock, upwards of 200 varieties, includes all the best Covent Garden and Show varieties. Send for samples.

The Burnfield Nurseries, Chatteris, Cambs.

Seed Potatoes.

JOSIAH H. BATH,

York Street, Borough Market, S.E.

Offers the following varieties of SEED POTATOES:—

Rivers' Royal Ashleaf.	Fortyfold.
Myatt's Prolific Ashleaf.	Scotch Regent.
White Elephant.	Vergent.
Beauty of Hebron.	Pateron's Victoria.
Snowflake.	Redskin Flourball.
Schoolmaster.	Reading Hero.
Early Rose.	Dalmahoy.
Magnum Bonum.	Early Don.

And other leading varieties. Prices on application.

**LILIAM AURATUM.—Special Offer.**—Now is the best time to plant. Splendid firm sound bulbs, just arrived, 6 to 8 and 8 to 10 inches in circumference, 28s. and 35s. per 100, 4s. and 6s. per dozen. The cheapest for quality ever offered. Samples 12 stamps.

**SEED POTATOES.**—For Special Prices see former advertisements.

MORLE and CO., 1 and 2, and 162, Fenchurch Street E.C.

## SURPLUS STOCK.

Special offer of Nursery Stock:—

FIR, Scotch, 3 to 5 feet, 2-yr., 2-yr.
„ Spruce, 2-yr., 3-yr.
LARCH, 2-yr., 2-yr., strong stuff.
BIRCH, 2 to 3 feet.
ALDER, 1½ to 2 feet.
ASH, Mountain, 4 to 6 feet.
LABURNUM, 4 to 5 feet.
WYCH ELM, 5 to 6 feet.
SYCAMORE, 4 to 6 feet.

Prices on application.

JOS. TREMBLE and SON, Nurserymen, Penrh.

New Kidney Potato.

**BIRD'S DOCTOR BOB.**—This is the earliest Kidney variety in existence; a very heavy cropper, as many as sixty tubers of all sizes have been counted at a root. It is a seedling from Early King. After a trial of several years it has never taken disease. Eyes very shallow; a good cooker, and fine flavour. 5s. per stone.

JAMES BIRD, American Nurseries, Downham Market.

Prize Florists' Flowers.

**JOHN DOWNIE** begs to intimate that his CATALOGUE of the above is now ready and will be sent post-free on application. It comprises the finest varieties of Pansies, Violas, Pentstemons, Phloxes, Antirrhiums, Dahlias, double and single, &c.

As I am now in business solely on my own account, and from a long and varied experience in the cultivation of Florists' Flowers, purchasers may rely on nothing being sent them but what is really first-rate. Selection and collection is my style of doing business.

Beechhill Nursery, Murrayfield, Edinburgh.

## CHRYSANTHEMUMS.—Specialty.—420

varieties, guaranteed true to name. One of the largest and cheapest Collections in the Trade. Plants, purchaser's selection, 2s. 6d. per dozen, 16s. per 100; cuttings, 1s. 6d. per dozen, 10s. per 100; W.E.'s selection, cheaper. For the new English and Continental varieties see CATALOGUE, with Essay on Cultivation, one stamp.

W. ETHERINGTON, The Manor House, Swanscombe, Kent.

Verbenas.—Verbenas.

**JOHN SOLOMON** offers good, strong, well-rooted Plants, perfectly free from disease. Scarlet, Purple, and Lark, 6s. per 100, 50s. per 1000.  
**LOBELIA, PUMILA MAGNIFICA**, 2s. 6d. per 100, 20s. per 1000. Package included. Terms cash.  
Queen's Road Nursery, Walthamstow, Essex.

**AZALEAS.**—Grand large plants coming in bloom. Double Whites and other fine kinds, 20s. per dozen.—W. JACKSON, Blakedown, Kidderminster.

Surplus Stock.

**N. LAWRENCE and SON** have to offer several thousands of the following at the under-mentioned low prices, free by post, or free on rail, including packages:—PETUNIAS, very fine, single, in variety, at 6s. per 100; IRESINE, 5s. per 100; LOBELIA, new Swanley Blue, 4s. per 100. Cheaper by the 1000. All orders must be accompanied with cash.

The Burnfield Nurseries, Chatteris, Cambs.

## FERNS A SPECIALTY.

Hundreds of Thousands of

FERNS and SELAGINELLAS,

for Stove and Greenhouse Cultivation, and Outdoor Ferneries.

## ABRIDGED CATALOGUE

of over 1200 Species and Varieties free on application.

**LARGE CATALOGUE** (price 1s.), containing 75 Illustrations of Ferns and Selaginellas, valuable "Hints on Fern Culture," and other useful and interesting information.

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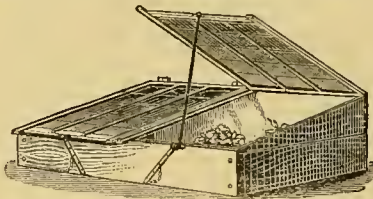
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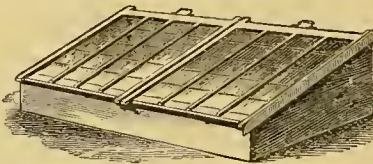
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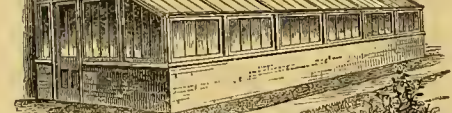


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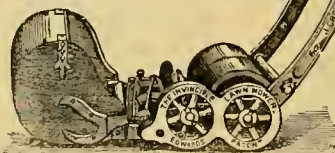
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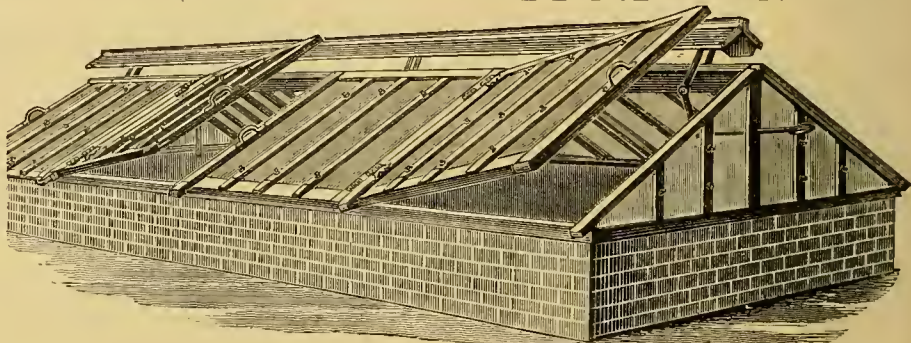
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**DANIELS BROS.,**  
NURSEYMEN AND FLORISTS,  
NORWICH.



THE

# Gardeners' Chronicle.

SATURDAY, APRIL 11, 1885.

## COWPER'S COUNTRY.

**A**MONG the numerous homes and haunts of English poets none have attracted so many visitors as Cowper's red brick house in the High Street at Olney, and "The Lodge" at Weston Underwood. At one or other of the dwellings, surrounded by friends and neighbours, he wrote *The Task* and *Table Talk*, described his garden and greenhouse, "Warm and snug, while the winds whistle and the snows descend." And here he described the fireside pleasures of a winter evening in this simple verse:—

"Now stir the fire, and close the shutters fast,  
Let fall the curtains, wheel the sofa round,  
And while the bubbling and loud-hissing urn  
Throws up a steamy column, and the cups,  
That cheer but not inebriate, wait on each,  
So let us welcome peaceful evening in."

The Americans, having but a short history and few shrines at home, are particularly fond of coming on pilgrimage to England, and especially to the home of Cowper, the poet of Nature and of rural life. They come by rail in haste, spring-heeled travellers as they are, doing England in a few jumps. I entered Olney after slow tramping through the meadows, the spire long in sight, reaching it by the bridge of many arches,

"That with its wearisome but needful length,  
Bestrides the wintry flood."

Here in Olney and its lanes

"Of grassy swarth, close cropp'd by nibbling sheep,"

pilgrims to the spot discover the "local habitation" of the muse. Here stands the Apple tree planted by the poet; here grew the

"Rose just washed in a shower;"

and here the most truthful of observers sketched

"Yon cottager that weaves at her own door,  
Pillow and bobbies all her little store."

In Cowper's summer-house, at the end of his garden, he spent a large part of his leisure, wrote most of his letters, and several of his popular poems, and thus he sang of it—

"Oh, bless'd seclusion from a jarring world,

Had I a choice of sublunary good,  
What could I wish that I possess not here?  
Health, leisure, means to improve it, friendship, peace!"

In this same summer-house Cowper and Mr. Newton wrote those exquisite and simple verses of the "Olney Hymns."

On entering the village, after passing through a level tract of country on the banks of the oft-flooded Ouse, the native home of ague and "rheumatics," one naturally recalls that old rhyme which Cowper introduces in one of his minor poems—

"Sle slay, slud, stuck in the mud,  
Oh, it is pretty to wade through a flood."



Cowper's cellar, in the winter, we are told, was often filled with water—poor liquor for a cellar—and in the same season of the year a damp and fishy fume pervaded the locality, breathing of marsh miasma. The "trunk drainage" was defective, and the river flowed down the meadows slowly with many windings. The distance from Olney to St. Neots as the crow flies is 20 miles, but the "far wandering" stream, as Drayton called it, that

"In labyrinth-like turns and twinings intricate  
Through these rich fields doth run,"

measures 70 miles in its tortuous course.

"A good view of the Ouse and its meadows is obtained from the 'cliff,' a short distance from Olney on the road to Weston Underwood. The poet and Mrs. Unwin walked to this spot almost daily, during many years, before they removed to Weston, and it was here that their companion and favourite, the spaniel "Beau," earned such immortality as a poem may confer, when he plunged into the river and brought a Water Lily ashore and laid at his master's feet. A mile further on we reach Weston and "the Lodge," where Cowper spent many happy days and wrote his pleasantest poems, nearly the whole of "The Task" and "Table Talk," and many of the short poems.

Many persons must have experienced disappointment in visiting the sites of interesting events or the homes of great men. The battle of Hastings was an event of no small interest in English history; you visit the spot, refresh yourself—weather being hot—with ginger or other ale at an ordinary inn, and stroll out to the rear of the houses in the street of Battle.

It would be useless asking, "Please where was the Battle of Hastings fought?" so you consult Mr. Freeman's map, and then look around. And this is all you see—pastures, a Hop gardeo, and the backs of the houses with clothes hanging out to dry. But poets are greater than conjurers, and they leave deeper marks. These you will find where Cowper rambled, and where we, following his footsteps with *The Task* as our guide, feel our affections and our sympathies moved as his were, and by the same incidents and scenes. "The sheep fold here," he says, "pours out its fleecy tenants o'er the glebe." How simple and how apt! We stand at the field gate and behold this same hurried movement of the "silly sheep" just as the poet did sixty years ago, and we feel that such inimitable descriptions must remain for all time. At the end of a rural lane that he tells of, we may meet the "boorish driver" and his "loaded wain," as in these verses:—

"There from the sunburnt hayfield homeward creeps  
The loaded wain; while lightened of its charge,  
The wain that meets it passes swiftly by,  
The boorish driver leaning on his team."

Not less attractive is the minutely drawn picture of a woodland scene diversified with trees, "alike, yet various," I believe the closest observer will find the following description accurate:—

"No tree in all the grove but has its charms,  
Though each its hue peculiar; paler some,  
And of a warmish grey; the Willow such  
And Poplar, that with silver lines his leaf,  
And Ash far stretching his umbrageous arms;  
Of deeper green the Elm; and deeper still  
Lord of the woods, the long-surviving Oak.  
Some glossy-leaved, and shining in the sun,  
The Maple, and the Beech, of oily nuts  
Prolific; and the Lime, at dewy eve  
Diffusing odours; nor unnoted pass  
The Sycamore, capricious in attire,  
Now green, now tawny, and ere autumn yet  
Have changed the woods, in scarlet honours bright."

I shall not venture to supplant a poet who has so minutely described the scene of his daily walks, in sketches like these. The guide-book to Weston is "The Task," where the scenes around his home are all described, from the humble dwelling which Cowper named the "peasant's nest" (now a farmhouse) to his favourite resort, the park and shrubbery of Sir John Throckmorton (known as "Benevolus" in "The Task"), who provided the poet with a key of his grounds. The Manor House, which was then attached to the small estate of the old family of Throckmorton, was pulled down half a century ago, but the outbuildings, park, and "pleasance" remain, awaiting the restoration of the hall.

In this "wilderness" you will find a bust of Homer out in the cold among the evergreens, with an inscription in Greek, "done into English" by Hayley, thus:—

"The sculptor, nameless, though once dear to fame;  
But this man bears an everlasting name."

In this same "wilderness," close to the Baronet's roof-tree, on the very spot where the hounds broke in and killed the fox in the presence of the family and of Cowper and Mrs. Unwin, who were walking there, a couple of uros, green with moss, and inscribed with Cowper's playful verses were placed by Sir John over the graves of "Neptune," his favourite pointer, and "Fop," his lady's spaniel. Two representative institutions in the village, of course, remain—the church, and "Cooper's Oak"—

"Time made thee what thou wast—King of the Woods,  
And time has made these what thou art—a cave  
For owls to roost in!"

These verses, however, refer to Yardley Oak, a tree known in the country by the name of "Judith," a niece of William the Conqueror, and elsewhere known as "Yardley Oak," from the name of the Chase in which it stands. The "Oak" in the village, now called "Cowper's Oak," is the inn in which, with its successors, will probably stand as long as thirst remains in the land, and "accommodation for man and horse" shall be required at Weston—longer, we may hope, than the pyramids of Egypt.

"The Lodge," which was the gift of Cowper's cousin, Lady Hesketh, is a cheerful looking house, having the aspect of a country vicarage. It looks like the residence of people who are happy, and here amid cheerful scenes, among dear friends, in the constant society of his old friend, Mrs. Unwin, well employed and well amused, with his books, and his pets, and his best thoughts, the heavy clouds that beset him elsewhere cleared away. But we are told that "coming events cast their shadows before," and on a shutter in Cowper's bedroom we mark the shadow of impending evils. In July, 1795, he left Weston for ever, and on the shutter we read this couplet, written by himself, in pencil—

"Farewell, dear scenes, for ever closed to me!  
Oh! for what sorrows must I now exchange you!"

The prophesy fell true. At East Dereham, where he spent his last days and was buried, small joy awaited him. *H. E.*

## New Garden Plants.

### IRIS RETICULATA VAR. SOPHENENSIS.

IN October last Mrs. Barnum, of the Mission, Kharput, Asia Minor, kindly sent me bulbs, gathered from the sides of the hills near Kharput. The bulbs themselves did not seem to me to be in any essential respect different from those of ordinary *I. reticulata*, but their flowers, which appeared on February 14, proved that I had obtained a new and distinct variety of the species.

The form is not very different from that of the type, but the claw of the fall is distinctly narrower than the lamina, instead of being nearly as wide, and the lamina is elliptical, ending broadly and obtusely instead of being pointed. The standards are relatively to their length broader than the type in the lamina, which also ends obtusely, and the claw is more distinctly canaliculate. The style is more decidedly triangular, with crests more divergent than in the type. The falls are more spreading than in the type, making an angle of a few degrees only with the horizontal, whereas in both the type and the Krelagei variety this angle is one of nearly 45°. The standards instead of being vertically erect diverge somewhat outwards; and the whole flower is small, and especially dwarf, reaching only about 2½ or 3 inches from the ground, the tube and spathe-valves together being about 1½ inch long.

In colour the plant is very distinct both from the blue-purple type and the red-purple Krelagei. The lamina of the fall is of a light reddish-purple, marked in the median line by a low ridge of an orange-yellow hue, not so bright or full as in the type. Along the claw this ridge or signal is continued as a

low wavy yellow crest, marked by dark spots. On each side of this crest is a yellow band marked with dark purple spots, and from this band veins diverge, bluish-purple at first, but becoming redder near the edge where they are confluent into a reddish-purple ground. The standards are of a reddish-lilac, with hardly visible veins.

The styles have a very peculiar colour. The upper surface for about the median half is a blue with a peculiar metallic sheen; this on each side gradually changes into a light reddish-purple. Veins of a similar blue are seen on the median side of the upper surface of the crests, which are otherwise of a reddish-purple. The under-surface of the styles is similarly blue in the middle and reddish-purple at the edges. The anthers and pollen are of a dead white.

The leaves are tetragonal, quite similar to those of *reticulata*; but these either do not appear until after the flower, which thus arises naked from the ground, guarded by the spathe valves and sheath only, or acquire at most the height of an inch or so at flowering time, whereas both in the type and in Krelagei the leaves are several inches high at flowering time, generally overtopping the flowers, and in *I. histrio* they are higher still.

The differences of form mentioned above do not seem to be very great, yet they—especially with the differences of colour, the short stature and the absence of leaves—suffice to give the plant so distinct an appearance that every one on seeing it would say it was something new. Still, for reasons which I will give in a subsequent note on the whole *reticulata* group, I conclude that the plant ought not to be considered as a new species, but as a new and distinct variety, or at most a subspecies; and I propose accordingly to call it *I. reticulata* var. *sophenensis*, from Sophene, the old name of the district around Kharput.

As a garden plant viewed with regard to its beauty, it is distinctly inferior to the type, and inferior even to the better forms of the Krelagei variety. And it is not at all fragrant. Still its peculiar colouring, its dwarf habit, and even the absence of foliage at flowering time, give it a charm of its own.

ODONTOGLOSSUM ANDERSONIANUM, *Rehb. f.*,  
AND HEBRAICUM, *Rehb. f.*

I have before me a rich inflorescence kindly sent by Mr. W. Lee. Among the numerous flowers of the first is one of the second, and this gives a fair idea of the value of these differences we have to consider, and which would have been multiplied *ad infinitum* if the wishes of certain correspondents had been fulfilled. It is after all as great a satisfaction to obtain such fine specimens as this was, as it is shocking to get a single crushed flower where well preserved flowers should be the basis of operations. It is just impossible to name with certainty miserable scraps, whatever may be their origin. I could not help refusing the other day to receive a Continental box, as I knew beforehand that it would contain once more single flowers in miserable condition. *H. G. Rehb. f.*

### DAFFODILS.

N. OBVALLARIS, FL.-PL.—I send herewith a flower of the double Tenby Daffodil, the first example I have seen, although many spurious double Tenbys have been offered in florists' catalogues. I send three examples, which will, I hope, be examined, with reference to the report on the doubling of Daffodils, for the Conference Committee. The first is a wild Tenby Daffodil, having the usual six perianth segments, six stamens, and one three-lobed pistil. The second is what I take to be the first stage of doubling. It has eight perianth segments, eight stamens, and the stigma is four-lobed. The crown also has eight notches. It is a remarkably sturdy flower, and the ovary is very full, so that it would evidently have produced a very strong crop of seedlings, of which some might possibly have been doubles. The third is a full double Tenby Daffodil, an exact double, there being evidently a double set of perianth segments, and a double set of crowns, broken up into a rose Daffodil. All these occurred wild in the neighbourhood of Tenby, and are, I consider, a very interesting set of examples of the passage from the single to the double in a wild state. The full double occurred on the site of an old garden, where a college stood some twenty years ago; but the whole place is now a field.



Perhaps the good soil of the old garden had something to do with the doubling, but the specimens show that the single Tenby produces a double Tenby of the same character. From my point of view I see herein also a further confirmation of my theory that doubling is produced by seeding, although I am quite open to admit that doubling may also come by other favourable circumstances.

In the *Gardeners' Chronicle* for May 10, 1884, p. 606, I gave an account of the doubling of the white *N. moschatulus* in the gardens of Mr. Elwes and Mr. Dillwyn Llewellyn, in both of which cases the single wild form and the double occurred in close proximity, and I advanced reasons for thinking that the doubling came by seeding.

Dr. Browne, of Hull, gives a very interesting account in the *Garden* (p. 265) of the raising of his double *N. nanus*. He says that he grows some hundreds of *N. nanus*, and every year collects seeds, which he sows in spare beds. The seedlings are left to take care of themselves until they are large enough to transplant, and that the flowers sent by him to the Conference last year were the produce of one of these bulbs, and that he has two or three more bulbs which he expects will turn out to be doubles. Here we have direct proof that doubles come as seedling varieties.

#### DOUBLE DAFFODIL SEEDING.

Your columns for 1884 contained many notes upon this subject, after I had raised it, at the Conference, and on reading them afresh it is interesting to note the progress which has been made in proof of it since that time. Mr. Barr challenged me to show ripe seeds of the double *Telamonius*, and this was in due time accomplished. We have now a nice little crop of seedlings grown from seeds of this double Daffodil. Mr. Wolley Dod (*Garden*, March 21, p. 232) reports that Mr. Tyerman finds that his double *Telamonius* produce seed freely, and he finds that they produce doubles like themselves by seeding. I think therefore we may consider this part of the question settled, so there only remains the further one, which may be said to be Mr. Wolley Dod's query—Does our wild *Pseudo-Narcissus*, by cultivation, become *Telamonius plenus*? For the solution of this we must wait the result of the labours of the committee. *Wm. Brockbank, Brockhurst, Didsbury, March 28.*

#### NOTES FROM A BUCKINGHAMSHIRE GARDEN.

MARCH 12.—I waste my time just now in observing from the window a pair of little blue titmice. They mean to build in the Ivy and Roses that cluster round the old Stone Pine; not, I think, in the rustic back mansion placed ready for them in a Yew tree hard by. These titmice are the gracefulest little things imaginable: flitting about like airy living leaves, their colour a lovely grey-green flashed with blue. One never tires of following with the eye their pretty graceful movements while they are on the hunt in and out of the branches. Nothing can exceed their animation and grace as they turn and twist upon a small square of bacon-fat made fast to the end of a long string. This dainty hangs all the winter from the tree for the tomtits' especial benefit. They are tame also, and, like all very little birds, are seemingly not able to take in the idea of a large human being. Quite unlike this small fearlessness of titmice is the impudent effrontery of our little ne'er-do-weels—the sparrows. Their familiarity seems to have no touch of kindness in it. I do not blame them. It is the shape of their blunt coarse beaks that affects their whole nature! The sparrows' perverseness increases, and the friendlier we are to them the worse they behave. They tear up into shreds our beautiful yellow Crocuses, but mainly the yellow. The white and the lilac are left comparatively unmolested, and they seem to attack only the beds in full sunshine. Crocuses, I feel sure, never before suffered from sparrows as they do this season. The Sea Purslane also, which luxuriates in our warm soil, has been persecuted all the winter, and is now stripped nearly bare of leaves. I believe this ferocity (for it is nothing less) of our sparrows is to be attributed to the unusual dryness of the weather following the extreme dryness of last summer. Want of food it cannot be, for all our beloved birds have been fed throughout the winter. Moisture is sought by them in the honey-drop within the Crocus flower, and in the rather fleshy foliage of the Sea Purslane. In the

spring the sparrows will amply pay for the sorrows they cause us now, and the more sparrows' nests the fewer grubs there will be to plague us. The sparrow's eye for colour (one would guess that flaunting yellow would be their chosen colour) is not the same as the hive-bee's. Bees seem to avoid the yellow Crocus, while they love the white, the purple, and the striped. I have watched them of late when the sun has been warm and bright. I do not know if hive-bees carry on into the summer their objection to yellow; it is certain, however, that in Sunflower time the yellow Sunflowers are visited by humble-bees only. One division of our Crocus enemies has been partly checkmated by the simple plan of putting in the bulbs very deep; the mice do not quite so easily get at them. Numbers have also been successfully trapped. Hares, on the other hand, have annoyed us more than usual. A long row of fine young Wallflowers have been devoured by them, besides scores of Carnations in the Boccage—the hares and I agreeing in our love for Wallflowers, only their fancy is for the leaves, not the flowers. (Poor hares! It is little consolation for our loss to remember that they were all shot and roasted for dinner, after they had done the mischief!)

Charming as masses and lines of Crocus are in the borders and parterres, to enjoy them thoroughly they must be growing in the green grass, and they must be spreading themselves wide open to the sunshine at mid-day. The orchard is gay with broad patches of yellow Crocus—remnants torn from the field of the Cloth of Gold; and the banks of our tiny watercourse is a long green cloth laid out with services of amethyst and silver cups. Within the garden pure white and golden Crocus sprinkle the turf round trees and elsewhere, where their leaves need not be mown off too soon.

All this should be in the past tense, for the Crocus has already seen its prime, and the remaining few look pinched under the East Wind's bane. How strangely vivid, with how great tenacity, will some very little unimportant scene or feeling sometimes cling to the memory through all the years. Thus, with February's first purple Crocus for me unfailingly arises in a far-off tender light the vision of some forgotten garden wilderness, enclosed with trees, beyond the town, where my mother and I once walked together. There, as we rested under the trees, appeared before us a solitary purple Crocus, shining on the grassy lawn! After years, whose number one scarcely cares to count, that moment's joy is in sober truth recalled as the most exquisite of a whole long life-time. On the old brick south wall of the kitchen garden our only plant of *Pyrus japonica* is arrayed in finer bloom than usual. Hardly an inch of brown wood shows between the clustering red of a thousand rich and brilliant blossoms. Last autumn the fruit ripened—or, to be truer, hardened—upon it in large green apples of a Pippin shape. What an old-fashioned shrub it is! and how seldom seen but in old gardens; and how, in these days, one never thinks of planting a new one. About the roots of the *Pyrus japonica*, and along the narrow border at the foot of the wall, is a delicious tangle of Iris, Violets, and Rosemary, *Narcissus* of the less common kinds, with many a sweet South-loving plant that has got there one knows not when nor how. Amongst them is a Star of Bethlehem, and in the wall itself grow bunches of yellow *Fumitory* (*Corydalis lutea*) just coming into flower; and there is a seedling Holly, and a little starved Yew niched in a cranny near the top, and there are patterns in grey lichen scrawled upon the red brick. The *Polyanthus* *Narcissus* under the wall—roots that have been turned out of the greenhouse after flowering in days gone by—are luxuriantly beautiful this season. Their petals are the clearest yellow, and the cups deep orange, most richly scented. The orange centres seem to gather in and hoard all the sunshine that has ever shone upon them, giving it out again in living sun-gold even in dull weather. The delicate lilac flowers of *Iris cristata*, sheltered among the thick-growing bushes of dark green leaves, are blooming abundantly. There have been hundreds of blossoms, and we have never been without them since December, for we had them under glass all January till February, when we began to perceive a lilac glow among the leaves in the open air. These Irises bloom here at precisely the same time with those of the same kind in their own warm sun-steeped land. They could not flower here so early but for the sheafs of sheltering leaves which almost hide them from sight. Few things look more charming for the table than the transiently perfumed *Iris ensata*! One evening we had them

arranged in knots, with *Mignonette* and sprays of lemon-scented *Pelargonium*, toned with the brown of *Cryptomeria elegans*. One often hears a gardener's arrangement of flowers reviled as stiff, or garish; yet this lovely contrast of lilac, green, and brown was only a gardener's nosegay! As a decoration it might have been deemed pallid, but for the presence of glasses filled with deep coloured *Primroses*, *Dog's-tooth Violets*, and *Glory of the Snow*—all resting against the brown. The tips of *Cryptomeria* used in this way are neither stiff nor heavy, but full of the lightest grace.

MARCH 22.—Before six this morning the tame robin sang such a brilliant brief fantasia in the *Magnolia* just outside my window, that when the shutters were opened it was a surprise to see heavy snow falling. Snow is as good as change of scene to us home-keeping folk. Our view from the windows is transformed. The large *Ilex* Oak drooping under its load of snow looks more like a Yew, or some kind of Fir tree. The outline and character of the Stone Pine is entirely changed. "Deborah" and the sundial stand out boldly sculptured in black and white, as every day they certainly are not. The parterre with its Crocuses is gone; the grass and the walks are nowhere. Branching Elms in the background are almost as much increased in size by the snow crystallising over every slender twig, as in summer by their leafy millions. But all this proved only a dissolving view: by noon the grass appeared again, green as an emerald, and the thrushes were loudly rejoicing. The Yews will smoke no more after such heavy snow! On bright afternoons, chiefly during the earlier part of the month, it was exactly as if smouldering fires burnt within some of them; so hidden were they in clouds of smoke. There must have been always a light breeze stirring at the time; but the air would mostly seem unusually still when this smoke arose. And then, when it cleared off, the Yews were like "dusty millers," powdered over with pollen. One or two of the younger Yews (they never flower profusely until they are many years older), give "the idea" of bursting into fresh green buds of spring all over them, at the points of almost every twig. Buds, however, they are not, only mischievous imitations; or a sort of gall made by insects [mites]. Nothing can be discovered by pulling these buds to pieces; at least, after minute examinations, we have never been able to find the insect inside. When the days are warm and dry I have often worked for an hour or so at one time pulling off the growths as high as I can reach all round the trees, but the result is small; they soon come again as thick as ever. My favourite, *Garrya elliptica* is in beauty now, growing against the east wall of the entrance court. A soft veil of catkins enshrouds the tree from its top downwards; each long catkin, just tinged with a rosy bloom, is delicately outlined against the dark round-leaved foliage. I can fancy the *Garrya* standing alone, thus softly veiled, upon the open sward—how beautiful it would be! But if this ever happens I do not know, for in our climate it seems to need the support or shelter of a wall. I have been going round the garden in the bleak windy sunshine; and I think our flowers of March are nearly many enough and varied enough to satisfy even our immoderate desires.

The straight walk in the kitchen garden never looks fairer, with all its Roses, than now in the simple green and gold of Daffodil clumps all the way on both sides. All sorts of Daffodils are everywhere, from the large heavy-headed double ones to the diminutive brilliant little *Hoop Petticoat* only 3 inches high. There is *Pulmonaria*, *Triteleia*, and white Violets and patches of white Arabis, and *Primroses* just becoming plentiful. There is a long blue-rimmed border of *Grape Hyacinth*, and another of metallic-shining *Scillas*. Blue prevails indeed—blue *Scilla* and *Chionodoxa*, blue *Hepatica*, blue *Omphalodes*. Soon there will be deep blue *Gentian*, beside which all other blues will pale. Dear little cheerful-eyed *Omphalodes*! The old plants have worn themselves out, but young roots are spreading over some stones near the Roman Walk, and flowering with enthusiastic vigour. A charming Hungarian lady the other day embraced it (so to speak) with delight. She said *Omphalodes verna* grew wild in her native woods. Amongst the rarer gems must be counted *Sisyrinchium grandiflorum*, or, better named, *Satin-flower*, with its exquisitely shaped purple bells, like hanging Crocus flowers; and on the rounded south side of *Glorietta* is a group of magnificently fiery-scarlet star *Anemones*. *E. F. B.*



## ORCHID FRUITS.

It so happens that few of the seed-vessels of Orchids are described in books. Relatively speaking, few are imported, and it is not very often out of the great Orchid emporiums that one sees them on cultivated plants. Nevertheless, they are important as aids to discrimination between one species and another, and now that the practice of artificial fertilisation and hybridisation is increasing, we may expect to meet more of them. The illustrations we now figure (figs. 83, 84) were all taken from plants in the collection of Sir Trevor Lawrence. The seed-pods of Orchids (botanically fruits) are usually more or less leathery, pods ultimately dividing into three or six pieces or valves, and revealing a very large number of very fine dust-like seeds of very simple structure. These seeds are attached to the centres of three of the valves; the other three valves bear no seeds and are in truth the midribs of the carpels which separate from the rest of the fruit as it ripens. The Vanilla pods of commerce are the leathery fruits of *Vanilla aromatica*, which either do not open or are gathered before they have done so. In the present number we figure the pods of *Dendrobium heterocarpum*, which has an ovoid pod, scarcely so long as its stalk, and pointed at both ends. *D. formosum giganteum* has, as will be seen, a larger pod than the preceding, and Pear-shaped. In *D. rhodostoma* the pod is thick, club-shaped, with prominent ribs.

*Cypripedium caudatum* has very long glabrous but furrowed pods, thicker in the middle and curved at the apex. *Cypripedium Druryi* has much shorter, somewhat club-shaped, furrowed pods, covered with hairs, and with a short terminal projection. *Cypripedium hirsutissimum* has oblong, ribbed pods, with a long terminal curved beak, the whole densely covered with hairs. Allowance must be made for individual variations, and of course for stage of growth.

## ROSEMARY.

I WAS very much interested in the article on "Mortuary Flowers" at p. 173, especially in the paragraphs relating to the Rosemary, and feel a strong desire to know whether there is any part of the British islands where the practice of using it at funerals yet prevails [yes.] It is over half a century ago that my father, failing to establish himself in business in London, fell back on his profession, engaged himself as gardener, and with his wife, a babe in arms, and myself, a three-year-old boy, took a three days' journey (!) to the Isle of Wight. Ryde had then but a few hundred houses, and the island, though but 7 miles from Portsmouth, was as fully cut off from intercourse with what we may term the progressive portion—the mainland of the country—as land 700 miles distant would be to-day. I suppose few of us can remember events clearly back to between their third and fourth year, and I suppose I am indebted to the sudden change from a spot like London to the "backwoods" of what the island was then for the vivid impressions that everything made on me. Where we were settled, about midway between the three triangular points, St. Helen's, Brading, and Ryde, there was no one to associate with but the families of the farm labourers who had lived on these spots through many generations, except the younger of the family of my father's employer, as a playmate for whom I was often invited to the "big house." The native children could not understand my London talk, and their language was as bad as Greek to me. Words that I found as I grew into knowledge had long been obsolete in other parts of England were in common use there. A switch was a "vice," and to get a good vicing I heard threatened to many an unlucky mother's son. To be an imbecile was to be a "zawney;" and if stupid, you would be a "zoat." I remember Old Hadley, a tall six-footer, who used to go through the village of Ryde with his bell, and with "Oh, yes!"—"Oh, yes!"—"Oh, yes!"—"Lost!"—and so on—"God save the King!"—let us know the news of the day. And I remember well when Thomas Radden started a little school and a printing-press together, and by his handbills eventually got the village crier out of his job. This press and school was in a stable-yard. There he taught me by getting eight pebbles to find out how many were left by taking four away, as I remember well on that day from his dog having subtracted

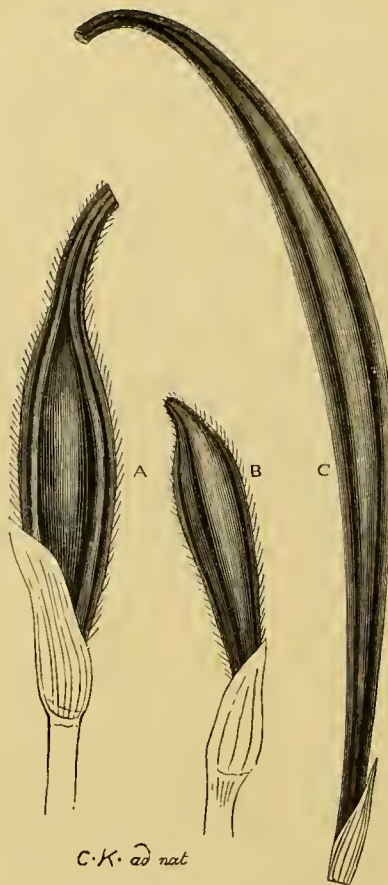


FIG. 83.—SEED-PODS OF CYPRIPEDIUM.

A, *Cypripedium hirsutissimum*; B, *C. Druryi*; C, *C. caudatum*.



FIG. 84.—SEED-PODS OF DENDROBIUM.

A, *Dendrobium formosum giganteum*; B, *D. heterocarpum*; C, *D. rhodostoma*.

my whole dinner while the stony lesson was being given to me. You see it was a very primitive spot in those days. How often have I since wished that I could have foreseen the tremendous march of civilisation that has left those old times behind. What a wealth of old lore could now be imparted if copious notes had been kept of these old people in those old times.

Well, about the Rosemary. They used it then at funerals. It was prepared by the one who had charge of the funeral. A trayful was ready in the room of sorrow, and each was handed a sprig as he went out of the house to follow the corpse to the grave. When there each took his turn, and with the last look, threw the sprig on the coffin. I am almost sure there was no dipping in water, as described by "H. E.;" my impression is that its use was in some way connected with an old belief that Rosemary was good to preserve the dead from being troubled by evil spirits, but I cannot now remember how I got that impression. Although possibly in no part of England were the religious views that preceded the Reformation so thoroughly crushed out as in the Isle of Wight, the belief in elves and fairies, and spirits good, bad, and indifferent interfering continually and everywhere with human affairs, was apparently universally entertained; and I could, even after these many years, put together a good sized volume of the blood-curdling tales which were beliefs all too real in those days. I feel the more satisfied that the use of Rosemary had something to do with some of these tales. I am also inclined to think that the statement of Dr. Prior and others before him, that Rosemary is derived from *rosmarinus*, sea spray, can scarcely be correct, as I fancy the old English people called the plant Rosemary long before they could know of its Latin name. *Thos. Meehan, Germantown, Philadelphia, U.S.*

## POTATO DISEASE: WILSON'S SCLEROTIOIDS.

THERE can be no doubt that these bodies are found accompanying the spawn-threads of *Phytophthora infestans* when it occurs upon the leaves of the Potato, but, as Professor Trail pointed out, their presence has yet to be demonstrated when this parasite attacks the Tomato. During the present discussion I have re-examined these bodies in Potato leaves, but I cannot trace any hyphae (spawn-threads) arising from them. Neither to my mind does Mr. Smith's figure (p. 348) prove this to be the case. No doubt the base of the conidiiferous hypha which he figures is in contact with one of these bodies, but whether it has *bona fide* arisen from it is very doubtful indeed. One often sees in microscopic slides the end of a mycelial tube accidentally in contact with a particle of vegetable tissue, and adhering to it with sufficient firmness to sway to and fro when the cover-glass is pressed, but in this case no question of direct continuity arises. In the numerous instances in which I have examined these sclerotoids, it is surprising that I should never once have seen a mycelial tube arising from them. Another equivocal point in Mr. Smith's figure is the peculiar manner in which the conidiophore becomes attenuated towards its lower extremity. As far as I have observed the mycelium of *Phytophthora*, although it may be somewhat irregular in outline as it meanders between the cells of its host plant, yet its calibre is pretty uniform throughout its length, and not very different in size from the time it emerges from the spore as a germ-tube to the time it gives off its conidia-bearing branches. Certainly, the end of a mycelial hypha may collapse when dry, as when its extremity escapes beyond the cover-glass. It is easily to be observed that these sclerotoids are rendered transparent by the action of strong nitric acid, but, although they are not thereby otherwise altered in shape, yet it has been assumed that they consist of oxalate of lime. Of course, it may be true that they are covered with a coating of this salt, but even this has not as yet been absolutely demonstrated, for so many other substances are dissolved by nitric acid. Mr. Murray's original experiment of treating them with nitric acid, allowing the fluid to evaporate spontaneously, and finding oxalate crystals on the slide next morning, does not prove that the oxalate was derived from the sclerotoids only, for it is obvious to any one who has examined them that they cannot be so perfectly isolated from the tissues of the leaf in which they are imbedded as to allow of this being done with sufficient accuracy to ensure that the oxalate was not derived from the other tissues of the Potato plant, especially when one



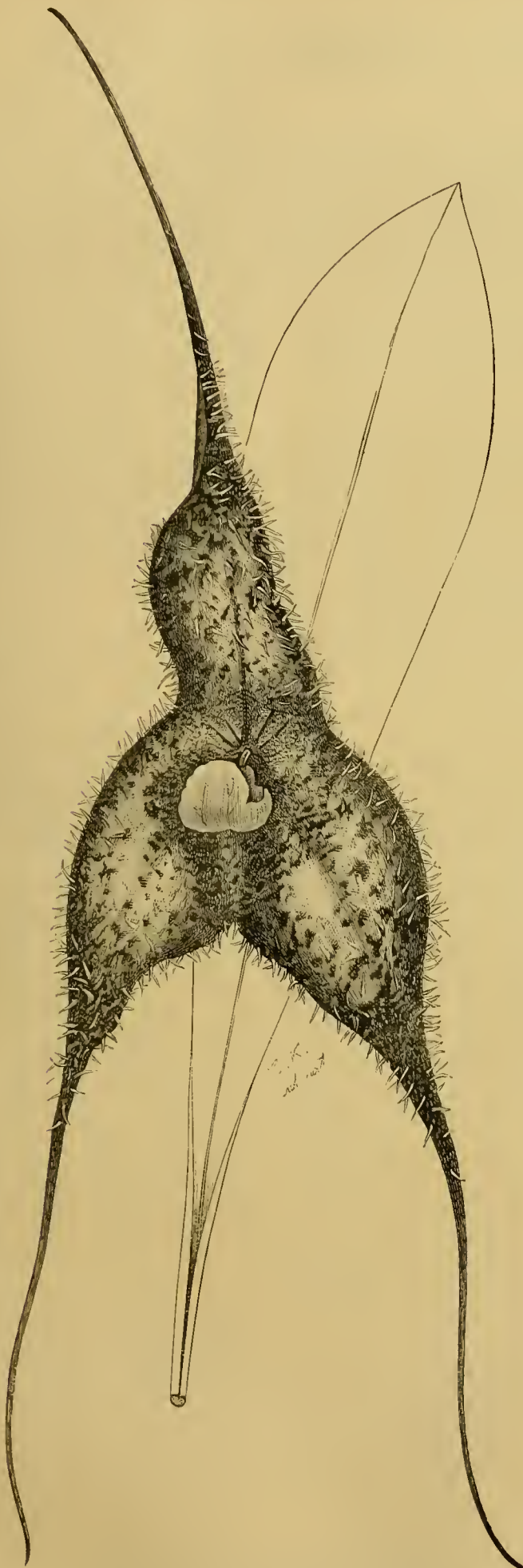


FIG. 85.—MASDEVALLIA WALLISII VAR. STUPENDA.

remembers how constantly oxalate of lime occurs as a waste product in the vegetable kingdom generally.

While these bodies constantly accompany the *Phytophthora* upon the leaves, are they found as abundantly, or at all, in the tubers when the latter are affected? I have not been very successful in finding them here; have Mr. Wilson or Mr. Smith had better success? This is an important point to have cleared up. I certainly at first thought they were the bodies figured by Martius, but his figures are of such a nature that one cannot be at all sure what he really meant in many cases in which the more minute structures are delineated.

As for the relationship which these bodies bear to the Potato disease it is to me doubtful whether they are anything more than the metamorphosed tissues of the host plant. If they had any anatomical connection with *Phytophthora* I think the keen eye of De Bary would have detected it, even if it had escaped the observation of Berkeley and Tulasne, to say nothing of the hundreds of other observers who have examined the life-history of this fungus. Charles B. Plowright, King's Lynn, March 15.

### MASDEVALLIA WALLISII

#### VAR. STUPENDA.

A FEW weeks ago (p. 271) Professor Reichenbach wrote in these columns in enthusiastic terms concerning this *Masdevallia*. We are now enabled to lay before our readers an illustration of the flower (fig. 85) taken from a plant in the collection of Sir Trevor Lawrence. The ground is light sulphur colour, the apex of the sepals and the long tails proceeding from them being of a rich chocolate, orange haloes, scarlet spots, brown hairs; a white shell-like lip completes the decoration of this phenomenal *Masdevallia*, for the description of which we must refer to the account already given at p. 270.

### CARBERRY TOWER,

THE seat of the Right Honourable Lord Elphinstone, is situated in Midlothian, 2 miles from the thriving town of Musselburgh, and 7 miles south-east of Edinburgh. Carberry Tower is a noble mansion, and stands on the western slope of Carberry Hill (fig. 86). It was here that Queen Mary surrendered herself to the Confederate Lords on June 15, 1567, prior to her imprisonment in Lochleven Castle. The hill flanks the east side of the vale of the river Esk, and forms part of a very beautiful landscape. In the neighbourhood there are many ancient relics, two miles off the place is still pointed out where Cromwell pitched his tent, and where he remained two months; and here was fought the battle of Piokie which arose out of an invasion of Scotland in 1547 by the English and ended so disastrously for the Scotch. About 2 miles further east the battle of Prestonpans was fought on September 24, 1745, between the rebel forces under Prince Charles Edward, and the Royal forces under Sir John Cope, which ended in the complete overthrow of the English army. Returning to Carberry, from the east the policies are entered by a very neat lodge and gateway, and on entering, the approach turns sharply to the right and a good distance on turns to the left, and then runs on in a straight line till it turns again sharply to the right and runs on in gentle curves through a plantation of grand old trees till the Tower is reached. From the front of the Tower the views are very extensive and varied, looking north across the Firth of Forth, here about 5 miles broad; the eye takes in a large portion of the west of the county of Fife, and the mountains on the border of the Highlands are distinctly seen. North-west parts of Edinburgh are seen with its fine surroundings, and west over the grand Oak forest of Dalkeith Palace the whole range of the Pentland Hills is seen from 12 to 20 miles off.

The main avenue from the Tower runs in a straight line out to the main road, running east and west, and here a very handsome lodge and gateway was erected some years ago.

The glass erections at Carberry are very extensive, and at the time of my visit contained the following inmates, viz. :—A Rose-house, 30 feet by 9 feet, containing fine plants of Céline Forestier, Comte de Paris, Duchess of Edinburgh, Gloire de Dijon, Madame Berard, Madame Levet, Maréchal Niel, Catherine Mermet, Souvenir de Paul Néron, &c. An early vineyard, 62 feet by 9 feet,



Vines all in pots, principally Black Hamburgh, and bearing a very nice equal crop. In this house 1500 Strawberry plants are forced annually, the sorts being Keens' Seedling and Garibaldi, and to utilise space the back wall is used for the growth of Tomatos, which at the time of my visit were carrying an excellent crop. A Peach-house, span-roofed, 12 feet by 9 feet, was planted with Stirling Castle, and bearing a very fine crop of large-sized fruit. Another early vinery, 50 feet by 12 feet, planted with Black Hamburgh and Duke of Buccleuch, the latter bearing a fine crop with large berries. A vinery, 30 feet by 16 feet, planted with Muscat of Alexandria and Bowood Muscat, both sorts carrying a grand crop. Peach-house, span-roof, 24 feet by 20 feet, planted with Early Alfred, Royal George, Stirling Castle, and the Elrue Nectarine. Along the roof are trained *Lapageria rosea* and *Maréchal Niel* Roses, the former very full of bloom. On the end walls were plants of the old favourite Fig, Brown Turkey, bearing fine crops. A Camellia-house, span-roof, 20 feet by 20 feet, planted with such fine old sorts as *Alba plena*, Countess of Orkney, *Imbricata*, Lady Hume's Blush, &c., all fine specimens in vigorous health. A mixed vinery, 30 feet by 16 feet, the following bearing fine crops:—Mrs. Pince, Lady Downes', and a young plant of John Downie, making grand wood. A Peach-house, 50 feet by 12 feet, planted with Royal George, Barrington, Walburton Admirable, and Red Roman Nectarine, the whole bearing a grand crop indeed. On a low staging was a very fine lot of young Azaleas of the finest sorts, in the best of health. A conservatory and fernery combined forms a magnificent house, 72 feet by 24 feet, span-roofed, well furnished with large plants of all the leading varieties, conspicuous among which was a splendid specimen of *Erica Cavendishii*, which usually flowers well. The Ferns, judging by their luxuriant appearance, were evidently at home, whilst trained to pillars and rafters were *Tacsonia Volkemii*, *Cobaea scandens* var., *Rhodochiton volubile*, *Lapageria alba*, &c., giving to this grand house a finish which cannot but be much admired. A greenhouse, 33 feet by 14 feet, is principally used for preparing plants for conservatory decoration. A stove, span-roofed, 33 feet by 24 feet, containing large plants of *Anthurium crystallinum*, *Croton Weissmanni*, a grand plant that took 1st prize for the best *Croton* at the International Show at Edinburgh, in 1882. There are also several fine specimens of other *Crotons*, beautifully coloured, as well as of *Pandanus*, *Dracenas*, &c. I also noticed in this house some fine specimen Orchids consisting of *Cattleya Mossiae*, *Cypripedium longifolium*, *Dendrobium giganteum*, *D. nobile*, &c., and climbers were well represented by *Clerodendron splendens*, *Dipladenia boliviensis*, *D. Williamsii*, *Stephanotis*, &c. A warm greenhouse, with a span-roof, 33 feet by 20 feet, contained large plants of *Aralia Kerchoviana*, *A. Veitchii*, and *A. gracillima*, *Asparagus plumosus nanus*, *Bougainvillea glabra*, *Phormium tenax variegatum*, &c., and the roof was covered with *Passiflora edulis*. A Melon-house, 36 feet by 9; a Heath-house, 36 feet by 9 feet, in which I found very fine healthy specimens of *E. Bothwelliana*, *E. vestita alba*, *E. coccinea*, *E. Austriana*, &c.; a house for the culture of sweet-scented *Pelargoniums*, contained a very interesting collection, the perfume from which upon entering the house was delightful. Melon-pits and a Mushroom-house completed the garden structures. These houses are heated by two twin saddle-boilers  $4\frac{1}{2}$  feet long, to which are attached 4000 feet of 4-inch piping, and have all been erected within the last few years by Mr. Lowe.

The kitchen garden, over 2 acres in extent, lies to the south-east of the houses, and is enclosed by substantial walls, partly brick and partly stone, and covered by well managed fruit trees of the ordinary sorts, which as a rule bear remarkably well here. In the front of the conservatory there is a very pretty flower garden, half an acre in extent, from the top of which a walk 10 feet broad and 300 yards long runs nearly straight west to a beautiful sheet of water, and on either side of this walk, 20 feet back, there are two rows of *Sequoia gigantea*, averaging from 16 to 20 feet in height, fifty in number, and 18 feet apart, in a most thriving condition. To the south and west of the Tower there are also many specimens of *Conifers* of various sizes. Bedding-out is carried on here to a large extent, and is well managed.

His lordship, being an ardent horticulturist, takes great interest in everything connected with gardening, and Mr. Scott, the head gardener, may be complimented on the high state of cultivation in which the garden under his care stands at the present time. D.

## Orchid Notes and Cleanings.

### ORCHIDS AT WESTBROOK.

THE Orchid-house at Westbrook, Sheffield, devoted to blooming plants, is at the present time very attractive, on account of the display of bloom. It contains some fine varieties in excellent health, bearing many spikes of very fine flowers. The graceful spikes of the *Phalenopsis* and the *Odontogloss*, loaded with blossoms, arching over the *Cattleyas*, *Lycastes*, and other erect kinds, give a beauty and grace to the whole that is afforded by few other kinds of plants; the rich and delicate markings and colours being particularly chaste and pleasing, and the effect is heightened by the bright orange colour of the flowers of *Ada aurantiaca* (a good specimen with numerous spikes), and the star-shaped blossoms of *Lælia harpophylla*. All are good specimens, but amongst the best may be mentioned *Phalenopsis amabilis aurea*, with flowers  $3\frac{1}{2}$  inches across, the petals strong, and about  $1\frac{1}{2}$  inch broad, the base of the lip tinged with deep yellow, and striped with carmine; the inner portion of the lower petals are tinged with green, and lightly spotted. Another plant bears flowers with petals a little broader, and without the spots, and the yellow on the lip of a paler shade. *P. Stuartiana* has a good spike of flowers heavily spotted on the lower sepals; *P. Sanderiana* is also good, the flowers being of a deeper colour; *P. Schilleriana* is represented by three good varieties. *Odontoglossum Roezli alba*, pure white, with the exception of the lip, which is suffused with yellow, is very effective. *O. cordatum* carries three spikes of good flowers, harred and striped with deep chocolate-brown. *Cattleya Trianae* has flowers 7 inches across, the petals white,  $2\frac{1}{2}$  inches broad; lip  $1\frac{1}{2}$  inch across, tinged pink; the throat a deep yellow, and is a good specimen. *Cypripedium Laurenceanum* is very good, its large dorsal sepal, finely striped on a white ground, renders it both distinct and attractive. *Angraecum sesquipedale* is represented by a small plant with four flowers arranged in the form of an arc, which are well relieved by the dark green foliage of the plant. This variety, although not a showy one, is always interesting, particularly to the botanist, on account of the curious spurs attached to each flower; on this plant the flowers are 5 inches across, and the spurs 12 inches long. Many other varieties are equally good, and are represented by *Dendrobiums nobile*, *crassinode*, *Barberianum*, and *lituiflorum*; *Masdevallias ignea*, *Shuttleworthii*, and *triangularis*; *Odontoglossums Rossi*, *maculatum*, *superbum*, *Cervantesii*, *triumphans*, *tripudians*, *nebulosum* (three varieties), *Alexandrae* (many varieties), *Pescatorei*, *gloriosum*, *Uro-Skinneri* (which has been in bloom six months), *Lindleyanum*, *Halli*, *Andersoni*, and *cirosum*; *Phalenopsis Ludemanniana* and *grandiflora*; *Cypripedium Boxalli*, *villosum*, *Roezli*, and *Haynaldianum*. *Lycastes* and *Vandas* are also represented by *Skinneri* and *tricolor* respectively. In addition to the above-mentioned plants now in bloom there is a reserve of plants in various stages of development in sufficient quantity to produce bloom all the year round. The whole collection is in a clean, healthy, and vigorous condition. One plant, an *Odontogloss*, of the *Andersoni* type, has thrown up from one bulb three spikes bearing fifty-nine flower-buds, an evidence of the care and skill of Mr. Pidsley, the head gardener, who spares no pains to bring the plants under his charge to a high state of cultivation. New and valuable varieties are being added to the collection which is increasing in numbers, variety, and importance. J. H. S.

### ORCHIDS AT THE WOODLANDS.

At the Woodlands, Streatham Hill, the residence of R. H. Measures, Esq., a plant of the pure white form of *Lycaste Skinneri alba* has been in flower for upwards of three months, the individual blossoms lasting over eight weeks. In the centre of the new range of Orchid-houses lately erected in these gardens there is a bijou structure for plants in flower, admirable in every way, and there is abundant proof that the flowers last much longer here than when left in the houses in which they have been grown. Many lovely species and novelties were in flower at the time of my visit, elegantly arranged with *Palms*, *Aralias*, *Ferns*, &c., and all scrupulously clean, in fact I have never seen a garden in which absolute cleanliness in

every part is so well carried out as is the case here; even the walks in the kitchen garden are regularly washed, and not a weed is to be seen anywhere. There is now a fine show of *Phalenopsis* in flower, upwards of fifty spikes, including a fine example of *P. Stuartiana nobilis* and *P. Sanderiana*. In this house I noticed fine plants of *Cypripedium Druryi* and *C. vexillarium* in bloom, as also a fine plant of the new *C. Godefroyae* doing splendidly. The gardener, Mr. Howes, informed me that he watered these plants overhead every day copiously, and there is no doubt but that the treatment suits them, as I have never before seen *C. Godefroyae* and *C. niveum* growing so vigorously. *Saccolabium Hendersoni* is also growing freely and well in the same house, certainly better than I have ever seen it elsewhere. In the flowering house there is a plant of *Cattleya Trianae grandis* with twenty-six of its lovely large blossoms in perfect condition, as also many other handsome varieties, but the palm must be given to the numerous beautiful hybrid *Odontoglossums*, some of them quite unique. There are also many magnificent varieties of *Odontoglossum Rossi majus*, including the very beautiful *O. Rossi gemma*, *O. sceptrum*, a grand plant with two spikes, several splendid examples of *Cymbidium Lowianum*, some of the spikes having as many as twenty-two well developed flowers. *Dendrobium Jamesianum* is also particularly fine, and the same may be said of *D. Wardianum* and *D. Ainsworthii*, and many other things too numerous to mention in a short notice like the present; there is abundant evidence, however, that the owner is a very enthusiastic lover of these beautiful plants. J. G.

## The Flower Garden.

THE fernery should be carefully looked over, and all the old fronds and weeds removed, but great care must be taken not to injure the young growing fronds, these being very easily damaged, the effect of which would be visible all through the summer. After all the rubbish is cleared away surface the soil all round the Ferns and under all movable stones with finely sifted leaf-mould or peat, or in lieu of these any light soil that is available.

### THE ROCKERY.

Where alpine plants are grown these should have similar attention given them, removing any dead plants, filling up the vacancies with young subjects, and care should be taken in planting to so arrange the plants that the weaker and delicate may not be overshadowed or crowded by the strong-growing ones.

THE SPRING AND SUMMER FLOWER GARDENING, as now practised in most gardens, cause much labour and a considerable amount of forethought to manage the two creditably, and more particularly if the spring should be a backward one, as then the opening of the spring flowers is much retarded, as I find is the case this season, the prevalent cold winds acting as a check on growth, which renders the preparation of the bed for the summer bedding-out plants a difficult matter. Where spring gardening is not carried out the beds and borders may now be prepared and made ready for bedding-out time by marking out the design and settling the arrangement of the colours and planting such hardy plants as are intended to be used.

### PLANTING AND SOWING.

*Echeverias*, *Sedums*, *Saxifrages*, *Pansies*, *Violas*, and *Hollyhocks* may now be planted out. *Wallflowers*, *Antirrhinums*, *Sweet Williams*, *Pansies*, *Sweet Peas*, and *Mignonette* should now be sown. To have an abundant supply of *Viola*s throughout the winter and spring, young plants should now be planted out on a well prepared and a slightly manured warm border, planting the strongest runners, by preference those with roots, as they will make the greatest progress. The best kind for winter blooming is *Marie Louise*. With us this variety has been in bloom ever since last October, and blossoms were to be had in great abundance. I grow twelve other kinds, new and old, but none of them equal the one mentioned. The sub-tropical plants may now be placed in a cool-house. *Calceolarias* and *Verbenas*, *Ageratums* and *Petunias*, and other similar plants may also be placed out under a cradle or some other protection, and be covered at night with mats. Wm. Smythe, *The Gardens, Basing Park, Alton*.



## FRUITS UNDER GLASS.

### PEACHES: THINNING THE FRUIT, ETC. THE EARLY-HOUSE.

At this season a series of peacheries will occupy a considerable amount of time to keep everything connected with them in proper order. In the early division the fruit will be advanced sufficiently in growth to be reliable; the final thinning of the fruit should, therefore, take place—an operation best determined by the state and condition of the trees; however, a safe rule may be enforced in the case of trees planted out and trained on trellises, by leaving not more than one Peach for every square foot of trellis covered by the trees. Nectarines can be left somewhat nearer to each other than this. Assuming the growths are now evenly regulated and tied out, the laterals pinched in as they appear, the chief object is to keep the foliage as healthy and vigorous as possible, as under no other conditions can the fruit be expected to attain size, colour, and perfection in flavour.

#### INSECT ENEMIES.

The most dangerous enemy amongst these trees is the red-spider, which will quickly establish itself, if it is present at all, unless it is forcibly kept in check by the syringe as the fruit approaches maturity. If possible avoid using water that is highly impregnated with lime, or any other substance that will leave a deposit on the foliage or fruit, considerably marring its appearance when ripe. Rain-water is unquestionably the best of all for this purpose.

#### BORDERS.

Water the inside borders liberally with weak manure-water at about 60° prior to the final swelling of the fruit; maintain a regular temperature of about 60° at night and 70° in the day-time, with 10° or 15° more by sun-heat, and shut the house up with this aid at 80°.

#### SUCCESSION HOUSES.

In the next house the growth of the trees will be more natural, and, as a rule, the fruit will set more abundantly than in earlier started houses. Before the fruit gets large remove any superabundant supply of them, at the same time reserve enough to meet contingencies that may arise. As far as practicable those from the underside of the shoots and others not well placed should be taken off. Keep the tying-in and stopping of the shoots well in hand, and the foliage clean and healthy by means of a vigorous use of the syringe or by fumigation if it is necessary. The temperatures here should in each instance range 5° less than in the earlier department. In late divisions, if the fruit is expected to give a successional supply to the foregoing crops, a little artificial aid should continue to be given; on the other hand, if the trees are to come in almost naturally, fire-heat will only be necessary as a protection when frost threatens. After the trees are disbudded the growth required to furnish the trees should be tied in close to the base. This method is a great advantage in symmetrical training. All gross shoots except the terminal ones should be stopped at about the sixth leaf. This will in some degree counteract an exuberant growth, and tend to cause a more even distribution of the sap over every part of the tree.

#### THE VINERY: LATE HOUSES.

In late houses where late keeping Grapes are chiefly grown, the Vines should now be moving; in fact, if this is not the case they should be encouraged to do so with the aid of a little fire-heat at night, and on dull sunless and cold days, under more favoured conditions, growth may be accelerated by means of early closing. With sun-heat I am quite convinced that in order to rest Grapes perfectly and to avoid having mildew amongst them, they should be fully ripe by the end of September. My experience with a half-span house which runs due north and south, where naturally the Grapes are considerably later than in those houses having southern aspects, has proved beyond all possible doubt the truth of this assertion. As soon as the shoots on these Vines attain a size for the best to be detected, all excepting one on each spur should be rubbed off entirely and the stopping of these when fit for the purpose should be done in the same way as previously advised. For the preceeding crop, in all cases where Vines are in robust

growth, the shoot should not be tied down only for the purpose of keeping them from touching the glass until such time as they become more inured and pliable for the purpose.

#### THE GRAPE-ROOM.

If the shoots with the bunches of Grapes on them are in bottles it will be necessary to look over them once a week, and replenish the water which is exhausted, so that the stems may be kept well submerged. Keep the place cool, and avoid dust as much as possible. The Grapes of last season's growth have kept well here, and our supply is sufficient for the demands until the new ones are ripe, which will be the case early in May. *G. T. Miles, Wycombe Abbey.*

## The Hardy Fruit Garden.

#### WALL TREES.

ALL pruning, nailing, staking, and planting of trees should be finished at once. The cold dry weather of late has been most favourable for retarding the flowering season, so that there is at present every prospect of a fruitful year; but the protection of the blossom which has appeared will require great care and attention for some time to come. Whatever means has been adopted for this purpose should only be continued as long as the cold weather lasts. All attempts at coddling should be dispensed with, for I am sure there is often much harm done by this mistaken notion of continuing to protect the trees whilst not making them more liable to injury. *J. Smith, Mentmore.*

## Plants and their Culture.

#### PITS AND FRAMES.

IN the majority of cases the houses will now be filled to their utmost capacity; we must therefore look to the cold pits and movable frames for the necessary room required for succession stock of general furnishing plants. In our case we find the most inconvenience to occur just about this time of the year when the latest vinery is closed, thus driving us to seek other quarters for its recent occupants that succeed best under cold treatment. Gladioli and Lilics in pots have been turned out into the open in a sheltered spot, thus leaving room for more tender plants to take their place. The Chrysanthemums will soon have to follow, and by the removal to the conservatory of the latest of the bulbs we shall have room to devote to spring-sown Ten-week Stocks, scarlet and other Pelargoniums, Harrison's Musk, and various useful early summer-flowering plants, which will in their turn do good service in the conservatory. Autumn-sown Stock of the intermediate type have been shifted into their blooming pots, and stood on a bed of coal-ashes out-of-doors. The spring-sown Ten-weeks will soon be fit for pricking off, placing three plants into a 4-inch pot (in which they will be allowed to flower), being kept under glass till well established. A selection should be made from amongst the bedding Pelargoniums and shrubby Calceolarias, securing some of the best of each for pot work, and shifting them on, at the same time keeping any flower-spikes pinched off till likely to be required. This will occur after the latest of the Indian Azaleas and herbaceous Calceolarias are past their best. They will then stand in good stead for intermixing with the latest Spiræas (*Hortia japonica*) and Fuchsia. For later use still in the conservatory, some few pots of *Lobelia speciosa* will be found extremely useful as an edging, particularly so when intermixed with Harrison's Musk. Both the double and the single varieties of Petunias should also be grown on without a check, not allowing them to become pot-bound till the desired size of pot is occupied. Young stock of Fuchsias will thrive well; better even, from this time onward in commodious pits than in houses that are lofty.

#### TUBEROUS BEGONIAS.

The now deservedly popular class of tuberous Begonias can also be started into growth in a close pit or frame. We do not mean by this one that is artificially heated, but one that can be conveniently

damped down and closed up early in the afternoon, so that the sun's rays warm the interior during the latter part of the day. At night a mat or two may be thrown on the glass to prevent any morning frost from unduly lowering the temperature. When fairly started into growth, gradually inure them to a harder course of culture; they cannot bear a coddling kind of treatment throughout their growth; and where such is followed the results will soon be apparent in their flacid leaves and elongated shoots that will eventually bear but a poor crop of flowers. A well grown tuberous Begonia should require but little support with sticks; the latest that have been raised by our well known trade growers have been remarkable both in the habit as well as in the floriferous character and finely formed flowers among this section of Begonias. Seedlings raised this spring will bear a little more heat, but this must not be continued too long. The earlier batches will have been pricked off before this, but the seed-pan will yield another lot or two of useful plants for succession. This pricking-off process should be repeated the second time to prevent them becoming too crowded; afterwards they can be safely transferred to small pots with every success. These will make most useful plants for the conservatory in the late summer and autumn.

## The Kitchen Garden.

#### SEED SOWING, ETC.

ANOTHER good sowing of Broccoli should be made in the middle of the month, again including one or two autumn varieties, such as Veitch's Autumn Protecting. The latest sowing of Broccoli may be made in the beginning of May. The following varieties are best for this:—Lauder's Gosheo, Ledsham's Latest of All, and Model. This last sowing is of great importance, as the produce therefrom comes in when other vegetables are usually very scarce, and before the earliest of out-of-doors Cauliflowers are ready for use the following year. About the middle of the month a sowing of Scarlet Runner Beans may be made, and a larger sowing at the end. The soil to grow this crop should receive a liberal addition of manure. It is a good plan, and it economises the manure to grow them in prepared trenches. Place some of the manure at the bottom of the trench, and when filled in, the top part of the trench should be a little lower than the surrounding ground, which will allow for easy watering during very dry weather. Make the main sowing of Brussels Sprouts; also sow successions of Cabbage, Cauliflower, and Lettuce. The latter and other salading must be sown often and in small quantities throughout the summer. Make the main sowing of Leeks and Vegetable Marrow, the latter for planting out next month. If no protection can be given to the Marrows at planting-out time, the middle of the month will be early enough to sow the main crop. When planting out, add but little manure, unless the soil should be very poor; even then it would be preferable to make holes, and add some good soil, than to use much manure.

#### PEAS.

Make main sowings according to the supply required during July and August. After the above sowing, to keep up a continuous supply of fresh Peas it will be necessary to sow several rows at regular intervals according to circumstances, for instance, on good holding soil Peas continue bearing for a much longer period than they do on poorer ground, hence the necessity for sowing more frequently on soil of the latter description. Caroons may now be sown.

#### SEAKALE.

The cuttings will be ready for planting out now. Allow the shoots to grow out from the callus from  $\frac{1}{2}$  to 1 inch before removing them from the cutting-bed. When planting remove all the shoots but the two strongest. After the shoots are well above-ground in May remove one of these, thus the plants will form but one good bold crown by autumn. Planting with the intention of lifting to force should be done by placing the cuttings in rows 1 foot apart, and 14 to 16 inches between the rows. Permanent plantations to be blanched on the ground where grown must be planted according to the means employed to attain this. If pots are used, four or five cuttings may be planted in a suitable form, or boards 1 foot wide may be made into a kind of box cover, which answers quite as well as pots if kept thoroughly dark. If the latter are used, the cuttings may be planted in a double row 6 inches apart; between these double rows a space of 1 yard should be allowed for conveniently placing on the blanching materials. Planting should be done with the dibbler, placing the cuttings from  $\frac{1}{2}$  to 1 inch below the surface, and care will be required not to break off the young shoots. *G. H. Richards, Somerley Gardens, Ringwood, Hants.*



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, April 13	Sale of Natural History Specimens, at Stevens' Rooms.
	Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms.
TUESDAY, April 14	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.
	National Rose Society: Meeting of Executive Committee, at 3 P.M.
	Sale of Carnations, Lilies, &c., at Protheroe & Morris' Rooms.
WEDNESDAY, April 15	Sale of Flowering Orchids, at Stevens' Rooms.
THURSDAY, April 16	Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY, April 17	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY, April 18	Sale of Hardy Plants and Bulbs, at Stevens' Rooms.

THE Tenth Census of the UNITED STATES comprised an enquiry into many matters besides a mere enumeration of the population. For one thing, it included an investigation of the nature and extent of the FORESTS of that vast country; and the results of that enquiry are now before us, in the shape of a thick quarto volume of over 600 pages, and an atlas of sixteen coloured folio maps. This elaborate publication has been compiled and edited by Professor CHARLES SARGENT, the Professor of Arboriculture in Harvard College—a sufficient guarantee for the carefulness with which the work is done.

Vast as are the resources of the United States in the matter of timber, yet reckless felling and the want of anything like conservancy have at length produced their inevitable results. A warning note has been sounded by those best qualified to judge; it has been echoed by others, not without effect; and we cannot doubt that the present publication will most materially serve to preserve to our American cousins their heritage of Nature's great gift.

Imperial Britain is as much concerned in this matter as the United States. Much that applies to the North-east Atlantic and to the North-west Pacific States applies equally well to the great Dominion of Canada, stretching as it does from ocean to ocean, and comprising areas of forest once considered inexhaustible. It is needless to say how vastly the interests of the home country are concerned in the adequate and continuous supply of timber from the American continent. So vast are the forests—so much vaster were they once—that it is no matter for surprise that at first the idea of a failure of supplies was disregarded if not ridiculed. Even so good a botanist as DARLINGTON treated lightly the warnings of BARTRAM made eighty years previously, and based on personal travel and experience in States far less denuded of timber than they are now—States, indeed, which were in his time largely covered with virgin forest, but which are now stripped of their timber. These matters are better understood now, and the most convincing proof of it is offered by this portly volume, containing what is doubtless the fullest and most elaborate report on the forests and forest trees of any country.

An attempt is made to estimate the value of the forest crop for the Census year—1879-80. Such attempts must necessarily be loose approximations only, but estimating the amount required for construction, fuel, railroads, telegraphs, charcoal, dyeing purposes, and the myriad demands of modern civilisation, the value cannot be estimated at less than 700,000,000 dollars! In the present volume we have a series of tables showing the statistics of the timber trade in all the States and Territories of the Union, accompanied by numerous coloured maps so tinted as to show at a glance the nature and extent of the supply. From inquiries made in every town of the Union it is estimated that in the Census year 140,537,439 cords of wood of the value of 306,950,000 dols. were used for domestic purposes alone by 32,375,074 persons.

In spite of this vast amount, which will, of course, increase largely each year, in spite of reckless management, or no management at all—in spite of the utter destruction of forests in certain of the States of the Union, which were once considered inexhaustible, and of the certain exhaustion of others within no long period, yet on the whole the report is hopeful. In many places the inroads have not yet materially or dangerously affected the prospects of the future. This is particularly the case in the Pacific States of Washington and Oregon, the western slopes of the Rocky Mountains, and the Californian sierras, though the famous Redwood, *Sequoia sempervirens*, has seriously diminished in amount, and is likely to do so still more, as it furnishes the best substitute for white Pine (*Pinus Strobus*). "The forest wealth of the country is still undoubtedly enormous. Great as it is, however, it is not inexhaustible, and the forests of the United States, in spite of their extent, variety, and richness, in spite of the fact that the climatic conditions of a large portion of the country are peculiarly favourable to the development of forest growth, cannot always continue productive if the simplest laws of Nature governing the growth are totally disregarded. The judicious cutting of a forest in a climate like that of the Atlantic or Pacific coast regions entails no serious or permanent loss. A crop ready for the harvest is gathered for the benefit of the community; trees which have reached their prime are cut instead of being allowed to perish naturally, and others take their place. The permanence of the forest in regions better suited for the growth of trees than for general agriculture may thus be insured. Two causes, however, are constantly at work destroying the permanence of the forests of the country, and threatening their total extermination as sources of national prosperity—fire and browsing animals inflict greater permanent injury upon the forests of the country than the axe, recklessly and wastefully as it is generally used against them."

The elaborate details concerning the nature and extent of the timber supply in every county of every State and territory in the Union have, of course, a specially local interest. We mention them to show the exhaustive nature of the report, and the wide basis which has thus been obtained for statisticians and economists to base their deductions upon.

Another and most important section of the work is devoted to the determination of the value of the woods for special purposes. This department was entrusted to the supervision of Mr. SHARPLES, who has recorded the results of experiments made with a view to determine the fuel value of the woods of the United States, and their value for constructional purposes. The specific gravity, and the amount of ash from dry wood, supplemented by a chemical analysis of the wood furnish data for the first part of these inquiries, while for constructional purposes properly prepared specimens of definite size were tested as to their resistance to pressure, their elasticity, &c. A large amount of useful information is thus comprised within statistical tables, useful for reference, but not suitable for citation; some general results may, however, be here given as to the specific gravity:—

"It will be noticed that all species in which the wood is heavier than water belong to the semi-tropical region of Florida, or to the arid Mexican and interior Pacific regions. There seems to be a certain, but by no means constant relation, as shown in this table, between aridity of climate and the weight of the wood produced by closely allied species or by individuals of the same species. The wood of the form of *Quercus rubra* peculiar to Western Texas is nearly 39 per cent. heavier than the average of all the specimens of the typical species grown in the Northern States. Among the white Oaks the wood of species belonging to regions of little rainfall, *Quercus grisea*, *Q. oblongifolia*, *Q. Durandii*, and *Q. Douglasii*, is heavier than that of allied species peculiar to regions

more favourable for the growth of trees. The average of two specimens of *Quercus prinoides* grown in Western Texas is 19 per cent. heavier than the average of all the other specimens of this species grown in other parts of the country. In *Fraxinus* the wood of *F. Greggii* of the Rio Grande Valley, is heavier than that of any other species; it only just surpasses in weight, however, the wood of the Western Texas form of *F. americana*, which is 20 per cent. heavier than the average of all specimens of the typical species grown north of Texas. On the other hand, the wood of Texas forms of *Fraxinus viridis* is constantly lighter than that of northern specimens, and the wood of *Celtis* grown in Arizona is lighter than that of the average of all the other specimens of this species. In *Juglans*, the heaviest wood is that of *J. rupestris*, a species belonging to a region of little rainfall, and specimen of *J. nigra* from Western Texas is 33 per cent. heavier than the average of all specimens grown in the Mississippi basin. In the case of *Platanus*, the heaviest wood is that of the Atlantic species, but wood of the species peculiar to the comparatively moist climate of south-western Arizona is, however, considerably lighter than that of the drier climate of southern California."

The relative fuel value of each was obtained by deducting the percentage of ash from the specific gravity. This is based on the hypothesis that the real value of the combustible material in all woods is the same. But this hypothesis will hardly commend itself unsupported to those who know how greatly the nature of woods of each species differs at different times and according to different circumstances, and indeed, we find from Mr. SHARPLES' experiments that resinous woods give out more than twelve per cent. more heat than do equal weights of non-resinous woods; the heat produced by burning a kilogram of dry non-resinous wood being about 4000 units, while the heat produced by burning a kilogram of dry resinous wood is about 4500 units—a unit being taken to be the quantity of heat required to raise one kilogram of water one degree Centigrade.

So far as the relative strength of woods is concerned we may extract the following summary bearing on the relation of the minute microscopic anatomy of the wood to its breaking strength.

"An examination of the results obtained from the various tests made upon the woods of North America indicate at least the important fact that within the limits of any species the weight and strength of any specimen of wood depend upon the actual proportion of the space occupied, in the layers of annual growth, with open ducts, to the space occupied with compact, woody tissue, and to the size of these ducts; or in the case of the wood of *Coniferae*, the proportion of space occupied with cells formed early in the season to that occupied with the smaller cells of the summer growth. The proportion between these two kinds of growth varies not only in every individual tree, but in different parts of the same tree. The causes which thus affect the growth of wood are not very apparent. It is not soil, nor age, nor general climatic conditions, it appears, which produces the different proportion between the solid and the light portions of the annual growth in any species, because in the same individual this proportion is found to vary from year to year. It varies very irregularly; nor does the rapidity of growth, as has been supposed, greatly affect the strength of wood, because the proportion of open to compact growth is little affected by rapid or slow increase of the tree's diameter.

"How far annual climatic variations affect the nature of the annual layers of growth has not been demonstrated, although it is not impossible that in years in which conditions favourable to rapid growth are extended late into the season, the proportion of the annual layer occupied by open, weak growth to the growth of the whole year would be greater than that formed in a year during which the season favourable to rapid growth was less extended.

"It follows that while such experiments as those conducted by Mr. SHARPLES are necessary to establish maximum and relative values for any species, these being established, actual values of any given specimen of wood may be determined by microscopic examination of its structure; that is, two specimens of the wood of any species to which the Census tests have been applied being given, their relative value can be determined by an examination of their structure as well as, or better than by any elaborate experiments."

Then follows some tables showing the amount of tannin in the bark of various trees, the per-



centage proportion varying from 4 per cent. in *Prosopis juliflora* to 31 per cent. in the Mangrove, *Rhizophora Mangle*. Curiously as it seems, the proportionate amount of tannin in the bark of the several species of Oak is small, and almost invariably largely exceeded by that in the bark of the Conifers. Tables are also given showing the specific gravity, ash, and weight per cubic foot of each of the 412 species of timber-yielding trees, and in many cases in several specimens of each tree. Similar tables are given of the fuel value and chemical composition of a select number, as well as of their strength, as tested in various ways. The mass

who proposed it, and then very full bibliographical reference to the works of subsequent authors in which the particular tree is mentioned. The synonyms and varieties are treated in a similar manner. No descriptions are given, the references to the literature obviating the necessity of these, but a popular description of the tree, indications of the districts in and conditions under which it grows, of the nature of its wood, and the purposes for which it is or might be employed. Here again, then, we have a vast mass of authentic information which will be of the utmost service not only to those interested in timber supplies, but

the forests of North America in relation to the locality, climatic condition, distribution, &c. The forests are arranged in districts, thus:—

(1). The Atlantic region, including the northern forest, the northern Pine belt, the south maritime Pine belt, the deciduous forests of the Mississippi basin and the Atlantic plain, the semi-tropical forest of Florida, and the Mexican forest of Southern Texas.

(2). The Pacific forests are subdivided into a northern forest, a coast forest, an interior forest, and a Mexican forest.

This is a most interesting and readable account, but as it formed the subject of a report by Dr.

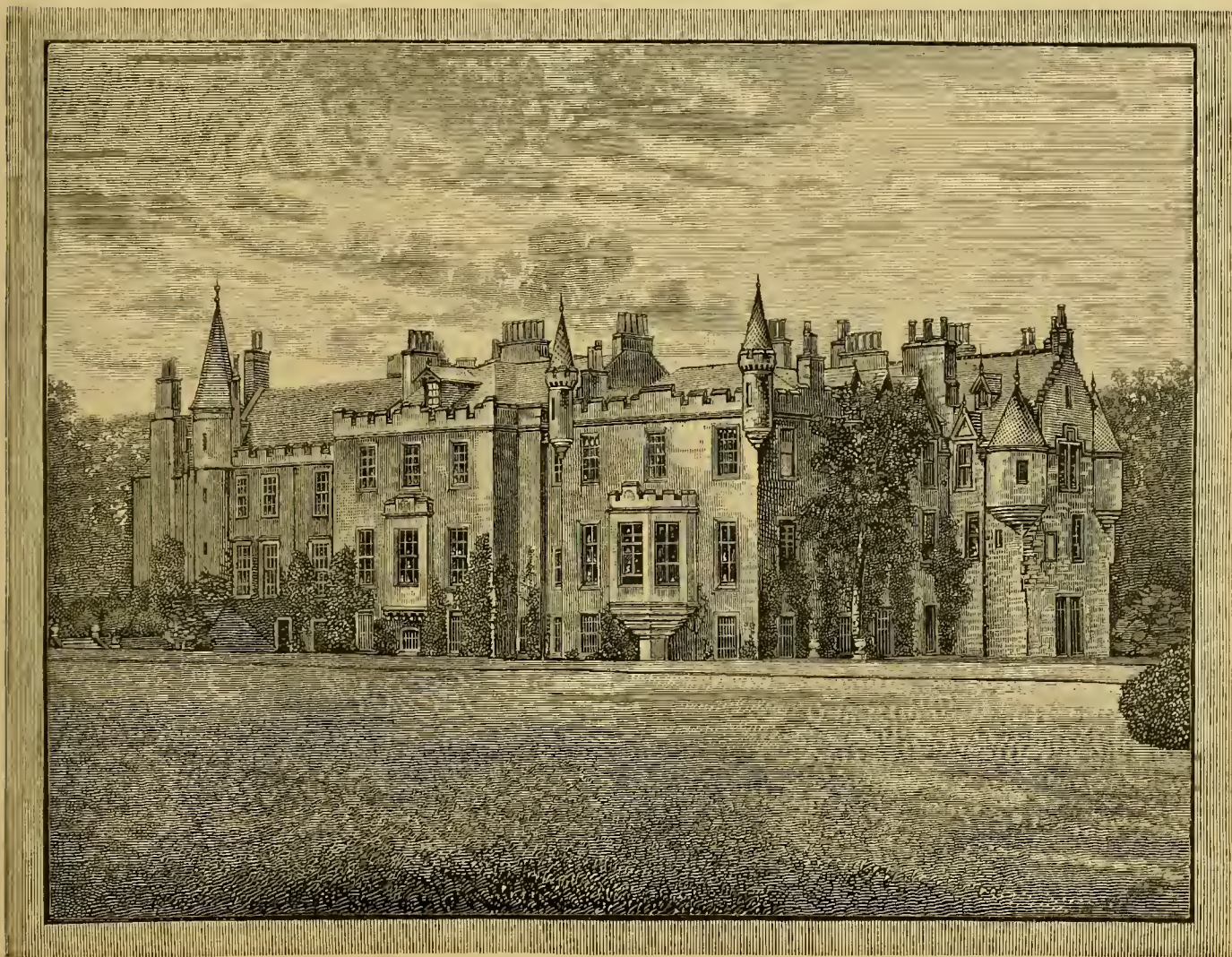


FIG. 86.—CARBERRY TOWERS. (SEE P. 473.)

of information thus tabulated is indeed enormous, and the Government of the United States merits the gratitude of the civilised world for accumulating and rendering available so vast an amount of information, useful, not to one nation, but to all humanity.

The part of this volume which comes first in order, though it has suited our convenience to allude to it last, comprises a full catalogue of the 412 species admitted under the general head of forest trees. These are arranged under their natural orders, beginning with *Magnolias* in the order of that name, and ending with the fibre-producing *Yuccas* of Texas and Arizona. The information given under each species comprises first the adopted name, with that of the author

to planters in this country, who will find this the most carefully compiled and authentic catalogue of American trees ever published, and one which should do much to abate the nuisance of conflicting synonymy and to fill up gaps in our knowledge. A full index of specific and varietal names is given, as well as of synonyms and local names—the latter particularly valuable, for who would dream, for instance, that by the "Slippery Elm" was meant *Fremontia californica*?—which has not much more relation to an Elm than a cow to a Cucumber; or who, without this guide, would know which white Pine out of the some half-a-dozen trees so-called was meant?

This list is preceded by a general account of

ASA GRAY and Sir JOSEPH HOOKER, and also of a lecture by the latter botanist (*Gardeners' Chronicle*, August 3, 1878, p. 140), we need not lengthen this article by inserting the present report. We may be excused for repeating our statement as to the great value of the enormous body of information here got together, and our admiration of the manner in which it has been done.

— HORTICULTURAL EXHIBITION IN BERLIN. —With reference to the above show, which will be held from September 5 to 15 this year in the Royal Exhibition Buildings (formerly Hygienic Exhibition), we are informed that it promises to exceed in extent and completeness anything of the kind ever held in



Germany. In all probability the horticultural productions from beyond the sea, and from the new German colonies, will be of such considerable extent and variety that a separate section will have to be made for them. The management of the Exhibition is in the hands of Herr SPÄTH and Herr SAINT PAUL as assistant.

— ROYAL METEOROLOGICAL SOCIETY. — At the ordinary meeting of the Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 15th instant, at 7 P.M., the following Papers will be read:—"Report of Committee on Decrease of Water Supply," "Report of Committee on the Helm Wind of Cross Fell, Cumberland," "Results of Meteorological Observations made at Asuncion, Paraguay;" by RICHARD STRACHAN, F.R.Met.Soc.

— PINUS COULTERI.—The seed of the tree which produced the cones figured at pp. 409 and 413 was, we learn, sown in 1845. The tree now measures 39 feet in height, with a girth of 6 feet 6 inches at 3 feet from the ground. Another tree, also at Bayfordbury, Herts, measures 47 feet in height, with a girth of 7 feet 3 inches, but this has never borne cones.

— MESSRS. JAMES DICKSON & SONS.—This firm has been honoured with a special warrant appointing them nurserymen to His Royal Highness, the Prince of Wales.

— LINNEAN SOCIETY OF LONDON.—A meeting will be held on Thursday, April 16, at 8 P.M., when papers will be read on the following subjects:—"On Forms of Leaves," by Sir JOHN LUBBOCK, Bart.; "On New Species of Australian Minyad," by Professor F. JEFFERY BELL; "Germination of Seeds after Long Submersion in Salt Water," by JAS. J. WHITE.

— EXHIBITION FIXTURES.—The Reading Chrysanthemum Society will hold its second annual exhibition in the Town Hall on November 13. The schedule of prizes has undergone revision, and the prizes in some of the leading classes augmented. The Devizes Chrysanthemum Show will take place as usual, in the Corn Exchange, on November 17.

— "THE DEW FROM THE ROSES IN THE GARDENS OF THE POETS."—This is the literal translation of the title of a little book recently published by the authoress of "Notes from a Buckinghamshire Garden"—"Ros Rosarum ex horto Poetarum,"—dew of the ever living Rose gathered from the poets' gardens of many lands, by "E. V. B." To lavish commonplace eulogies on a book like this would be to play the part of DOGBERRY. It consists, indeed, of buds and blossoms plucked by loving hands "from a garland of eternal Roses." Graceful imaginings, fanciful conceits, inspired imagery—this is what "E. V. B." gives us in plentiful measure. She will have her reward in the knowledge that she places a source of exquisite delight within the reach of her fellows. In these days, when even Roses are vulgarised by flower shows, starched and stiffened by gum and wire, when their value is appraised in terms of filthy lucre, it is renovating and pleasant to be brought back to the Rose gardens of the poets, where nothing sordid may enter. In fact, we have in this volume a selection of the choicest allusions, analogies, and epithets that have been bestowed on Roses from all ages and in many languages. Such is the profusion of books on the Rose that when first we heard of this we almost lamented that another should have been added to the list, but that was before we were privileged to dip into its pages. Many who, like ourselves, were becoming weary with hearing what SAPPHO said about Roses, the cries of the red Rose, the tears of the white, and the rest of the hackneyed catalogue, will find in this little volume exquisite allusions and delicate imagery which will be as delightful as they are fresh and un worn. The book is well printed, and got up in that quaint antique style which in some cases savours of affectation, but which in this case seems appropriate. ELLIOT STOCK is the publisher.

— NITRATES.—Messrs. BERTHOLOT & ANDRÉ have recently published in the *Comptes Rendus* the

results of a series of analyses, from which it appears that the nitrates are found in abundance in the stems of most plants, less copiously in the roots and leaves, and that the quantity formed when the plant begins to produce flowers is less than the quantity of nitrates used up. It is clear, then, that the nitrates are decomposed in the green matter of the leaves, and the nitrogen used up in the formation of albuminoid matter.

— THE FLORA OF OXFORDSHIRE.—Over half a century ago WALKER's *Flora of Oxfordshire* was published, but the changes in nomenclature, the subdivision of species, &c., demand a new work on the subject. Long ago Mr. ALFRED FRENCH began one, but he died in 1879, and the MSS. fell into the possession of Mr. CLARIDGE DRUCE, F.L.S., who has undertaken its completion. Botanical authors from 1500 A.D. downwards and the herbaria of Oxford, British Museum, &c., will be fully quoted. About 400 species and varieties additional to those of WALKER and SIBTHORP will be enumerated, and something like 20,000 records have been made in visiting the parishes of the county. The flora of the Berkshire border will be given. The comparative plant occurrences in the counties of Berks, Bucks, Warwick, Northampton, and Gloucestershire will be shown.

— NEW HYACINTHS AT MESSRS. VEITCH & SONS', CHELSEA.—The house at this nursery that is set apart for spring flowering bulbous plants is, as may be expected, very brilliant just now. Amongst Hyacinths and Tulips some desirable acquisitions have been made of late years, and which will, on account of their striking colours, impart more variety into these favourite flowers. It is noticeable, however, that the newer varieties are decidedly inferior to the older ones as regards size of bells and spike, but no doubt they will improve in time. Amongst the finest Hyacinths are—Distinction, very dark crimson; Marchioness of Lorne, nankeen-white; La Franchise, very large bells, of a most delicate blush; Masterpiece, nearly black; Harlequin, light puce, very attractive and others. Two new Tulips, viz., American Lac and Empress of Austria, are very attractive and distinct—the former cerise, the latter orange-scarlet in colour, both of good shape and substance.

— THE PHYLLOXERA.—According to some statistics published by M. TISSERAND relating to the spread of the Vine louse in France and the means taken to combat it, it appears that in spite of the methods adopted the insect still extends its range of operations. In 1883 upwards of 17,000 hectares of vineyards were treated by submersion—a plan which was adopted in 1884 in upwards of 23,000 hectares. Of vineyards in which insecticides were used there were in 1883, 26,000, and in 1884, 39,000 hectares. American Vines were used as stocks whereon to graft French Vines in 28,000 hectares in 1883, and in 52,000 hectares in 1884. In each case we cite the figures in round numbers, but they show that while there has been a large increase in each of the methods of treatment the use of American Vine stocks has increased by nearly one half. In spite of the ravages of the insect it is estimated that 35,000,000 hectolitres of wine were produced last year in France. The falling off was greatest in the Burgundy district of Côte d'Or.

— PROPAGATING CASE FOR AMATEURS.—Messrs. DEANE & Co., London Bridge, have provided an article under the above designation which should be of value to persons not having a suitable place for striking cuttings, raising seeds, starting bulbs, &c. It requires little attention to keep up a regular supply of heat, as the boiler or kettle by which it is heated only requires to be heated once every twenty-four hours.

— NARCISSI.—From Mr. BURBIDGE we have received flowers of *Narcissus princeps*, a bold and handsome flower, 3 inches and more in length, with oblong lanceolate flower-segments, pale sulphur-coloured, twisted like the moustaches of an exquisite, and with a broad trumpet-shaped crown, clear gamboge-yellow, wavy, and slightly notched at the edge.

*Narcissus maximus*, true, a very showy variety, with flowers 3 inches and more in length, with ovate-oblong segments of a rich gamboge-yellow, the

trumpet of equal length, broadly tubular, with a reflexed top, the edge of which is boldly lobed, and of a deep golden-yellow. The Dutch form of the same variety is very similar, but smaller.

*Narcissus Sir Watkin*.—A grand flower with star-shaped perianth, broad ovate canary-yellow segments, slightly longer than the deep golden-yellow trumpet, the edge of which is wavy and slightly notched, but scarcely turned back. See *Gardeners' Chronicle*, April 26, 1884, fig. 109, p. 553.

*Narcissus spurius*.—Flowers  $2\frac{1}{2}$  inches long, segments oblong ovate, canary-yellow, rather shorter than the rich golden trumpet, whose border is slightly notched and lobed, but little turned back. The double form is very handsome. Its peculiarities will be mentioned later on.

— NATIONAL CHRYSANTHEMUM SOCIETY.—The scheme for affiliating suburban and provincial Chrysanthemum societies, or such societies as make Chrysanthemums a special feature at their autumn shows, is bearing good fruit, as already sixteen applications have been received and accepted from the following societies, viz., Bristol Chrysanthemum, Yeovil Chrysanthemum, Ancient Society of York Florists, Chelmsford and Essex Horticultural, Canterbury Gardeners' Mutual Improvement, Dorset Chrysanthemum, Lincoln Chrysanthemum, Sheffield and West Riding Chrysanthemum, Brighton and Hove Chrysanthemum, Weald of Kent Gardeners' and Cottagers' Mutual Improvement; Highgate, Finchley, and Hornsey Chrysanthemum; Scarborough Floral and Horticultural; Ascot, Sunninghill and District Horticultural; Bath Floral Fête, Lincoln Chrysanthemum, and Ealing, Acton, and Hanwell Horticultural. One excellent idea in connection with the affiliation scheme is found to be working well—namely, that of a representative of each affiliated society having a seat on the General Committee of the National Chrysanthemum Society for the season; it serves to bring it into more intimate touch with country societies, and suggestions often of a useful and practical character are made and discussed. At a meeting of the General Committee held on Monday evening last twelve new members were elected, bringing the total up to 271. It may be said that the National Chrysanthemum Society is one of the most successful horticultural ventures of recent days.

— THE BOTANICAL SOCIETY OF BELGIUM.—The twenty-third volume (1884) has just reached us, and is noteworthy for an interesting paper on the division of the nucleus in *Tradescantia*, by Dr. BERNI-MOULIN, of Liège, in which, however, the author does not state the magnifying power that he made use of. Methyl-green was used as the staining material. Mycologists will welcome the excellent classified list of the fungi found in the neighbourhood of Brussels, and drawn up by two ladies, Mesdames BONMER and ROUSSEAU. A series of analytical tables serve for the ready determination of the genera. The literary references are ample, and show that the authoresses have availed themselves of the most highly reputed authorities, while their personal observations, carried on for many years, give ample warranty of the excellence of this list. We regret that the compilers have adopted the diffuse method of characterising the orders and sub-orders. It would greatly tend to facility of reference if cryptogamic botanists would adopt the concise technical description as practised by LINNÆUS and carried out by most botanists who deal with flowering plants. The diagnoses of Chytridiceæ, for example, occupies fourteen lines, but which, if treated in the same manner as the descriptions of the genera, need not fill more than one half of the space. In the case of such genera as *Puccinia*, the *Uredineæ* and *Aecidial* forms are given where known, with the plants on which they respectively occur. We commend this valuable list to the notice of our readers.

— MANGIFERA INDICA.—In spite of its close connection with a large number of poisonous trees or shrubs belonging to the same natural order the fruit of the Mango is not only harmless, but esteemed highly delicious. Besides growing naturally, and cultivated in various parts of India, it has also found its way into many warm or tropical countries. In hothouses it succeeds under a considerable range of temperature, and is worthy of a place in large stoves for the beauty of its long, lanceolate, deep green, shining leaves. A large specimen grown in a pot may be seen flowering in the Palm-house at Kew. The



inflorescence is terminal, consisting of a panicle of small pale or white and yellow flowers resembling in the aggregate those of some species of *Rhus*, but differing in colour. The leaves, however, are simple in this instance, and the flowers are remarkable for the reduced condition of the stamens: seldom more than one is perfect, while the rudiments of other four are more or less discernible. The species is figured in the *Botanical Repository*, 425.

— **ROSES IN THE SOUTH OF FRANCE.**—It is stated that a Rose grower at Hyères obtained for his Rose buds of Safrano, this season, 30,000 fr. In the first week of January (including New Year's Day) he sold flower-buds to the amount of 5000 fr., and the receipts for one day amounted to 1400 fr., and all this from 2 hectares of ground.

— **CAMELLIAS AND AZALEAS AT MESSRS. J. VETCH & SONS, CHELSEA.**—The large conservatory planted out with Camellias is just now one mass of bloom, all the plants, large and small, being extremely full of flower. C. Storyi, a beautiful rosy-pink; Comte Nesselrode, large flowers, rose tipped and edged with white; Mathotiana rosea and alba, and Tricolor, Comtesse Mastiana, blush-white; Princess Bacchiocchi, Countess of Orkney, Gerardine Santarelli, crimson, blotched white, fine flower; Mad. Cachet, pure white, striped with crimson, as in Countess of Orkney, but with more substance; and Duchesse d'Orleans, white, striped with crimson, were amongst the most noticeable. Some of the new Azaleas were very striking, particularly Hermosa, a very fine rose-coloured variety; Baron Nathaniel de Rothschild, deep crimson, large flowers; Czar Alexander, very deep reddish-scarlet; Empereur du Brésil, deep rose, bordered with white; and Theodore Reimers, nearly purple.

— **CLIVEA MINIATA.**—As an illustration of good cultivation and of the magnificent effect that can be produced by relatively inexpensive plants, we may mention that in the gardens of J. STEWART HODGSON, Esq., of Haslemere, are two specimen Cliveas, one with twenty-two spikes, and some of the spikes with twenty-three flowers on each. Both are good varieties, and, needless to say, they are well cultivated by Mr. EVANS, the gardener.

— **SPARMANNIA AFRICANA.**—Some standard plants of this fine old Cape of Good Hope greenhouse shrub are now to be seen in fine condition in the conservatory at Gunnersbury House, Ealing. Mr. HUDSON manages these with exceptional success. They are on 4 to 5 feet stems, and have put forth branches bearing main and side spikes of blossom in great plenty. There is much to be said in favour of growing the Sparmannia in this way—the delicate Schizanthus-like spikes of bloom are above the level of the line of sight, and the eye can take in all their beauty, especially that of the pencilled golden stamens. There are several specimens at Gunnersbury House; they have remained for sometime undisturbed in their pots; when they have done flowering the plants are placed out-of-doors, and in the autumn, before being housed, the flowering wood is pruned back hard. Then they break into strong growth, and bloom in early spring freely and finely.

— **PÆONIA ARBOREA IN POTS.**—Mr. ROBERTS has made a most successful experiment with these at Gunnersbury Park. In the large vinery can be seen two very fine specimens in pots that have borne a number of flowers, and they have been found very useful for cutting purposes. The experiment has been made for the purpose of showing the adaptability of the Tree Pæony for a winter garden. Mr. LEOPOLD DE ROTHSCHILD is forming; and that these Pæonies can be grown in pots in the most successful manner is amply demonstrated. The early flowering character of *P. arborea* lays it open to damage from early frosts when grown in the open ground.

— **GARDENING APPOINTMENT.**—Mr. J. PETRIE, Indoor Foreman in the Gardens, Broxmouth Park, Dunbar, has been appointed Head Gardener to the Marquis of TWEEDDALE, Yester House, Haddington, N.B. — Mr. G. DUNCAN, late Foreman at Dupplin Castle, N.B., as Gardener to C. W. Wilson, Esq., M.P., Warter Priory, Pocklington, York.



## THE PROPAGATOR.

THE PROPAGATION AND CULTURE OF ALOCASIAS.

(Continued from p. 377.)

A. JENNINGSII.—This is a very distinct and pretty variety, and is distinguished from other plants by the peculiar markings of its foliage. Its pea-green leaves and black markings, with occasional round black spots, renders it attractive and conspicuous. It is not evergreen, like *A. Veitchii*, but loses its foliage upon the approach of winter. It is an excellent plant, and well deserving of a place in every collection.

During the winter months the plants can be placed under the stage of a warm house where there is not much drip from overhead. The supply of water should now be almost withheld, giving them only just enough to prevent the roots from shrivelling; but when the plants are in full growth they should be well supplied with water. For this purpose the pots should be stood in pans of water. These saucers should be emptied and washed out once a week, and should not be filled for a day or two in order that there may be a free circulation of air to the roots and soil.

In the active growing state the plants should be kept in a good temperature, constantly syringed, and ventilated upon every fine day, but they should also be shaded from the hot sun. They will grow in almost any soil, but in some cases, when potted into strong soil, the plants do not attain their proper size in the first season, and in the second often disappear altogether. In the summer the plants do not feel the want of a warm soil, but it is during the winter months that a cold heavy soil has such a dangerous effect. The following compound is best suited to the plant:—Equal quantities of yellow loam, leaf-mould, peat and river-sand, and small quantities of chopped sphagnum moss and charcoal broken up into pieces of hazel-nut size. This soil should be well mixed together before it is used. In order that good drainage may be secured the pots used for the plants should be filled to a quarter of their depth with broken potsherds.

### PROPAGATION.

After the soil has been shaken from the roots of the plant all its thick knotted root-growth should be cut off to within an inch of the crown or centre of the plant. Both the pieces of root and the remainder of the old plant are to be used, and should therefore be taken care of. Taking the old plants first they should be potted into large 60's, and care should be taken to keep the crowns or centres level with the surface of the soil. A little sand should be placed at the base of the plant—that is, between the plant and the ordinary soil. They must be put in a cutting-case upon a gentle bottom-heat, and after three or four days have elapsed they should receive a good watering, but not before. From that time they should be sprinkled with a fine rose pot, as well as ventilated for an hour every night and morning; and when the sun shines, shading is also necessary. When the plants have well rooted and thrown up growths to the height of 3 or 4 inches the amount of ventilation should be increased.

If the light of the case is raised an inch, and is not shut down during the day or night, the plants will soon have become strong enough to be stood out upon the open bottom-heat, and here they should remain until established in their present pots. They should then be potted into large 48's, and as they are small growing plants they seldom require larger pots, but if large masses are required they can be further potted as occasion demands. Now attention must be turned to the root growths. The necessary pans should be well drained, and the soil must be firmly pressed in, the surface being made quite level, and after being well watered they are ready for use. The root-growth must be cut into pieces half-an-inch in length, and these can be placed upon the surface of the soil, not burying them, (but sprinkling them first with dry sand and then with the ordinary soil, but only so as to barely cover them. The pans must be placed upon a brisk bottom-heat in a cutting case, and they should be well watered after

they have been there four days, but not sooner. They must be sprinkled with a fine-rose pot night and morning, at which times they should also be ventilated for an hour, and when necessary they should be shaded from the sun. When they have grown into plants, 1½ inch in height, each one should be potted into thumb-pots, and if more plants are required the pieces of old root-growth can be taken off each young plant and placed back in the pan, where they will form fresh plants. After the root-plants have been well watered they must be placed in a close cutting-case or frame, and treated in the same way as the old plants until they have been turned out upon the bottom-heat. Here they should remain for four or five days to harden them for potting into large 60's. Well water and replace them upon the open bottom-heat. They can be potted again into larger pots if large plants are required. *A. Marshalli* is a companion plant to *A. Jenningsii* and can be propagated in the same way, as also *A. Gibsoni*, with the exception of the soil, which should be composed of one-half good turfy loam, one-third peat, and one-quarter river sand.

### ALOCASIA MACRORHIZA VARIEGATA: ITS PROPAGATION.

The top growth of the plant should be cut down, and care taken to cut an inch of the main stem with it. In potting a little sand should be placed between the bottom of the cuttings and the ordinary soil, which should be firmly pressed into the pots. The cuttings must be secured to small sticks, and after being well watered placed in a cutting frame. The case should be shaded from the sun and ventilated for an hour night and morning, and the cuttings should be watered as soon as they become dry. When the plants have well rooted they can be removed to the open bottom-heat, and after they have been here for six or seven days they will have gained strength enough to be repotted into 24-sized pots. They should be watered and replaced upon the bottom-heat, and when they have grown to the required size they can be taken from the bottom-heat to an ash bottom in a warm house, although if more than ordinary size plants are required they must again be potted as they gain strength.

The old plants from which the cuttings have been taken should now be stood or plunged upon bottom-heat. They will soon produce a quantity of young plants, and when two or three leaves have appeared upon each of these the old plant should be shaken out of the soil and all the young plants taken off. They must be potted into small 60's, and after being well watered they must be replaced upon the bottom-heat. Here they should be well supplied with water, besides being lightly syringed three or four times a day, and as they grow in strength and size they must be potted into larger pots when necessary.

The old plants should again be potted and stood out upon the bottom-heat, where they will continue to produce growth for cuttings. The soil suited to this plant is composed of one-half good turfy loam, one-third leaf-mould or good rotted cow-manure, and one-quarter river-sand. The pots used should also be well drained. T. O.

## The Herbaceous Border.

### ALSTRÖMERIAS.

THIS beautiful tribe of plants does not receive the attention it so well merits. In these days of floral decoration, when flowering plants of all descriptions are being sought for, it is surprising that such useful and beautiful plants as the *Alströméria* should be so little grown; they are quite hardy and of easy culture, they like a deep, rich, sandy soil and a warm situation. They are increased either by dividing the roots or by seed, which may be sown when ripe or kept until spring, the latter being the best season. When the seed is sown it should be put into heat and kept moderately moist until it commences to grow. When the young plants are fit they should be potted off and put back into some heat, and kept growing gently. When they begin to fill the pots with roots they should have a shift; they should then be put into a cold frame or pit and gradually hardened off. Towards the end of May they may be planted out; they will do well grown against a south wall. I have grown them well against the end of a vinery having



an east aspect. They should be planted in a border well prepared with nice soil, and should be placed a foot or more apart. A few only of the strongest will flower the first season, but the following season the flowers will be all that is desired. They will grow and flower in the same situation for several years, but when the clumps get large it is best to divide them, and renew at the same time the soil in the border. *M. Saul, York.*

#### ORNITHOGALUM "GRACILE."

I have had several letters of inquiry as to the identity of the *Ornithogalum* which has been widely advertised lately under the above name. Mr. T. S. Ware has now sent me perfect specimens, and it proves to be *Ornithogalum lacteum* of Jacquin, of which figures will be found in the *Botanical Magazine*, t. 1134, and in Andrews' *Botanical Repository*, t. 274. The plant which I described under the name of *O. gracile* in Trimen's *Journal*, 1874, p. 366, belongs to the same subgenus (*Cathissa*), but is perfectly distinct specifically. We have a handbook of all the Cape bulbs, with full synonymy and references to all published figures, in a forward state of preparation. *J. G. Baker.*

#### RANUNCULUS LYALLI.

At p. 186 Mr. James McIndoe asks if any of the attempts to cultivate this plant in Britain have yet proved successful. So far nothing very satisfactory has been done; the plants introduced a few years ago by Messrs. Veitch all perished, and as no second attempt to bring living plants of it to England appears to have been made, the only other means, that of seeds, has perforce to be looked to for the introduction of this remarkable and beautiful plant to gardens on this side of the world. The late Mr. Anderson-Henry succeeded in raising plants of it from imported seeds, which, if still alive, it is to be hoped have passed into careful hands. Mr. Max Leichtlin, of Baden Baden, possesses, or did recently possess, a young plant of it; and in the Royal Gardens, Kew, there are two young plants which were raised from seeds obtained through Major Tesker-naker, Sydenham. These two plants are at present growing in a cool Orchid-house, where they are shaded from direct sunlight, and are kept in a temperature of 45° to 50° in winter. The seeds were sown about two years ago in a loamy soil, and placed in a warm house, where two of them germinated ten months after date of sowing. The character of the seed-leaves was so remarkably like that of the common field *Ranunculus* that it was feared they were not the right thing. They were, however, saved and grown on, and in time began to show that they were something unfamiliar, as the leaves thickened and assumed a rugose appearance. Till recently all the leaves developed by these two plants were semi-rotundate, with a wide sinus at the base extending to the leaf-stalk; now, however, the leaves are almost orbicular in outline, and the sinus is comparatively short and narrow, so that in appearance the leaves are distinctly peltate. This character of the seed-leaves, differing so markedly from the mature ones, is somewhat singular, and I have not met with a similar instance amongst the numerous and various seedling plants which have come under my observation.

If Mr. McIndoe or some other New Zealand friend could supply us with particulars as to the conditions under which this *Ranunculus* grows, both naturally and when in cultivation, he would afford valuable assistance to those of us who are trying to succeed with this plant. What we want to know is whether the position most favourable for it is one exposed to sunlight or shade, and if the plant is semi-aquatic, as stated by some, or genuinely terrestrial, as I am inclined to believe it is from information recently received.

The description of this *Ranunculus* in Hooker's *New Zealand Flora*, together with the interesting observations from Mr. McIndoe, are sufficient to make us here long to succeed in its cultivation. A plant with thick fleshy concave peltate leaves, 4 feet high, and bearing tall scapes, each with about a dozen dazzling white flowers 4 inches in diameter, and which, moreover, is likely to prove perfectly hardy in England, would be a most welcome addition to gardens. We have the beginnings of the plant; what we still want is some reliable information on the conditions most suitable for their full development. *W. W.*

## DISEASE OF SPINACH.

PERONOSPORA EFFUSA, Grev.

In the *Gardeners' Chronicle* for February 7 last, p. 176, a description and illustration was given of a parasite of *Hebe* named *Peronospora Hyoscyami*, P. In the description it was pointed out that *P. Hyoscyami*, P., might possibly spread to other solanaceous plants, as the Potato, Tomato, &c. We also stated that *P. Hyoscyami*, P., so closely resembled in habit and form another species of *Peronospora*, named *P. effusa*, Grev., a parasite of Spinach, that Dr. Rabenhorst had considered the two fungi to be identical with each other.

Since that article was published several correspondents have asked for an illustration of the Spinach parasite, *P. effusa*, Grev., so that the figure might be compared with that of *P. Hyoscyami*, P., on p. 176. As we are not acquainted with any illustration of *P. effusa*, Grev., in any English book, we here give one in fig. 87, enlarged from Nature to the same scale as

tains its existence from year to year. The fungus differs from the Potato fungus, *P. infestans*, Mont., in growing on the attacked plants for several months together, instead of for a few weeks only, or perhaps days.

If the readers of this paper will compare the illustration of *P. Hyoscyami*, P., with that of *P. effusa*, Grev., now given, they will see how very close is the resemblance in form and size between the two parasites. The colour of the conidia is also the same.

To prevent attacks from this pest, Spinach should not be resown a second year in beds where the disease has once appeared. The yellow leaves, such as have the pale mauve disease patches beneath, should be removed, and if possible burnt as soon as seen. As diseased stems and foliage contain the resting spores, all such material should be gathered together and burnt or deeply buried. The old material should on no account be thrown on to refuse heaps. *W. G. Smith.*

## Florists' Flowers.

### SEASONABLE NOTES: THE HOLLYHOCK.

THE plants that have been propagated by cuttings or root grafting since January 1 may not yet be ready to be planted out. It is not well to plant them out too hurriedly. When the small plants are fairly rooted they should be repotted into 5 or 6-inch pots, and be gradually inured to the outside atmosphere. I place them in a cold frame, from which the lights can be removed, and the plants are ready to plant out, when they have rooted well into the pots, and the lights have been removed night and day for a week at least. The autumn propagated plants may be put out any time early in April, and it must be borne in mind that the main essential to success is a deep well worked soil, with plenty of rich manure incorporated with it. They are not very particular about the quality of the soil, but the young plants turned out of pots do not take kindly to a heavy clay. It is a good plan in such soils to dig out a spit or two, and fill up the hole with some refuse from the potting-bench, a much more kindly start will be made in this material. The old plants stand well in the ground all the winter if the frost is not severe. All our plants have been left out this season, and not one has short stable manure, and digging it in. When dry been injured. I am now giving them a dressing of weather sets in, I mulch round the roots, and water freely. If any traces of the *Puccinia* appear on the back of the leaves, let the plants be dipped in a strong solution of soft-soapy water and flowers of sulphur, after the diseased leaves have been picked off and burned. The sulphur and soapy mixture has the effect of destroying the fungus in its very earliest stages of development. Any red-spider that may be on the leaves is also destroyed. This is a troublesome pest in hot seasons, and quite destroys the leaves if it is not checked by frequent syringing.

### THE DAHLIA.

One of the easiest of plants to propagate, and grow on to a size for planting out, and yet I have had almost as many letters asking for information about the culture of it as about the *Auricula*. The single Dahlias having gained so much popular favour during the last few years, has been the cause of the double varieties being also sought after. The single type is best treated as an annual. A pinch of seeds sown in a hot-bed about the end of February will produce plenty of vigorous plants about the end of May. The propagated plants are rooted in a hot-bed during March and April. As soon as rooted they are removed to a house where the frost can be kept out; and when they are sufficiently inured to the cooler atmosphere, they may by the end of April be placed in a cold frame, and early in May be potted into 5 and 6-inch pots. In fine weather remove the lights from the frames; the object is to encourage a dwarf bushy form of plant.

### THE TULIP.

We do not in any way protect our plants, and yet it would scarcely be possible to see a finer growth than we have this year—the leaves are so clean and brittle: the last a sure sign of vigorous health. They are later than usual owing to the cold nights, but the

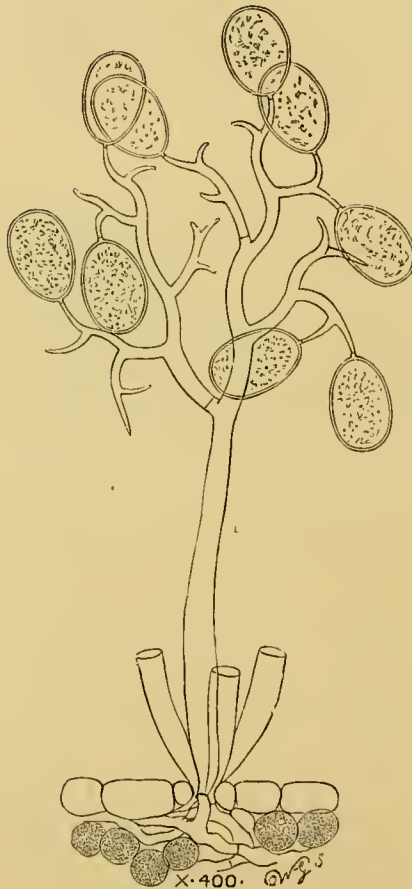


FIG. 87.—DISEASE OF SPINACH: PERONOSPORA EFFUSA.

*P. Hyoscyami*, viz., to 400 diameters. The spores or conidia of *P. effusa*, Grev., are ovate, very large, and of a very pale grey, or pale mauve colour, a bundle of four supporting threads or conidiophores are seen in the illustration emerging from the underside of the Spinach leaf through an organ of transpiration; three of these supporting threads are cut off in the illustration to prevent confusion. The ultimate little branchlets which carry the spores are curiously and abruptly recurved or bent down as if by the weight of the large spores or conidia.

To the unaided eye this mildew of Spinach appears as greyish effused patches on the under-side of Spinach leaves. It causes the leaves to become yellow and putrid, and Spinach is frequently invaded by the parasite all through the spring, summer, and autumn. The fungus is a common one and very destructive to the host plant. It is not confined to Spinach, but attacks several members of the *Chenopodiaceæ* (to which natural order Spinach belongs) and the *Polygonaceæ*. The parasite produces resting spores or oospores within the decaying tissues of the host-plant, and by means of these oospores the equivalent of seeds, which fall to the ground and hibernate, the pest main-



ground around the plants is quite dry, hence a few degrees of frost does not injure them in the least. By far the best protecting agent would be some glass lights placed over them to protect the blooms from frost and wet, as well as to prevent water from collecting in the axils of the leaves after rains, which freezes there, and does considerable injury to the plants. If the soil becomes too dry water with a small rose water-pot between the rows, and mulch the ground afterwards with decayed manure. *J. Douglas.*

## ORCHARDS ON FRUIT-SICK SOILS.

AN article which appeared under the above heading stated that there can be no doubt that the plan of going on from generation to generation planting the same kind of fruit trees on the same spot where others have stood is wrong, to which few will demur; but why plant the same sorts as those in favour a century back when there are so many improved varieties, and why on the same spots, when they might be placed a few feet farther either one way or the other?

As to fruit-sick soil, I do not think there is such a thing, as the roots of trees do not take possession of all the ground about them, or it would be useless planting woods more than once; but as it is, they are no sooner felled than other plants are put in to take the place of those cut down, or seedlings come up, and the same process goes on for hundreds of years, and the trees succeed simply because they have Nature's top-dressing, fallen leaves, and debris of other kinds, that rots and enriches the soil.

When orchards fail it is generally through the land being unsuitable, or because it has become impoverished through the grass being continually cut and not grazed, in which case the soil gets no manure, and it is not to be wondered at, under such circumstances, that the growth of the trees is unsatisfactory, or that they dwindle and die. Lichen is a frequent cause of ill-health in Apples, and this is brought on as frequently through poverty as from want of draining, proofs of which I have seen again and again, as in several places where I have seen them in that state there was not a drop of water near the surface for miles round. [Is not the lichen an indication of unfavourable conditions? Of itself it is, we believe, quite harmless to the tree, unless as a refuge for insects. *ED.*]

It seems a general idea that trees will not grow where trees have been before, as I remember quite well that when I came here, near thirty years ago, I was told the same thing; but I did not heed it, and as the Apples were all very old and cankered I destroyed the greater part by grubbing them up, and replanted. Before this was done, however, the soil was trenched as deep as it would admit of, and at the same time manured, and it would be difficult now to find any better or more healthy trees anywhere in the district, for they are clean in bole and branch, and carry fine crops of fruit.

To just dig a hole and stick in a tree where another has died out is a great mistake; if the young one is to do any good, the soil must be thoroughly broken up, and every old root picked out, for if these are left in they generate fungos, and nothing is more fatal to plant life than this. If a little fresh soil can be got to start the tree in so much the better; and if not, the turfy part, or that at the top, should be used, and after the roots are properly spread out on some of it they should be covered with the rest, and when the soil filling up is completed, the next thing is to mulch. To this I attach the greatest importance, as the plant is then placed in the most favourable condition it can be, for the manual mulching keeps out the frost, and renders the soil about the roots uniform by preventing the escape of moisture and heat.

If those who think they have fruit-sick orchards will treat the trees after this fashion, and give the trees enough light and room above, I do not think they will have reason to complain of any failing to grow and flourish in the way young Apples ought. *J. Sheppard.*

**BANANAS AT HAREFIELD GROVE.**—A light and airy span-roofed house, not over tall, and measuring some 25 by 18 feet, is devoted to the culture of *Musa Cavendishii* at Harefield Grove. The Musas were planted out on March 28, 1884, before the house was finished, there are four fine plants on either side, and they are now fruiting in the finest condition, some of the bunches being of a very large size.

## NARCISSUS TAZETTA, VAR. TREWIANA.

THE Tazetta group of *Narcissus* is very large and varied, and it would puzzle the ingenuity of the botanist to classify the several forms in such a way as to satisfy anybody but himself. In truth, the forms run so much one into the other, that accurate definition becomes impossible. The form we now figure from the collection of E. G. Loder, Esq., is one of the finest and best of the group, and is the

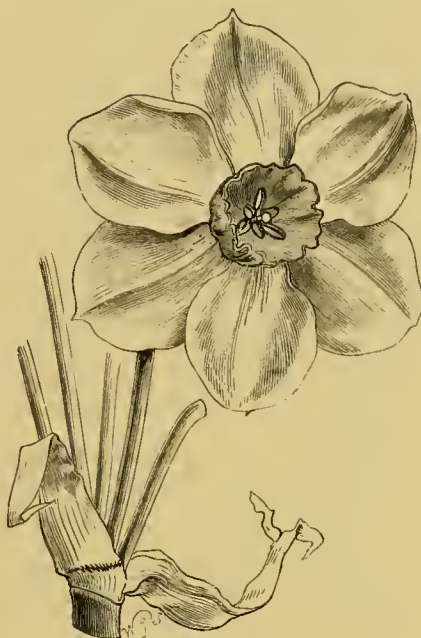


FIG. 88.—TREW'S NARCISSUS.

variety Trewiana, the *Hermione Trewiana* of Sweet, the *Narcissus Trewianus* of Gawler, *Bot. Mag.*, tab. 940 (sub. *N. orientale*), *Bot. Mag.* (sub. tab., 1298, description only). It is also the *N. grandiflorus* of Haworth. It is closely allied to the ordinary Bazelman major of the shops, but has larger flowers, fragrant, white, with a yellow cup.

## MATTHEWS' COMBINED STRAWBERRY TILE AND SNAIL TRAP.

WHEN the enterprising proprietor of the Royal Pottery at Weston-super-Mare turns his attention to the designing and manufacture of an article, be it an ordinary vase, a perforated Orchid pot, or a highly decorated work of art, he does not rest until he has completed his task, and is in a position to offer another boon to the horticultural world. The article which he now has to offer is not expensive, although



FIG. 89.—STRAWBERRY TILE AND SLUG TRAP.

it is ingeniously contrived, and is well calculated to answer the purpose for which it is intended. It is what Mr. Matthews terms a Strawberry Protector and Snail Trap, and is composed of two semicircular pieces of well turned clay, which, when fitted together, form a convex support for the foliage and fruit, while a bead underneath keeps the outside edges clear of the soil, and forms a cool secluded retreat for snails and like marauders. Now Strawberry tiles have been for some years before the public, but they are small and heavy, being neither more nor less than two solid blocks of burnt clay, with a semicircular piece cut out of the side of each to form,

when placed together, a square block, with a circular opening in the centre large enough for the collar of the plant. The tile manufactured by Mr. Matthews, as will be gathered from the accompanying illustration (fig. 89), is much higher and larger, and falls off from the centre at an angle which secures a comparatively dry surface for the fruit to rest upon in wet weather; moreover, being supported clear of the soil by the inner and outer beads, it attracts sun-heat, which produce an underlying stratum of warm moisture, at all times acceptable to the roots of the Strawberry. Being made in two halves the protectors can easily be raised from the ground whenever it is thought necessary to search for the depredators. Some two years ago, when on a visit to Weston, this newly designed tile was amongst other interesting articles placed before some horticulturists who happened to be present, and it struck some of them as being too flat, and lying close to the ground to answer the double purpose for which it was intended. This defect has been corrected, and at my request two were sent to Eastnor to undergo the test of a fair trial, where they have been in use up to the present time, and I am prepared to say they answer admirably.

So much for snails and Strawberries, so frequently found occupying the same bed, especially in cool, calcareous districts, for much as the silent depredator objects to lime in a caustic state, he evidently enjoys it in its primitive form. The use of the Strawberry tile does not, however, end here; on warm light soils subject to burning, and the sudden collapse of established plants, notably the *British Queen*, it is equally valuable in the prevention of splashing with gritty matter during heavy rain, and in keeping the surface roots moist and active during a continuance of hot dry weather. If in such a light and difficult Strawberry garden there are neither snails nor slugs to eat the finest fruit, the proprietor may indeed think himself fortunate.

From fruit we turn to plants and flowers. Every one knows a snail will travel a long way for a Christmas Rose, a Dahlia, or the dainty point of a Lapageria shoot; persevering indeed must the attendant be who succeeds in keeping his treasure safe; but aided by Matthews' tile the feat may be accomplished, as the enemy, foiled in his attempt, settles down under its shelter until the attendant can find time to despatch him.

There are other uses to which this neat article can be turned, such as protecting newly planted trees or choice plants in the flower garden or on the open lawn, where a ground covering of some kind is required, and ordinary mulching may be objectionable. But sufficient has been said to show that the improved Strawberry tile may be turned to many uses in every garden beyond the purpose for which it was originally designed. *W. Coleman.*

## FRUIT NOTES.

**THE INFLUENCE OF SOIL AND SITUATION.**—I think the Apple Congress was justified in placing King of the Pippins at the top of the list. I will name one or two facts that have come under my own observation in reference to this variety. In the gardens here there is a tree that has been planted from fifteen to twenty years. The soil is a strong loam resting on chalky clay. Now the fruit from this tree never colour well, and as a rule is only of third-rate quality. In another part of the garden, some 55 or 60 feet higher, there are a number of younger trees, planted in a lighter loam, which overlies gravel. The fruits from these trees attain a high colour, and are of excellent quality. When living near Hounslow I had, in a grass field adjoining the gardens, a grand old tree of this variety which as a rule bore fine crops of a beautiful colour, but they were never of good quality, and after being gathered for a short time they always turned mealy, and became cracked in the rind. The soil was a deep rich loam. One more instance and I have done with this variety at present. In January of the present year I was offered an Apple or two by a stranger. He said I would find them good ones, and they were King Pippins. I brought two home, and found they were really true King Pippins, to all appearance from an old tree, being small, but very bright, clear, firm, crisp, and of rich flavour. To prove how much soil and situation has to do with other varieties I will instance another case or two. When living in Rutland, in the village of Exton there was a grand old tree of Golden Noble



which every year produced fine crops of large handsome fruit. They were so large and fine that the owner used to bring me some fruits every year, and taunt me by saying I could not grow any equal to him. The soil was a strong rich loam, with ragstone below. Here was an instance of Golden Noble being a very free bearing variety. In the gardens here we have fine healthy trees which only bear a very few—in fact, are anything but free bearers; while side by side are fine crops yearly of Cox's Pomona and other varieties. When living in Kent we could always depend on fine crops of Purple Gage Plums, grown as standards; as a rule they produced fine fruit of excellent quality—soil very strong loam, almost clay, resting on chalk. In these gardens we have a number of fine healthy trees of this variety, which blossom well, but for ten years we have had no fruit worth naming. We have much to learn on this subject, and my opinion is that hardy fruit cultivation in this country is only in its infancy, and that there is a grand future for this industry. We must study soil, aspect, and the most suitable varieties for each locality. I hope to return to this subject: in the meantime I am sure your readers would be glad to have the opinion of hardy fruit growers on this, to me, most interesting subject—namely, on the soil, aspect, and varieties of hardy fruits most suitable for their locality. *J. Smith, Mentmore, Bucks.*

## Notices of Books.

**Cactaceae Plants: their History and Culture.**  
By Lewis Castle. *Journal of Horticulture*  
Office.

WE have already noticed the publication of this little volume, but the opportunity of speaking of it at greater length according to its merits has hitherto been wanting. Now we may express both our surprise and our gratification at Mr. Castle's venture. Our surprise is to find that there are still among us enough amateurs to appreciate a much neglected class of plants—our gratification results from the fact that their wants are so well met in the present publication. For interest they yield the palm to no class of plants; for gorgeousness of bloom they have no superiors; for general facility of culture few can equal them, and yet they are certainly not fashionable, and young ladies who gush over Daffodils, enthusiasts who approach the confines of madness when they talk of Roses, or empty the purse of Crocus into the coffers of the Orchid merchants, pass with almost a shudder the quaint and grotesque form of the Cactuses, and apparently find little to admire in the glowing colours of the flowers. Professional gardeners hardly like them better: they are nasty things to handle, of no use for cutting, and not of much use for bedding out. Nevertheless, for the purposes of table or house decoration what is there more beautiful than well grown plants of Epiphyllum? For the most part their culture is simple, and some of the finest collections we have ever seen have been in smoky towns, or in cottage windows, where the facilities for successful cultivation were of the smallest. Mr. Castle's book opens with a brief—too brief—account of the structure, economy, and geographical distribution of the order. Although principally found, as Mr. Castle tells us, in hot dry countries, yet, from their conformation and inward structure, there are few plants better able to adapt themselves, within certain limits, to climatal variations. A wet, waterlogged soil is probably the condition they are least able to resist, and they dislike an over-moist condition of the atmosphere; and this is one reason why they often do better in cottage windows and dwelling-rooms than in greenhouses, where they are grown with other plants. As to temperature, it is certain that if they are kept dry they can bear a much lower temperature than is usually supposed. Mr. Loder's experience on this point is specially valuable. The by no means mild climate of Northamptonshire does not prevent many species from being cultivated in the open air, or with the protection of a cold frame. Mr. Castle, appropriately enough, alludes to the miniature Cactus-houses which are so attractive even to children of larger growth, and which may be seen in Covent Garden Market; but we could have wished he had condemned rather than have praised the bright red pots, which, diminutive as they are, are surely a great disfigurement.

After several remarks on cultivation, Mr. Castle

proceeds to give an account of the principal genera of the order, with a brief notice of those species most interesting to the cultivator. In so doing Mr. Castle has, very wisely as we think, followed the arrangement adopted in the standard book on the classification of plants—Bentham and Hooker's *Genera Plantarum*; but the author should have remembered that in so doing an alphabetical index became an absolute necessity. This necessity is not supplied. This omission is the greatest fault we can find with the book, but it is not one that need weigh very heavily on the author's conscience, for the number of genera is but small. We should gladly have heard more from the author regarding the movements of the stamens and the process of fertilisation, and further proof of his allegation that the pollen and stigmas are mature at the same time in the majority of the species. If this be really so, and not, as we suspect, merely apparently so, we are at a loss to conceive the use of the glorious coloured petals or the fragrance of the night-flowering Cereus. The movements of the stamens in the latter plant are very marked, without the aid of any external aid, such as a touch. In olden days it was naturally supposed that this motion of the stamens was a provision to secure the deposit of pollen on the stigma of the same flower, and so possibly it may be, but if so, of what use is the fragrance? So far as we know, no one has recorded the condition of the stamens and stigma in these plants since the publications of Darwin have shown the vast importance of cross-fertilisation. We commend the subject to the attention of Mr. Castle, and of those gentlemen who practise hybridisation in these plants.

Mr. Castle gives a list of illustrations of Cactaceae from the principal illustrated periodicals, but he has omitted to mention the original illustrations of these plants given in these columns from the collections at Kew, of Messrs. Thuret, Wilson Saunders, Peacock, and others, as well as from native sources. Mr. Castle's book is very well done, is published at a very low price, and should therefore commend itself to a large circle of readers.



## HOME CORRESPONDENCE.

**A Curious Hyacinth.**—I have in my possession a Hyacinth which has bloomed in water, but not thrown a strong spike. From the base and sides of bulb have sprung smaller bulbs, and in two cases the flowers are distinct from the main spike (which is rosy-red), while one of the side offsets has flowers of a pale creamy-white striped with rosy-pink, and the other has flowers of a pale salmon-pink. Perhaps some of your readers can offer some explanation of this freak, and give their own experience also, which would be very interesting. I would further ask whether it is possible to fix the sports from the offsets and propagate thereby distinct colours from the old bulb? [Yes, certainly, many varieties are so raised. *Ed.] E. Wilson Serpell, Plymouth.*

**The Narcissus Doubling Committee.**—The doubling committee are, I believe, obtaining sacks of soil from several of the gardens in which conversion from typical single N. Pseudo-Narcissus to double N. Telamonius is alleged to have taken place: these are to be used in the garden of Chiswick for making pockets of soil in which single wild Daffodils are to be planted. But the case is not exactly analogous to that of the fable of *The Leap at Rhodes*. Soil may be only one factor in effecting the change in which atmosphere and subsoil and other obscure agents may play an important part. As an illustration of this, I may mention that I have from time to time, in the last few years, received double wild Daffodils from Devonshire, sent by Mr. Archer Hind. These after a year or two in my soil became quite single. I have tried sending them back in this state to Devonshire,

where they flowered the next spring with quite double flowers. Last year Mr. Archer Hind sent me some of these redoubled bulbs back again, with a bag of the soil in which they had been redoubled. I carefully made a pocket of this soil, in which I planted six of the bulbs. They are now in flower, and the flowers are nearly single, and next year will probably be quite single. It is true that the change from typical Pseudo-Narcissus to Telamonius is a more remarkable transformation than this, but why do not the committee send a deputation to three or four of these gardens, which I have obtained leave for them to do, and investigate the circumstances for themselves? I have at present in flower in my garden here four sets of double Telamonius, all of which were, I am quite certain, from the good evidence given me, produced in four different gardens from typical wild single Pseudo-Narcissus, specimens of which were sent to me. I have only to-day heard of another instance, and have been told the name of a lady who convinced the late Mr. Harpur-Crewe that this change takes place. In a letter written not long before his death that gentleman told me that he had always thought the statement of single wild Daffodils becoming by cultivation large double garden Daffodils to be founded on error, but that lately he had been told by a lady that she frequently had effected the change in her own garden; and as he knew the lady to be an accurate observer, this information had induced him to change his mind. *C. Wolley Dod, Edge Hall, Malpas, April 4.*

**Rhododendron argenteum.**—There is at present in the conservatory here a good specimen of this plant in flower carrying three grand spikes of twenty-four flowers each. The flowers are pink in bud, gradually whitening as they expand, and the base of the tube inside is adorned by a rich dark purple blotch. Without flowers the noble foliage renders it a conspicuous object at all times. *M. Sullivan, The Gardens, Garden Reach, Champion Hill.*

**Red Cedar.**—In the article on Junipers, p. 370, *Gardeners' Chronicle*, for March 21, it is stated that the Red Cedar (*Juniperus virginiana*) is used in the manufacture of cigar-boxes. It seems to me that the writer has fallen into an error in this statement. I am not aware that cigar-boxes are ever made of Juniper wood; the so-called Cedar-wood from which they are made is the Cedrela odorata, known as the West Indian Cedar. This wood is imported in some quantities from Cuba to Hamburgh, for making cigar-boxes. The use of Juniper wood would certainly be objectionable, as the scent would impregnate the cigars contained in the boxes. *J. R. Jackson, Museum, Kew.*

**The Eucharis Mite.**—I have not any intention of occupying your space by a correspondence on the subject of the mites on the Eucharis, but perhaps I may as well say a few words to endeavour to prevent a confusion which is apparently arising. Any acarologist reading Mr. Wilkes' letter in a recent issue would understand immediately that the mites which that gentleman speaks of belong, not only to a different species, but also to a different family from the Rhizoglyphus found on the Trentham bulbs; but this probably would not be by any means so apparent to a botanist or gardener, and probably the disease of his plants and Mr. Macdonald's was equally distinct from that affecting the Trentham bulbs. It often happens that apparent differences of opinion arise from the fact that the various writers who suppose that they are treating of the same disease are really dealing with two or more. I do not profess to be an authority on Eucharis growing, but I certainly should not deny, and I imagine that no one would deny, the extreme probability that if they or other bulbs be too abundantly supplied with moisture, over-forced, or otherwise weakened or injudiciously treated, decay might set in, followed by the advent of such mites or other scavengers as perform the function of clearing away decaying vegetable matter; and, for all I know, this may be a more frequent cause of Eucharis disease than the Rhizoglyphus; but it certainly was not the cause in the cases of the Trentham and other bulbs submitted to me for examination. I cut the Trentham bulbs right through in various directions, and they were perfectly sound, not showing the slightest sign of decay or hypertrophy; but the Rhizoglyphi were actively engaged on their work of destruction in the interior of the bulbs, between the scales; this, indeed, is



what might have been expected, as they are not usually consumers of decayed matter, but have the good taste to prefer their vegetables fresh, although, doubtless, they would rather have stale food than none at all. *Albert D. Michael.*

**Badminton.**—In the account of Badminton the writer asks if the first greenhouses in England were put up at Badminton. I think I can show that almost the first were. In Faulkner's *History of Chelsea*, describing the Apothecary's Garden, *Evelyn's Journal* is quoted, and a passage occurs about going in 1683 to see the new mode of keeping plants through the winter by means of an ingenious arrangement of hot air and glass. I only speak from memory, "but I know," he adds, "that the foreman or overseer is likely soon to lose his place." The connection of the Beauforts with Chelsea was that their house stood in the middle of where Beaufort street now runs. This Beaufort House was the house Sir Thomas More lived at, probably Holbein also; and this was at one time called Buckingham House, from its connection with the Dukes of Buckingham. Now somewhere, perhaps in the same work, I have found quoted a list of plants given by the Chelsea Garden to the Duchess of Beaufort. Amongst these is specially mentioned a *Crinum*. When I was at Badminton some few years ago, I saw the hugest *Crinum* I ever set eyes on in all my life. The present Duke tells me it has been in his family for generations, and at some time they had connection with the West Indies; I think it is amiable, but it was not in flower. From the vast size of this plant I conceive it may have been part of a descendant of, or the very bulb given by or shared with the Apothecaries' Garden in about 1685, when the Beaufort family had a horticultural Duchess and lived at Sir Thomas More's house in Chelsea. Should this meet the eye of his Grace, I daresay he will kindly throw some light on the subject. As the *Crinum* could not have been grown without a greenhouse, it certainly points to 1685 or thereabouts being the date of the erection of greenhouses at Badminton, a year or so after the first experiments at Chelsea. *Frank Miles.* [Ray, in 1684, mentions the house in the garden at Chelsea as being heated by hot embers put in the floor.—ED.]

**Herbaceous Phloxes.**—*Apropos* of these Phloxes and your correspondent "A. D.'s" remarks at p. 385 respecting them, it is obvious that my note at p. 55 of the issue for January 10 has escaped notice, to which I now refer him, where he will probably find something of service in my concluding remarks of the note in question. I am under a partial promise of making some observations as to the various means of employing them, and which I will now do as briefly as possible:—From the rootstock of the great majority of the varieties of this section numerous strong shoots will now be issuing, and to ensure fine heads of bloom in comparatively small pots, these may be secured without further delay; cuttings, such as are strong and robust, of about 4 inches in length are the best; these may either be severed with a knife, or stripped off by the heel, in either case if subjected to slight warmth such as may be had in an ordinary dung frame, they will soon and freely emit roots not only from the base, but the sides of the cuttings also. Any ordinary vegetable soil made rather sandy will suit them, and according to the number required may be inserted in single pots, or several in a 5-inch pot. Whatever course is adopted now, it will be well to observe that if required for conservatory decoration the plants should only be placed singly in their flowering pots, for, like the *Chrysanthemum*, it is almost impossible to over-feed them when well in growth. By rooting them in a dung frame good vigorous plants are the result; indeed, they thrive to a remarkable extent thus treated, evidently feeding upon the humid atmosphere of the frame and the ammonia arising from the manure. When well rooted pot into 4-inch pots, keeping them close till fresh roots are formed, when air may be admitted to them; by the end of April these pots should be full of roots, when they may receive their final shift into 6-inch pots; when giving this shift use well enriched loam, not over sandy; plunging the pots out-of-doors in short stable litter, coal ashes, or any similar material. Keep well supplied with water, for these Phloxes are rare lovers of moisture during their growing and flowering season, and by doing this the foliage, which otherwise would be lost, will be retained, and which forms an important part. After

flowering they should be planted out, for if kept a second year, no matter how treated, they are sure to shed their lower leaves and look unsightly. By inserting successional batches of cuttings from the present time till the end of April a good display will be guaranteed for the embellishment of the conservatory till *Chrysanthemums* make their appearance, and even then their large and massive panicles form a pleasing contrast with them, to say nothing of the greater variety of bloom. Unlike the *Chrysanthemum*, however, they must not be stopped, for although you may get two breaks instead of one, you will most certainly sacrifice the finest head of bloom, as there are a great number of varieties it may be not out of place to cite some of the finest sorts; and as there are plenty of good kinds of dwarf growth, I will confine myself to them. The best whites of this group are Queen of Whites, 2 feet 6 inches, with monster panicles of the purest white, the individual flowers being large too; Thomas Chisholm, 2 feet, a very good variety; Independence, 2 feet, very fine heads of bloom—this variety is occasionally streaked with pink; and *Virgo Marie*, pure white, trusses large and compact, and about 3 feet high—this height, however, is rarely attained the first season in pots. Of crimsons and shades near akin may be mentioned *Coccinea*, 2 feet high, colour rich vermilion-crimson, the most conspicuous among dark Phloxes; and *Madame A. Verschaefelt*, 2 feet 6 inches, colour rich crimson, suffused with purple. Among whites with conspicuous centres are *Edith*, 2 feet; *La Candeur*, 2½ feet; *Mdlle. Marie Lacroix*, 2½ feet; and *Virgie Marie*, 2½ feet. Of rose shades *Roi des Roses*, 2½ feet, is very fine—an excellent variety for masses or lines; *Mons. Joseph Heine*, 2½ feet, bright salmon-rose; *Moos. Taillard*, 2½ feet, salmon-red, trusses very large and freely branched; *Rêve d'Or*, bright salmon, 2½ feet; *Liervalli*, 2½ feet, salmon-red, centre crimson; *Lothair*, bright glowing scarlet, a most beautiful variety, 2½ feet; *Amabilis*, rosy-salmon, 3 feet; and *Aurore Boreale*, 2½ feet, rich salmon vermillion. *Menotti* is perhaps one of the most pleasing and distinct of all: it is a free and continuous bloomer, 2 feet high, and very large trusses, colour pleasing delicate rosy-lilac distinctly lined white. *Gloire de Poiteau*, 3 feet, has rosy-lilac flowers; *Mons. Malet*, 2 feet, has clear lilac flowers with lilac-purple centre, and large well formed trusses. These are, among the best dwarf kinds, some of the most conspicuous, all well adapted for pot culture, and grown as such form excellent decorative plants. Not the least feature in connection with these handsome flowers is that they are fragrant, and in some cases remarkably so—a not overpowering fragrance, however, still it is sufficient to arrest the attention of the would-be passer-by, and when planted *en masse* are among the most attractive of garden plants. *E. Jenkins.*

**Frost.**—At Ulverstone 9° of frost (see p. 446) would seem to be somewhat out of the way; here we have only had six nights without frost from March 1 up to present date, April 7, from 6° to 16° up till the last three mornings, when we had only 3°. April was ushered in with 12°. Everything in the shape of spring flowers has been killed, even the common *Crocus* could not stand it. *F. Bedford, Straffan House, Co. Kildare.*

**Proposed Foresters' and Gardeners' Benevolent Institution for Scotland.**—I feel inclined to indorse all that has been said by Mr. Rust on this subject at p. 416. The Gardeners' Royal Benevolent Institution already exists, and is also prosperous, and is moreover sufficiently cosmopolitan in its character to embrace the whole of the United Kingdom, *i.e.*, Scotland and Ireland, as well as England. The pensions are now raised to £20 and £16 per annum, and although most of the present pensioners appear to reside in England a perusal of their names suggests a northern origin for a large portion of them. The Institution has the patronage of the Queen; its affairs are efficiently managed by a committee of some twenty-four members elected from the subscribers, one-third of them being practical horticulturists. It has long been a matter of merited reproach to practical gardeners that they have not rendered that support to the Institution which they were reasonably expected to do, and which they might doubtless have done, knowing, as they do, that it exists exclusively for their benefit. The line which separates the forester from the gardener can hardly be a hard and fast one, or if it exists at all it

will doubtless be willingly obliterated. So instead of introducing a new and rival institution which will require considerable time, trouble, and expense to fairly develop, let foresters and gardeners in all parts of the country cordially unite in rendering support to the old and existing institution, which is a "going concern," with an ample capital safely invested, and from which they may expect to derive benefit, should they ever happen unfortunately to require it, or if not so much the better for them, and they will nevertheless secure that which is of more value than pecuniary assistance, *viz.*, a knowledge that by their means some less fortunate man or woman have had their most pressing needs supplied, and the too often rough and downhill path made more endurable. *P. Grive, Bury St. Edmunds.*

**Philesia buxifolia.**—Years ago, when this now somewhat scarce Chilean evergreen was first introduced, it was treated as a greenhouse plant, succeeding in the temperature of a cool-house when potted in well drained fibrous peat. At the same time it was demonstrated by the late Mr. James Veitch that having lived in the open borders at the Exeter Nursery for three winters there was every probability of its proving thoroughly hardy, though some contended that the climate of Devonshire could not be taken as indicating what would exist in the open air in colder parts. Messrs. Backhouse & Son, at their York Nurseries, have treated it as a hardy plant, and with marked success, planting it in well drained and partially sheltered positions, using a compost made up of deep peat, chopped sphagnum, and an abundance of white sand, and in this it is found to run freely. What a lovely neglected plant it is, with its neat shrub-like growth, the habit being close and erect, the flowers large, solitary, and of a delicate waxy-rose colour, resembling those of *Lapageria rosea*. Small plants only a few inches high will produce flowers. It is time it was rescued from the comparative oblivion to which it is now consigned. *R. D.*

**Lily Growing in Scilly.**—The suggestion made on p. 408 to Mr. Dorrien Smith, that he should devote a portion of his insular domain to Lily culture, has already been taken up by him to some degree. Although at present his main object is *Narcissus* growing, large patches of ground are planted with *Amaryllis Belladonna*, the *Guersey Lily*, and *Lilium candidum*. Last August, and during the first ten days of September, I had the pleasure of seeing the *Belladonnas* in flower. The number of flowers on the scape was a proof that the soil is specially fitted by the will of the gods for bulbous plants; and not only in truss, but also in individual size, were these Lilies superior to any I had ever seen elsewhere. In this opinion two well known and experienced horticulturists, who were visiting the island home of the *Narcissus* at the same time, concurred. *Calla æthiopica*, again, may *en vérité* be described as growing wild in a marshy portion of the Treco Abbey grounds; and in Mr. Trevillick's garden on St. Mary's Isle it increases in a wonderful manner. This grower last year lifted and sent away to England hundreds of roots in the beginning of September at an extremely low price. Mr. Dorrien Smith could well be pardoned if his affections were alone centred in Daffodils, but it is a great pleasure to be able to report that he is cultivating *Ixias*, *Irises*, and Lilies. *C. A. M. Carmichael.*

**Imported Orchids.**—I have just read the remarks of Mr. Baines on p. 416 on the importation of large masses of Orchids. I fancy growers are much indebted to collectors and importers alike for the extreme care taken to send over the plants at all seasons in such capital condition. The recent importations of the white forms of *Lælia anceps alba* were very fine indeed. The best way of treating them has been fully discussed, but whether we have arrived at a definite conclusion I am not prepared to say. Two things must be considered; first, the state of the plants when they are placed in the hands of the cultivator, and, second, the season of the year at which they arrive. I have usually potted all *Lælias* and *Cattleyas* in pots filled to the rim with clean potsherds, and as soon as they started to grow, and formed roots, they were repotted in the usual compost of peat, sphagnum, &c. We tried a lot last year potted in the usual way as soon as they were received, the compost being kept rather dry. I fancy this dryness was carried to excess, as the plants did not start



strongly. This year we potted the white *Lælia* anceps in the usual way, and watered the compost freely from the first, and never did imported *Lælias* look better. The plants were received early in February, with green leaves; these they lost mostly, but the bulbs kept very plump; now they are breaking freely, and making plenty of strong young roots, as well as promising to make strong and probably flowering growths. Many plants of these *Lælias* were sent to different parts of the country. It would be interesting to know how they have succeeded under the different treatment they have been subjected to. I have seen such plants left in the houses with the roots exposed for days before potting them. Sometimes they are tied to blocks, and occasionally they pass through the form of being hung up by the heels for a time. It is highly important that we should ascertain the best method of procedure, and having done so, no delays should take place in potting the plants and getting them into the desired temperature. *J. Douglas.*

**Hoya globulosa.**—This charming and distinct species of the Honey-plant, or Wax-flower, is now to be seen in good condition in one of the stove-houses at Gunnersbury Park. It is a vigorous grower, and appears to flower freely. Mr. Roberts has his plant trained in a globular shape, and it promises to be an object of beauty for some time to come. The flowers are of a bright straw colour, the corol protruberances white, the interstices of a shining brownish-pink. It appears to have been discovered by Sir Joseph Hooker as far back as 1849, though it did not come prominently before the plant-loving public until it was exhibited at one of the meetings of the Royal Horticultural Society in 1880 by the Cranston Seed and Nursery Company, and awarded a First-class Certificate of Merit. It is a little unpleasantly fragrant, but that is not perceptible unless an effort is made to discover it. *R. D.* (See fig. 115, *Gardeners' Chronicle*, June 3, 1882.)

**Brussels Sprouts.**—I have seen a good number of so-called strains of Brussels Sprouts from time to time, and whilst most ready to admit that some thoroughly careful selections have been more true to character than others, yet I have never found any material divergence between the best plants of any number of strains. Nothing is more easy than to secure a good strain if any one will but seed from only one or two of the very best plants to start with, but it is of the first importance that no other kind of Brassica should be blooming near. If, the second time of growing for seed-stock, the plants are well rogued it may be taken for granted that the strain will prove to be equal to the best, and the man who has taken so much pains to obtain that strain true may be justified in calling it after his name, but it will be a grave error if he assumes that it is superior to or differs materially from the strains obtained by half-a-dozen or even a score of others who have taken equal pains to secure the same results. I have seen splendid breadths of Brussels Sprouts out in the market fields, all true as could be and of first-rate quality, quite equal to the best found in private gardens, yet not classed as any one's strain, but simply the product of good imported seed. I have found, too, that a good plant of these Sprouts is more often the result of careful planting and cultivation than anything else. Two very large breadths, put out in two fields here, but from the same sowing, would by the majority of gardeners have been classed as of distinct strains if they had been seen by them, so diverse in appearance were they. Yet in the one case the soil had been subsoiled, and the plants were several inches taller and altogether more even and productive than in the other field, where the soil had been ploughed only and the bottom had not been broken. To quote the words of the grower, "that subsoiling in a dry season was worth far more than a dressing of manure." But there seems to be an assumption abroad that certain strains of Brussels Sprouts are marked by the production of exceptionally fine side heads. Is that really the case, or are these large Sprouts the product of gross cultivation? All the members of the Brassica family are gross feeders, and the Brussels Sprouts peculiarly so; but then the question is, whether for the production of nice firm moderate-sized side Sprouts very gross cultivation is desirable? When seed is sown in rows 3 feet apart, and the seedling plants thinned out to stand in the rows some 2 feet apart, the soil having been previously trenched deeply and

heavily manured, how can the plants be otherwise than coarse and the side Sprouts very large? But if the thinnings were planted out in fairly good field soil there would be no reason to complain then that the Sprouts were unduly big. No doubt big Brussels Sprouts are undesirable; we might almost as well have small Cabbages at once. Better have the plants to produce a pretty sample than Sprouts as big as cricket-balls. *A. D.*

**Pruning Orchids.**—"D. N." (p. 449) offers to show plants of pruned *Dendrobies* at a meeting of the Royal Horticultural Society, providing I will pay all the expenses connected with their being shown, and make good any damage sustained in transit. This is about as cool a piece of assurance as anything that has come under my notice. "D. N." altogether mistakes the position that the two or three associates who advocate Orchid pruning stand in. The burthen of proving that the representations they have made are correct rests on their shoulders, not on mine, and the collective body of Orchid growers who have tried and know the results of the practice, and disbelieve in it. The originator of the pruning doctrine gave it out to the gardening world as a new idea, whereas it is nothing more than an old practice abandoned for the proved injury that it effects. The exponent of the principle persistently refused to exhibit his plants, and now "D. N." comes down with an offer that he could not avoid seeing would not be accepted. Hitherto, when any one has made a real or supposed discovery in the cultivation of any plant or plants, they have been only too glad to substantiate the truth of their statements by bringing out examples of their practice anywhere or everywhere where they might be seen by those interested. Does "D. N." suppose that the one or two advocates of Orchid pruning are to be let off as exceptions from the general rule? Those conversant with and interested in Orchid cultivation, who have watched the tortuous proceedings that have been resorted to in advocating the system have good reason for disbelieving what has been said by the Orchid pruners, and "D. N.'s" offer does nothing to remove this. If "D. N." supposes that the flowering bulb of *Dendrobium* nobile sent to the *Gardeners' Chronicle* Office does anything to satisfy those who are sceptical about what has been said, he is very much mistaken. It simply proves that he has had in his possession the bulb in question, without giving a spark of supporting evidence to show whether the plant was pruned or unpruned when the said bulb was produced. According to the editorial description of the bulb, it is the growth of last season but one—1883—the lead from which it was cut will consequently now consist of nothing but the single bulb of last summer's growth, and the bud or young shoot that is now about to break or has broken from its base. What is required from the Orchid pruners is to at once exhibit some plants denuded of all their bulbs, excepting those produced last summer, like the lead from which the bulb noticed was taken; to have the plants marked so as to admit of unmistakeable identification, to take them back and grow them to the end of the season, and any time next autumn or winter, when it suits their convenience, to bring these plants forward again so as to show the character of growth they have made. Old hands at Orchid growing, like myself, who were cultivating these plants when their value in many cases was ten times that which it is now, tried the bulb cutting practice on all species that seemed likely to admit of propagation by pieces of the bulbs, with the obvious intention of increasing them that way, not with a view to benefit the plants in the way the Orchid pruners have been striving to make people believe in; but, in my own case, and that of every Orchid grower I have met with who ever tried the removal of the bulbs for propagation, the result was the same—a weakening of the plants so treated proportionately to the extent to which the bulb cutting was carried. *T. B.*

**GREVILLEA ROSMARINIFOLIA.**—There is a danger of this elegant plant, and once old favourite, falling away into the long roll of neglected plants. It can be seen in one of the frames in the Royal Horticultural Society's Gardens at Chiswick, producing at the points of shoots, thickly studded with simple leaves, tufts of bright crimson coloured flowers. A well grown specimen of this must be a charming sight, and were it now introduced for the first time it could scarcely fail of obtaining a First-class Certificate of Merit, for it is an excellent decorative subject. This and other species of *Grevillea* not less handsome will bear the hardest greenhouse treatment. (See *Gardeners' Chronicle*, fig. 24, April 22, 1876, p. 529).

## Reports of Societies.

### TORQUAY HORTICULTURAL: March 26.

THE spring exhibition of this Society was held on the above date in the Bath Saloon, occupying the large hall and a large ante-room. The numerous classes were well contested, and the quality of the exhibits showed a marked improvement on former years. Several of the nobility and gentry in the neighbourhood and the nurserymen sent good collections, not for competition—a fact that indicates an increased interest in the Society, which we trust will be lasting, especially as the committee have worked hard to bring together good floral displays for the benefit of the Torquay residents and visitors.

For nine stove and greenhouse plants, Mr. H. Yelland, gr. to Colonel Campbell, Villa Como, Torquay, was 1st. He had a splendidly flowered specimen, of *Rhododendron* Gibsoni, *Azalea* Reine des Doubles and Prince Albert, also very fine specimens and well flowered; and a gigantic plant of *Phormium tenax* var. *variegata*, a plant that would thrive well outside in this neighbourhood. 2d, Mr. Cole, gr. to W. B. Fortescue.

Six stove and greenhouse plants.—Lady Macgregor was awarded 1st prize (H. Damerel, gr.); 2d, Mr. J. Tucker, gr. to G. Price, Esq., Barcombe, Paignton.

Six *Azalea indica*.—1st, Mr. Yelland, who had three remarkably well-flowered specimen and healthy Model Bride and Duc de Nassau, and three lesser ones—Duchesse de Nassau, Flag of Truce, and Lady Poltemore, a splendid white; 2d, Mr. J. Tucker, who also staged some very fine plants.

Twelve Hyacinths.—These formed one of the features of the exhibition; better Hyacinths have never been staged than those put up this year. The 1st prize was awarded to Mr. B. Richards, with a very superb and even collection; 2d, Mr. F. Ferris; 3d, Mr. J. Sloman, all with excellent spikes of bloom.

Messrs. Veitch & Son, of Exeter, staged a very choice collection of flowering plants, including many varieties of Orchids, *Dendrobium Wardianum*, crassinode, nobile, and Pierardi; *Phalaenopsis Schillerianum*, *Cypripedium* Boxall, and many seasonable stove and greenhouse flowering plants. Their Hyacinths were quite an especial feature, being fine compact spikes and beautiful colours, the foliage being dwarf and healthy. *Czar Peter*, a lovely pale blue; *Duke of Connaught*, dark blue; *Marchioness of Lorne*, a splendid yellow; *Lord Derby*, blue; *Garibaldi*, dark red; *King of the Blues*, always good, were a few of the best, and most certainly the best in the exhibition.

Mr. Smaile, Philips, Curtis, Sandford & Co., Horn & Sons, Burridge, of Paynton, nurserymen of the neighbourhood, all contributed fine collections of decorative plants, which greatly enhanced the attraction of the show. The Earl of Kinnoul (gr., Mr. A. Browning) staged a splendid group of miscellaneous plants, not for competition, including many fine specimens of Orchids, *Phaius grandiflorus*, with twenty grand spikes on *Phaius maculata*, with its beautifully mottled foliage and yellow flowers; *Dendrobium Wardianum*, nobile, *cerulescens*—fine specimens of each, and well grown crassinode *Barberianum*, one or two fine specimens of *Anthurium Scherzerianum* majus, and stove and greenhouse foliage and flowering plants together made a very nice display. An extra prize was granted this collection, and highly deserved the notice taken of it. *W. C. P.*

### PAISLEY FLOWER SHOW: March 26 and 27.

In the George Clark Town Hall one of the most striking exhibitions of plants and flowers took place lately which for quality and style of exhibition put the greater show in St. Andrew's Hall, Glasgow, completely in the shade. Horticultural activity seems to be moving in the direction of Paisley if we look to the character and quality of the exhibits displayed. Unfortunately there does not seem to be the patronage displayed in the West of Scotland for flower shows. The hat, vulgarly speaking, has to be sent round to keep most of them alive, but this show deserves more than a cursory notice. In the magnificent hall fronting the orchestra the exhibition of Mr. Archibald Coats, put up by his gardener, Mr. Beveridge, deserved unqualified praise. The plants, if they had room enough, would have covered a rod of ground, and as they were they commanded universal admiration. The chief plants consisted of Fan Palms, Cycads, and other Australian and New World plants of the greenhouse, and were intermixed with finely bloomed *Azaleas*, *Rhododendrons*, and miscellaneous flowering plants, giving a blaze of colour, but toned down with the elegant foliage of those cool arching *Kentias*, the upright-fronded *Dasylirions*, with their chaffy-looking points, and the edges of the leaves bristling with spines; then a goodly assortment of choice Orchids, mostly small plants, but such as in time must render this collection notable; then a fringe of the feathery-like *Spiraea*, with the silver and green *Isolepis* drooping down the front of the raised platform.

Flanking this exhibit at right angles was a table from Mr. Stewart Clarke, M.P., whose gardener, Mr. Henderson, certainly put up as fine a collection of specimen plants as we have seen at any exhibition in the three kingdoms. His large Palms—as large individually as would fill a good-sized greenhouse—gave a tone to the whole, and his immense specimen *Azaleas*, crowded with flowers, set under the shade of these Palms, were simply superb. His Orchids, which formed quite a feature in the exhibit, were not small bits, as one I



accustomed to see, but masses of pseudobulb and bloom. No finer *Coclogyns* could be put upon the table, and they were smothered with their white bloom. This appears to be one of the best commercial Orchids in commerce, and supposing there are lots of them in the country, the demand for fine specimens has not even in these times ceased. Ward's Dendrobe, with its soft-tinted sepals and petals and glorious orange-blotched labellum suspended amongst the group, elicited general admiration.

Mrs. Coats sent an excellent assortment of plants, which her gardener (Mr. McDonald) put up to the best advantage. Chief among the lot were specimen *Camellias*, *Palms*, *Rhododendrons*, *Azaleas*, and such-like plants, fringed with a grand lot of Lily of the Valley, and fringed at the edge with a decoration of evergreens; altogether the exhibit was impressive, and with the others helped to make the hall such a sight as those who saw it cannot easily forget. Messrs. Ireland & Thomson, Edinburgh, sent a small lot of choice Orchids, chief among them being the flamed *Lælia elegans*, several good *Odontogloss* and *Cattleyas*; and Mr. Peter Mackenzie had a very attractive table of bulbs.

The miscellaneous exhibits were much above the average, and the show as a whole would bear comparison with any one in the kingdom.

## ROYAL CALEDONIAN HORTICULTURAL.

THE annual spring show of the Royal Caledonian Horticultural Society was held in the Waverley Market, Edinburgh, in splendid weather, on Wednesday and Thursday last, and was in every respect the most successful that the Society has yet held at this season of the year. The spring shows of the Society were begun in 1855, when the prize-money amounted to only £22, but this year premiums to the value of £339 were offered, the total for the four shows held during the year being £1110—a sum which is not exceeded by any other Society. The entries showed a great increase on those of former spring shows, numbering 640, as compared with 497 in 1884, 471 in 1883, 519 in 1882, and 373 in 1881. No better place for a horticultural exhibition can be found than the Waverley Market, which allows a full display of the different exhibits, affords a pleasant promenade for visitors, and is in the centre of the fashionable thoroughfare of the Scottish metropolis. Full opportunity was taken of its resources by the committee of management, and Messrs. Angus McLend, David Mitchell, and David Thomson, who had charge of the arrangements, deserve great praise for the effective manner in which the various tables were displayed. The effect when seen from the gallery was very pleasing, the colours of the numerous plants being blended in an artistic manner.

A novelty in the show was the illumination of a dining-table by the incandescent electric light, shown by Messrs. John Mitchell & Son, cabinet-makers, Edinburgh. In the pavilion in which the electric light was shown, Messrs. Todd & Co. exhibited about twenty-five different varieties of the now fashionable *Daffodil*. All the plants shown were forced, and they could not, taken as a whole, have been desired to be seen in better bloom. In the centre of the commodious market the bandstand was decorated by Messrs. R. B. Laird & Sons with a magnificent collection of greenhouse *Rhododendrons* in bloom, from 3 to 12 feet in height, and at rich colours. Exotic *Palms* were also displayed round the stand, the groundwork being made up of small flowers in pots—the whole forming a very attractive centrepiece to an unusually fine display of floriculture.

A striking feature of the show was the splendid display of Orchids, *Azaleas*, *Roses*, and *Rhododendrons*, which were shown in great force. The number of Orchids in competition was, indeed, about quadruple that which has been seen for many years. The prize for the best table of plants was gained, as last year, by Mr. Buchanan, Oswald Road, Edinburgh, with a beautifully arranged table of mixed exotics, including a fine lot of Orchids in bloom, *Crotons*, *Ferns*, &c. His collection comprised some excellent specimens of *Dendrobium Wardianum*, *Odontoglossum Halli*, *O. triumphans*, and *Cattleya Trianae*. The prize hardy spring flowering plants were also a very neat collection. *Azaleas* formed a magnificent display, and their brilliant colours and great profusion of blooms did much to enhance the value of the show. Mr. Paterson, Milbank, who has been 1st in this class for several years, was again well to the front with a group that was far in advance of his other exhibits, both for richness and density of bloom. His lot included the white striped *Iveryana*, *Model*, *Duchesse de Nassau*, and *Roi Leopold*. Mr. Paterson was also 1st for six stove or greenhouse plants with some finely bloomed specimens, his lot being made up of two *Azaleas*, two *Ericas*, an *Acacia*, and an *Anthurium Schotterianum*. The *Azalea mollis* formed an interesting feature of the show, their light delicate colouring being much admired. (Mr. Buchanan's 1st prize six Orchids comprised a very fine *Cymbidium eburneum*, with about twenty spikes; *C. Lowi*, *Dendrobium thyrsiflorum*, with ten spikes; *D. nobile*, *Vanda tricolor*, and *Ada aurantiaca*. Mr. Curry's 2d prize group included a well-flowered *Trichopilia tortilis*, *Dendrobium speciosum*, and *D. nobile*. Mr. Cockburn's 1st prize three Orchids were composed of a *Phalenopsis Stuartiana*, *P. Schilleriana*, and *Angraecum citratum*, with five spikes of bloom.

There was a good display of *Ferns*, and the graceful beauty and delicate texture of the fronds were much admired. The 1st prize four exotics included very fine pieces of *Davallia Mooreana* and *Leucostegia immersa*. The *Adiantums* comprised some very pretty specimens, the 1st prize lot consisting of *A. gracillimum*, *farleyense*,

and *cuneatum*. The foliage plants were a clean and tidy lot, and included some excellent specimens.

Hardy spring flowers made an imposing display. *Cinerarias* were both numerous and good; and *Cyclamens* were shown in the best of bloom. Some nice flowering *Deutzias* were among the prize-takers, and *Camellias* also made a good display. Tree *Mignonette* was shown very tall and well cultivated; and *Pelargoniums*, though not numerous, were of great excellence. *Hyacinths* made one of the best exhibitions of this flowering bulb that has been seen in Edinburgh, and the 1st prize lots were characterised by great depth of flower, uniformity in bloom, and regular colour. *Tulips* and *Narcissus*, particularly the former, were a superior lot, being very even and well bloomed.

Of cut flowers there was a very fine display for the season of the year. *Roses* were especially fine, the *Maréchal Niel* still holding its place in popular favour, and some very handsome blooms of this variety were shown. *Camellias* and *Primulas* were an interesting feature of the show, though they did not bulk so largely as some other classes, and there were some very prettily arranged bouquets.

There was not a large display of Fruit, but what was shown was of good quality. There was a remarkably good show of *Strawberries*, both in dishes and pots, for this early period of the season, and the fruit was ripe and luscious. *Grapes*, though few in number, were of fine bloom and well coloured; and *Apples* and *Pears* formed a very creditable exhibit. The 1st prize baking *Apples*, from Maidstone, were of great size and beauty, and included among them *Elenheim Orange*, *Lord Derby*, and *Beauty of Kent*.

As might be expected, *Vegetables* were not a large show, but they were of very high quality. The local nurserymen made a capital turn-out, and their exhibits were of a very high class. There were only two competitors this year for the table of plants, and Messrs. Ireland & Thomson were deservedly 1st, as they have now been for eight years in succession. Their victory this year was most complete, as they were first in every class in which they had entered, numbering half-a-dozen. The special feature of their stand was the rich and rare display of Orchids in bloom, over 200 in number, with *Azaleas* and flowering plants in general, the whole making up a fine collection of valuable plants, with a beautiful mixture of colour. Their exhibit included about four dozen fine varieties of *Cattleya Trianae*, *Lælia elegans*, many large-flowering varieties of *Odontoglossum Alexandrae*, *Azalea mollis*, in splendid colour; and *Amaryllis*, in magnificent bloom. This firm was also 1st for *Rhododendrons*, with twelve of the finest specimens that have been seen in pots, there being over forty blooms on some. The 2d prize table was owned by Messrs. R. B. Laird & Sons, and was very tastefully laid out. The exhibits comprised *Cyclamens* with large sized blooms, a number of half-specimen *Azaleas* in full flower, including a standard *Azalea mollis*, two plants of the Countess of Haddington *Rhododendron*, a fine lot of *Hyacinths*, and the new *Asparagus tenuifolius*. The edging of the table was composed of *Scilla sibirica*, and the hardy white *Primula nivialis* intermixed with *Maidenhair Fern*. Messrs. Methven & Sons did not enter in the table competition this year, but they had a very fine stand on exhibition. Their collection comprised *Rhododendrons*, *Azaleas*, *Gauldre Roses*, *Dendrobiums*, and a fine lot of Japanese *Acer*s. The stand, which was laid out to display to advantage the great variety of flowering plants, was flanked at both ends with an excellent lot of variegated *Ivies*. Messrs. Dickson & Co., Waterloo Place, had also a good collection, including specimens of the variegated New Zealand *Flax*, Orchids of different kinds, a new seedling *Amaryllis*, *Cinerarias* of a good strain, and a fine collection of *Dendrobiums* and *Cypripediums*. The east end of the market was occupied by a large stand shown by Messrs. Gordon & Sons, Haymarket, whose specialities were *Roses*, *Azaleas*, *Palms*, *Mignonette*, *Lily of the Valley*, and *Richardia æthiopica*. They also exhibited a very superior pot of *Miles' Spiral Mignonette*, with beautiful spikes, some very good *Cinerarias* grown in pots, a number of hybrid *Primulas*, the Japanese *Primrose*, *Auriculas*, *Amaryllis Mendeli*, the scarce bulbous plant, *Lachenalia luteola* in nice flower, and some very pretty *Roses*.

## SWANSEA SPRING SHOW.

THE first show of spring flowers, held by an enterprising Society in Swansea on Thursday, March 26, was an entire success, both in the quantity of exhibits brought together, and from the way in which it was patronised by the public. The exhibition was held in the Drill Hall, which is a lofty and commodious structure well suited for such a purpose, and in the small hall attached; both places being decorated by the committee for the occasion, and much credit is due to the indefatigable Hon. Sec., Mr. Manaton. The most interesting feature of the show was the arrangement of circular groups of flowering and foliage plants on the floor of the Drill Hall, still giving sufficient space for promenading, while the sides of the hall were furnished with semi-circular groups from trade and other growers; and altogether the effect was thoroughly pleasing, and was well observed from the gallery at the end of the building, whence a bird's-eye view of the whole was obtainable.

For the best group of plants Mrs. Vivian, Singleton (gr., Mr. Harris), was awarded the 1st place, for a choice assortment of profusely flowered plants. This exhibit, which had a diameter of 15 feet, occupied the centre of the hall. Its groundwork was formed of *Hyacinths*, *Lily of the Valley*, *Spiræas*, *Deutzias* (species), *Adiantums*, &c. A good specimen *Cyrtaea dealbata* formed the centre of the group, and was supported by *Azaleas*, *Chorozemas*, small *Palms*, and Orchids, amongst which

were noticed *Phaius grandiflora*, *Odontoglossum Alexandrae*, and *Cattleya Trianae*, the flowers being relieved by graceful plants of *Cocos Weddelliana*.

Very tasteful groups, also in circular form on the floor of the hall, were exhibited by Sir H. H. Vivian, Bart., M.P., Park Wern (gr., Mr. Buckmaster); J. T. D. Llewellyn, Esq., Penllergare (gr., Mr. Warmington); and T. Cory, Esq. (gr., Mr. Lodge), who took the prizes in the above order. The collection of J. T. D. Llewellyn, Esq., contained some nice examples of *Primula sinensis* and a large plant of *Dendrobium nobile*, over 3 feet high and densely flowered, which attracted much attention. Plainly, lack of time to complete the arrangement of the many good things in this collection prevented its taking a higher place in the awards, which the individual specimens quite merited.

The trade groups do not require special note, being of the usual spring market plants, in fairly good form, tastefully disposed. In the smaller hall the exhibits that most call for notice were the 1st prize lot of cut flowers exhibited by Mrs. Vivian, a miscellaneous collection of fruit and vegetables by the same exhibitor, and the groups of *Auriculas*, species of *Primulas*, and *Polyanthus*, by Mr. Llewellyn. Amongst the cut flowers from Singleton were noted *Cypripedium Pearcei*, *C. barbatum*, *Dendrobium macrophyllum giganteum*, *D. nobile*, *Lycaste Skinneri*, *Odontoglossum Rossi majus*, *Vanda tricolor*, *Camellia odoratissima* (deliciously sweet-scented), *Rhododendron Edgworthii*, &c. In the fine collection of fruit and vegetables from Singleton were fine *Ne Plus Ultra Beans*, *Veitch's Spring Broccoli*, *Ivery's Celery*, *Exhibition Brussel Sprouts*, *Mushrooms*, *Parsnips*, good *Potatoes*, *Asparagus*, and *Seakale*; twenty pots of *Keens' Seeding Strawberry*, heavily fruited, and four bunches of *Lady Downes' Grape*, perfect in colour and finish.

The very interesting collections of insects sent by J. T. D. Llewellyn, Esq., and which were explained to those interested, deserved and attracted much notice. Choice *Camellias* and Indian *Rhododendrons*, included in a collection of cut flowers from the open, sent by Mrs. Vivian, were an unwonted feature, even in South Wales, at an exhibition. There were classes for all the ordinary spring flowers, such as *Hyacinths*, *Cinerarias*, *Deutzias*, *Spiræas*, *Azaleas*, *Primulas*, &c., and the exhibits of some of the cottagers were of considerable merit.

The show, which was open for two days, resulted in a financial success—a balance of £25 remaining after all expenses had been paid. This sum will form the nucleus of a fund with which it is hoped to re-establish a horticultural society in Swansea, and assuredly the good beginning made by the managing committee augurs well for still greater success in the future.

## KING GEORGE III.'S DESSERT FRUIT.

WHEN George III. was king, and made Weymouth a fashionable resort, he always had his table furnished with fruit from town. The head gardener had boxes made in two sizes of 1-inch deal, the largest box 2 feet long and 14 inches broad, the same in depth; the smaller 1 foot 9 inches long, 1 foot broad, and the same deep. These boxes were made secure by three iron clamps at each corner, and had a small iron handle at each end by which they were fastened to the top of the coach or waggon. These boxes were for *Melons* (which, by the way, could not have been very large), *Pears*, *Peaches*, *Nectarines*, *Plums*, and *Grapes*; for *Cherries* and *Currants* there were flat tin boxes to fit into the deal ones. A layer of long dry moss was placed in the bottom of the tin box, and then a layer of *Currants* or *Cherries*, next another layer of moss, and so on until the box was quite full; moss, of course, lay at the top, and when the lid was hasped down it shut so closely that there was not the slightest friction during the journey. Soft short dry grass was mixed with the moss at the bottom of the deal boxes, and the *Melons* being the most weighty fruit, were placed in a row on it, with some moss packed very tightly in between each *Melon*. The selected fruit was as nearly as possible of the same size, and every interstice was filled with grass and moss. Then came another layer of moss, and after that the *Pears* with more moss between and over them; next *Peaches* or *Plums*, but the *Grapes* always were put at the very top of all the other fruit, being well guarded from touching the lid of the box by moss.

The boxes were locked, and each box had two keys, one kept by the chief gardener, the other by the receiver, possibly by His Majesty himself. What a shame, I have always thought, that "Peter Pindar" should have so ridiculed the homely Farmer King. When I first knew Weymouth there was an old woman there, whom my cousin took an interest in; she had lived when quite a girl in the king's household, and used to relate many curious little traits of King George and Queen Charlotte to amuse the children: not that there would have been anything singular, in my opinion, in His Majesty's superintending the unpacking of his



own fruit, for a housemaid I had in Wales assured me that when she was in service at Mr. Ingram's her present Majesty often came down to that gentleman's house to see the fruit he had ordered in, and selected what she wished sent to the Royal table. Garforth said that Her Majesty, then a young wife, took the very greatest interest in the gardens and their produce. But what amused me most about the fruit packing for Weymouth was that the empty boxes were always most carefully returned, and the packing materials, moss and grass, taken out, well shaken out, dried, and used again and again. *Helen Watney.*



## ORCHIDS FOR AMATEURS.

(Concluded from p. 376.)

**THE FOOD OF THE PLANTS.**—I have already shown that plants derive a supply of carbon from the carbonic acid in the air; this, with water and nitrogen, forms the main food of plants, but some kind of salt is also needed. The horticulturist must supply the needs of his plants or he cannot succeed. It is true that four-fifths of the atmosphere is nitrogen, but this free nitrogen is incapable of being combined by living plants with any other substance. Ammonia or its salts are the chief if not the only sources of nitrogen with most plants, although some, as Mr. Darwin first showed, are capable of feeding upon animal matter, and are even supplied with special arrangements for capturing and digesting insects: such are Venus' Fly-trap (*Dionæa*), the Pinguiculas, the Pitcher-plants, and our own Sundews (*Droseras*). I have seen the *Droseras* in Australia black with dead insects. There are, however, exceptions to the general rule, and I know no Orchid which feeds in this way, although some may in their native country derive nourishment from dead insects lying amongst their roots, or from the manure the insects produce. Practically ammonia salts are the main source of nitrogen to the great majority of plants as well as to all Orchids.

### MANURES.

Every gallon of rain-water contains about half a grain of ammonia salts, and the great agricultural chemist, Liebig, calculated that this quantity per gallon is sufficient to nourish a forest of Oaks, or any other forest trees; but then it must be remembered that these shed their leaves, and the leaf-mould so produced supplies an abundance of ammoniacal salts to the roots. No doubt Orchids watered with pure rain-water would grow and flourish for years, but I doubt whether the supply of ammonia is sufficient for the full development of their powers of growth.

### ARTIFICIAL AIDS TO CULTURE.

Every cultivator knows the advantage of giving potted plants some form or other of artificial manure, and many growers of Orchids advise the addition of dry cow-dung to the compost in which *Cypripediums* are planted, but with the epiphytes much difference of opinion with regard to the use of manure prevails. Of course where the sweetness and openness of the compost is of the first consideration, the addition of manure or decomposing material in any form is entirely out of the question, so that all epiphytes must have a very meagre diet; except the carbon derived from the air and the ammonia from the water, they get no special food to stimulate their growth.

I have given great attention to this subject, which at once appears the most important to every one who looks at it from a scientific point of view. It is clear that manure must not be recklessly supplied, as these plants are very delicate feeders, still, in the tropics, vast numbers of insects exist, and many die on the decaying wood on which the Orchids grow. The wood itself supplies ammonia during its decomposition, and birds leave their droppings about the plants, yet it doubtless happens that many Orchids grow for years without producing flowers. We all know how much flowering exhausts the plants, and the production of fine flowers is the main object of the horticulturist. There are two methods by which Orchids may be stimulated to growth and flowering by artificial manures, and the longer I grow these plants the more convinced I become that a due supply of manure is essential to their well-being.

There is danger in giving too gross a diet. You may easily destroy the plants by an excess of manure in any form, but the plants will certainly deteriorate, and ultimately die with too little. How can nitrogen, the essential element of all manures, be supplied safely and supplied in sufficient quantities to get the most vigorous growth? That is the question to be answered.

### AERIAL MANURES.

I believe all the most successful growers know this necessity; many have their secrets, which they do not publish to the world; others tell all they know, and their advice is disregarded.

### THE FRENCHMAN'S SECRET.

I remember many years ago a French Orchid grower boasted that he had a secret which enabled him to excel his brother horticulturists. This boast made him very unpopular, and deservedly, but he never divulged his secret. I do not, of course, know what it was, but, like most secrets, I suspect it was something well known but disregarded. I can even guess what it was, and I shall now explain the method which he most probably believed to be known only to himself; although in reality it is well known, only very few practise it or recognise its utility. It consists simply in placing a few pieces of carbonate of ammonia on the piers supporting the pipes, not on the hot-water pipes themselves, but near them.

The carbonate of ammonia slowly evaporates, and is absorbed by the moisture in the pots or on the leaves of the plants. I use about a pound of carbonate of ammonia in a year, in this way, and I believe if I used twice as much in my small house, 20 feet by 12 feet, I should not exceed the requirements of the plants. I am quite convinced of its utility, not only on scientific grounds, but from observation. Whenever I have neglected it the flowers are less developed, poorer in colour and size, and the plants are less vigorous. The manner in which the roots of the plants cling to charcoal, which has an especial tendency to absorb the vapour of ammonia, suggests the advantage of feeding the plants in this manner. The quantity of ammonia I use—generally one or two fragments the size of a walnut or somewhat larger—does not produce a perceptible odour of ammonia, but is enough to give the plants the extra stimulus they require to grow them vigorously.

### SALT.

Another substance very important to the plants or at least to those which naturally grow near the sea, is common salt. This may also be applied safely as an aerial manure. Salt, in the presence of moisture, evaporates rapidly. The encrustations of salt on the windows of house near salt-works, and the perceptible taste of salt near the sea, is evidence of this. Salt in the air can be detected with a spectroscope. All the gas flames in my dwelling-house became fringed with yellow light one evening; I immediately took out my spectroscope and found a large quantity of salt in the air. I learned that the cook had spilt a quantity of brine on the hot plate in the kitchen. This gave me the idea of placing salt near the pipes in the Orchid house, and the result was that the air became quite like that at the sea-side. Working in the house makes your hands and face feel as they do at the sea-side, and I believe it is a great advantage to many of the plants, at any rate it is worth a more extended trial. I am convinced it is a most useful method of supplying salt, which is absolutely necessary to the plants.

No doubt many Orchids flourish far from the sea, and it may be objected that the use of salt in this way is not needed by them, but I have found no harm from its use, and soda salts are known to replace potash salts with many plants, and a deficiency of potash salts is very liable to arise under cultivation.

I attribute much of my success—and I feel that with the limited means at my disposal I have had considerable success—to the use of these methods. My friends often say to me that my Orchids seem to flower so much more freely than theirs do; no doubt continual attention has something to do with this, but the fact remains that all their attention often produces no flowers. Year after year I look for flowers on the same plants, and after once flowering them I feel almost certain that I shall not be disappointed; and I look for even greater success by a continuance of these methods. I am even getting bolder in the use of manures, and am adopting a method recommended by the Comte du Buysson, so far with success, the details of which I will give in my next article. *B. T. L.*

## ORCHARD HOUSE TREES IN FLOWER.

IF reference be made to p. 88 instructions will be found there for the general condition of the trees, fertilising the blooms, &c. In both the late and early houses the fruit has set well, the branches being quite crowded with it. This will necessitate a good deal of thinning out, but we can place the fruit regularly over the trees, and an even crop of fruit gladdens the eyes all through the season. It is mortifying to have to attend to a house full of Peach and Nectarine trees with half a crop, or perhaps no crop at all upon them, and to feel all the time that the trees might have been laden with fruit but for a slight inattention at the time they were in bloom. Another and quite avoidable occurrence is that of shy setting varieties with scarcely any fruit on them amongst other trees bearing a good crop. These shy setting varieties can be made to bear freely if the stigma of the flower is dusted over with the pollen of a free setting variety by means of a camel-hair brush. Another occasional source of failure with orchard-houses is caused by the want of any heating apparatus. As a rule the glass protection is sufficient to shelter the blossoms from any injury that may be caused by frost, but some seasons dull frosty weather is continued all through the flowering season, and there is not a chance for the pollen to develop sufficiently, owing to the dampness of the atmosphere, combined with a low temperature. If we could always depend upon bright weather to follow frosty nights the case would be different. The heating apparatus insures a crop, whatever may be the state of the atmosphere. Now that the fruit is well set it is quite necessary to fumigate the house with tobacco smoke, as a preventive of the Peach aphid, or to destroy it, if it is on the trees. The fresh compost in the pots is now thoroughly permeated with roots, the trees therefore require a large supply of water at the roots, and they may also be well syringed once or even twice a day in fine weather. The syringing maintains a healthy condition in the atmosphere, and prevents the advent of red-spider on the leaves. *J. Douglas.*



STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, APRIL 8, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC DEVIATIONS FROM GLAISHER'S TABLE 6th Edition		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 48 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 50 years.	Dew Point.	Degree of Humidity at Sat. = 100.		
April	In.	In.	°	°	°	°	°	°	°	N. W.	In.
1	29.84	+0.09	50.2	35.0	15.2	42.1	-2.3	34.8	76	N. N. E.	0.00
2	30.03	+0.28	50.0	30.0	20.0	39.3	-5.3	28.3	64	N. E.	0.00
3	29.77	+0.05	48.5	28.5	20.0	37.0	-6.0	30.1	75	E. N. E.	0.00
4	29.50	-0.24	53.5	30.2	23.3	40.0	-4.0	33.0	63	E. N. E.	0.00
5	29.08	-0.66	55.0	38.4	16.6	44.7	-0.3	40.3	85	S. E.	0.14
6	29.29	-0.45	55.2	32.3	22.9	41.0	-3.3	33.2	72	E. N. E.	0.00
7	29.43	-0.34	47.2	38.1	9.1	40.4	-5.0	38.1	92	N. N. W.	0.00
Mean	29.56	-0.18	51.4	33.2	18.2	41.0	-3.9	34.0	76	E. N. E.	0.14

April 2.—Dull in early morning. Fine bright day.  
 3.—Fine day and night.  
 4.—Very fine day.  
 5.—Very fine day and night.  
 6.—Dull day and night.  
 7.—Dense fog in early morning. Very fine morning, dull afternoon.  
 8.—Fine day, overcast throughout, cold wind.

LONDON: Atmospheric Pressure.—During the week ending April 4, the reading of the barometer at the level of the sea was—decreased from 30.28 inches at the beginning of the week to 30.09 inches



by 5 P.M. on the 29th, increased to 30.36 inches by 5 P.M. on the 30th, decreased to 29.68 inches by 1 P.M. on the 1st, increased to 30.25 inches by 9 A.M. on the 3d, and was 29.91 inches by the end of the week.

The mean reading of the barometer for the week was 30.07 inches, being 0.21 inch higher than last week, and 0.15 inch above the average of the week.

**Temperature.**—The highest temperature in the shade in the week was 57°.8, on April 1; the highest on the 4th was 48°.5. The mean of the seven high day temperatures was 52°.4.

The lowest temperature was 28°.5 on the 4th; on March 30 the lowest temperature was 39°.3. The mean of the seven low night temperatures was 32°.7.

The greatest range of temperature in one day was 24°, on March 31; the smallest was 15°.2, on April 2. The mean of the seven daily ranges was 19°.7.

The mean temperatures were—on March 29, 41°.9; on the 30th, 47°.2; on March 31, 43°.4; on April 1, 47°.5; on the 2d, 42°.1; on the 3d, 39°.3; on the 4th, 37°.9; of these March 30 and April 1 were above their averages by 3°.5 and 3°.3, the rest were below by 1°.4, 0°.6, 2°.3, 5°.3, and 6°.9 respectively.

The mean temperature of the week was 42°.8, being 4°.7 higher than last week, and 1°.4 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 127°, on April 4. The mean of the seven readings was 119°.

No rain fell during the week.

**ENGLAND: Temperature.**—During the week ending April 4, the highest temperatures were 60° at Cambridge, 57°.8 at Blackheath, 57° at Truro; the highest at Sunderland and Newcastle was 48°, at Preston 49°. The general mean was 52°.5.

The lowest temperatures were 22°.7 at Cambridge, 22°.7 at Wolverhampton, 24° at Hull; the lowest at Plymouth was 34°, at Newcastle 32°, at Brighton 31°.5. The general mean was 28°.2.

The greatest ranges were 37°.3 at Cambridge, 29°.3 at Blackheath, 29° at Truro; the smallest ranges were 16° at Newcastle, 18° at Preston, 19° at Plymouth and Sunderland. The general mean was 24°.3.

The mean of the seven high day temperatures was highest at Cambridge, 54°.9, at Blackheath 52°.4, at Truro 52°.3; and was lowest at Newcastle, 45°.6, at Sunderland 45°.7, at Bolton 45°.8. The general mean was 48°.8.

The mean of the seven low night temperatures was highest at Plymouth, 37°.5, at Truro 36°.6, at Liverpool 36°.3; and was lowest at Cambridge, 29°.7, at Hull 31°.6, at Wolverhampton 32°.6. The general mean was 34°.5.

The mean daily range was greatest at Cambridge, 25°.2, at Blackheath 19°.7, at Hull 17°.7; and was least at Sunderland, 9°.9, at Liverpool 10°.3, at Newcastle 11°. The general mean was 14°.3.

The mean temperature was highest at Truro, 43°.1, at Plymouth 42°.9, at Blackheath 42°.8; and was lowest at Bolton, 37°.6, at Wolverhampton 38°.5, at Newcastle 38°.8. The general mean was 40°.4.

**Rain.**—The largest falls were 1.49 inch at Preston, 1.25 inch at Bolton, 0.97 inch at Plymouth; the smallest fall was 0.01 inch at Brighton, 0.10 inch at Cambridge. No rain fell at Blackheath. The general mean fall was 0.66 inch.

**SCOTLAND: Temperature.**—During the week ending April 4, the highest temperature was 54°.8, at Aberdeen; at Greenock the highest was 50°.2. The general mean was 52°.4.

The lowest temperature in the week was 29°.2, at Dundee; at Leith the lowest temperature was 32°.9. The general mean was 31°.1.

The mean temperature was highest at Edinburgh, 41°.8; and lowest at Dundee, 39°.6. The general mean was 40°.9.

**Rain.**—The largest fall was 1.45 inch, at Greenock; the smallest fall was 0.60 inch, at Paisley. The general mean fall was 1.05 inch.

JAMES GLAISHER, F.R.S.

**ROSE CECILE BRUNNER.**—A very beautiful Rose for decorative purposes, combining the foliage of the Tea Roses with the inflorescence of the R. polyantha, but with the inner petals rose coloured. It is said to be a seedling out of R. polyantha by the Tea Rose Madame Tartas, and is figured in the *Journal des Roses*, February, 1885.

## Enquiries.

"He that questioneth much shall learn much."—BACON.

**GRAPE BUNCHES DEFORMED.**—I should be glad if your correspondents could give me any information respecting the cause of deformed bunches in Muscat Grapes. Most of the bunches upon each rod are, like those I send you, deformed at the points, with a few exceptions, which are on very vigorous shoots and are showing good bunches. For the last year or two the Vines have not been entirely gathered until within a month of starting them again. I have wondered whether this has had anything to do with the deformed bunches. I am not sure if the spurs that are showing good bunches this year had any on them last or not. These Muscat Vines are growing in the early house, along with Black Hamburghs, the latter being very healthy and robust, but the Grapes are cut off them as soon as they are ripe. *J. F.* [The development of the flowers seems to have been checked. We find no insects in them nor any sign of disease. *ED.*]

## Answers to Correspondents.

**BOOK: F. B.** The *Flora of Hampshire*, published by L. Reeve & Co., 5, Henrietta Street, Covent Garden, W.C.

**BOOK ON GREENHOUSE MANAGEMENT: L. J. Jennings.** There is no one book that treats of the so-called "greenhouse plants" as such; but Thompson's *Gardeners' Assistant*, or B. S. Williams' *Stove and Greenhouse Plants*, will give you the information you require.

**COVERING FOR SEEDS ON A LAWN: J. V. B.** Peat is about the worst material you can use; employ rather heavy loam, finely sifted, and roll it down when dry enough.

**GREENHOUSE SHADING: H. H.** See our Notices to Correspondents last week. This mixture will wear well, only coming off as autumn approaches.

**GUMS: Josiah Elcombe.** Kauri gum, from *Dammara australis*; Red gum, from *Nanthorrhoea arborea*; Thus gum (frankincense), from *Abies excelsa*; Kino gum (African), from *Pterocarpus erinaceus*; Aboyana and India gum, from *P. marsupium*; Botany Bay gum, from *Eucalyptus resinifera*. Mira gum is unknown to us.

**INJURED LEAVES: E. S.** The leaves look as if they had been burnt by the sun when wet. The bleeding of the Willow will do no appreciable harm; the fluid is little but water.

**INSECTS: J. M.** One of the very numerous and most destructive family of the weevils. Trap them with pieces of Carrot or Potato, and destroy them.

**LILY OF THE VALLEY FAILING: A North-country Nurseryman.** You should communicate with the German Consul at the port of arrival, who will probably, be able to put matters right.

**NAMES OF PLANTS: IV. C. Stobart.** 1. A variety of *Odontoglossum gloriosum*; 2. *O. Halli tripudians*.—*W. Robinson.* *Oncidium ciliatum*.—*J. Trinder.* *Dondia epipactis*, an old-fashioned umbelliferous herbaceous plant.—*S. Cooke.* *Conoclinium lanthimum*.

**ODONTOGLOSSUM CERVANTESII: A. P. C.** A spike bearing ten blooms is an unusual occurrence, showing extra vigour and suitable culture.

**ROSE MARÉCHAL NIEL: Constant Subscriber.** This variety frequently dies off in part, or wholly, without any apparent cause, but possibly from some inherent weakness—"own root" plants and worked ones suffering alike. Layering strong shoots in small numbers annually will maintain the vigour of a plant for an indefinite time if combined with the application of fresh loam, crushed bones, and manure every year or two.

**SPOTTING ON LEAVES OF KENTIA: Kurt Wolff.** Will be answered shortly.

**TUBEROUS TROPÆOLUMS: W. H. W.** If these are to be planted now, stations should be prepared for them in a sunny spot, near a wall or fence. The ground, if good, should be deeply moved, and enriched with rotten farmyard manure. Do not turn the infertile subsoil to the surface in digging, or bad results will follow. Where the soil is not naturally good, a hole can be dug out 2 or 3 feet square, and be filled in with good loam and some manure, adding coarse sand if it appears too adhesive. The tubers can be planted after the soil has become consolidated by treading. T. pentaphyllum and T. tuberosum amongst the tuberous species, and T. polyphyllum and T. speciosum amongst those with fleshy creeping roots, like warm situations. All live out during our winters with hardly any protection over the roots. If pot-bound roots are received from a nursery, slightly disentangle the outside roots on planting.

**VINE BORDER: W. T.** Now that your Vines are removed from the border dig out all the old soil, inside and out, and make a new one with turfy loam, coarsely broken bones, and charcoal, the two last forming about an eighth part of the whole. Throw all together into a heap, and turn it several times to get the materials mixed together. Do not make it fine, but rather lumpy. Reform the bottom of the border with firmly packed brickbats, stone, chalk, &c., making a good

outlet drain, and over all a layer of coal-ashes rammed firm. Then after making up a border of sufficient width to hold the Vine roots and 2 feet deep, half inside and half outside the vinery, and treading it thoroughly, carefully lay out the Vine roots their full length, after pruning off badly wounded portions. The roots ought to be placed at various levels, from 1 foot to 4 inches from the surface. Then, after making the border level, water all thoroughly, and, before the surface gets very dry put on a mulch of partly decayed strawy manure to prevent loss of moisture during hot weather. Do not add to this mulch as it decays, for Vine roots are more benefited by the hot sun than they are by having the moisture retained in the soil, as that can always be given from time to time as it is found to be wanted.

\*. \* All communications intended for publication should be addressed to the "Editor," and not to the Publisher, or to any member of the staff personally. The Editor would also be obliged by such communications being written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

FOREIGN SUBSCRIBERS sending Post-Office Orders are requested to send them to the Publisher of this journal, 41, Wellington Street, Covent Garden, and to make them payable to William Richards, at the Post-Office, Drury Lane, London, W.C.

## CATALOGUES RECEIVED.

RAWLINGS BROTHERS, Old Church, Romford, Essex—Dahlias.

DUTRY-COLSON, Ghent—Catalogue of Novelties. WILLIAM PAUL & SONS, Waltham Cross, Herts—New Roses, &c.

COMMUNICATIONS RECEIVED.—E. V. B.—J. L.—E. K. Krelage—M. S., Berlin.—E. B., Paris.—J. R. J.—J. W.—W. T. D.—Sir T. L.—A. D. (Narcissus).—F. W. E.—Sutton & Sons.—Baron von Mueller.—H. Mills (many thanks for the specimen, a figure of which was given).—J. Veitch & Sons (specimens forwarded as requested).—Robert Manning.—F. Sander.—W. J. C.—W. R. L.—Alex. Methven.—H. L.—H. G.—J. D.—J. O'B.—A. O.—R. D.—A. D.—W. S.—C. Y. M.—J. F.—C. W. D.—G. F. Wilson.—E. W.

## Markets.

### COVENT GARDEN, April 9.

The subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. *EO.*

TRADE keeps very quiet; and with fair supplies, prices remain unaltered. *James Webber, Wholesale Apple Market.*

### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 4 0	Marguerites, 12 bun.	3 0 6 0
Anemone, 12 bunches	1 6 4 0	Mignonette, 12 bun.	3 0 6 0
Arum Lilies, 12 blms.	3 0 6 0	Narcissus, Paper,	
Azalea, 12 sprays	0 6 1 0	white, 12 sprays	0 9 1 0
Bouvardias, per bun.	1 0 1 6	— French, 12 bun.	6 0 12 0
Camellias, per doz.	1 0 4 0	Pelargoniums, per 12	
Carnations, 12 blms.	2 0 3 0	— sprays	1 0 1 6
Cinerarias, per bun.	0 6 1 0	— scarlet, 12 sprays	0 6 1 0
Cyclamen, 12 blooms	3 0 6 0	Primroses, 12 bunch.	0 4 0 0
Eucharis, per doz.	4 0 6 0	— double, 12 bun.	1 0 2 0
Euphorbia jacquini-		Primula, double, bun.	0 9 1 0
flora, 12 sprays	3 0 6 0	Roses (indoor), doz.	1 0 4 0
Gardenias, 12 blms.	2 0 6 0	— coloured, doz.	2 0 6 0
Heliotropes, 12 sp.	0 6 1 0	— French, per doz.	0 9 1 0
Hyacinths, Roman,		Spiræa, 12 bunches.	6 0 12 0
12 large bunches	12 0 24 0	Tropæolum, 12 bun.	2 0 4 0
— mixed, per box	3 0 8 0	Tulips, 12 blooms	0 9 1 0
Janquils, 12 bunches	2 0 6 0	Violets, 12 buo.	0 4 0 0
Lapageria, white, 12		— Parme, French,	
blooms	2 0 3 0	per bunch	3 0 5 0
— red, 12		Wallflower, 12 bun.	2 0 4 0
blooms	1 0 2 0	White Jasmine, bun.	0 6 1 0
Lily-of-Val, 12 sprays	0 9 1 0		

### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0 24 0	Ferns, in variety, per	
Arbor-vitæ (golden),		dozen	4 0 18 0
per dozen	6 0 18 0	Ficus elastica, each	16 7 0
— (common), dozen	6 0 12 0	Foliage Plants, vari-	
Arum Lilies, dozen	9 0 15 0	ous, each	2 0 10 0
Azaleas, per dozen	18 0 42 0	Genista, 12 pots	9 0 18 0
Begonias, per doz.	6 0 12 0	Hyacinths, per doz.	6 0 9 0
Bouvardia, dozen	9 0 18 0	Lily-of-the-Valley, 12	
Cinerarias, per doz.	9 0 12 0	pots	12 0 18 0
Cyclamens, per doz.	9 0 24 0	Marguerite	
Cyperus, per dozen	4 0 12 0	per dozen	8 0 15 0
Dracæna terminalis,		Myrtles, per doz.	6 0 12 0
per dozen	30 0 60 0	Narcissus, 12 pots	12 0 18 0
— viridis, per doz.	12 0 24 0	Palm in variety,	
Erica, various, doz.	9 0 18 0	each	2 6 21 0
— Cavendishii, per		Pelargoniums, per	
dozen	42 0 42 0	dozen	15 0 24 0
— ventricosa, doz.	42 0 60 0	Primula siensis, per	
Eunonym, in var., doz.	6 0 18 0	dozen	4 0 6 0
Evergreens, in var.,		Spiræa, per dozen	9 0 18 0
per dozen	6 0 24 0	Tulips, dozen pots	6 0 9 0



## FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 6-5 0	Lemons, per case	12 0-18 0
— Nova Scotia and		Pine-apples, Eng. lb.	1 0-2 0
— Canadian, barrel	12 0-21 0	— St. Michael, each	2 6-8 0
Cobs, per 100 lb.	50 0-55 0	Strawberries, per oz.	0 6-0 9
Grapes, per lb.	5 0-10 0		

## VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Lettuces, Cab., doz.	1 6-2 0
per doz.	4 0-6 0	— French Cos, each	0 6-1 0
Asparagus, English,		Mint, green, bunch..	0 9-1 0
per bundle	3 6-10 0	Mushrooms, p. basket.	1 0-1 6
— French, bundle	4 0-8 0	Onions, per bushel	4 0-5 0
— Persigean, nat.,		— Spring, per bun.	0 6-1 0
per bundle	2 0-2 0	Parsley, per bunch..	0 6-1 0
Beans, Eng., per 100	2 0-2 0	Peas, per lb.	1 0-1 0
Beet, per doz.	1 0-1 0	Potatoes, new, per lb.	0 6-1 0
Cabbages, per doz.	1 6-2 0	Radishes, per doz.	1 0-2 0
Carrots, per bun.	0 6-1 0	Rhubarb, bundle	0 6-1 0
Cauliflowers, Eng.		Salsify, per bun.	1 0-1 0
ish, dozen..	2 0-4 0	Seakale, per punnet	2 0-2 6
Celeriac, per root	0 4-1 0	Small salad, per	
Celery, per bundle..	1 6-2 0	punnet	0 4-1 0
Cucumbers, each	0 9-1 6	Spinach, per bushel	3 6-4 0
Endive, per dozen	2 0-2 0	Tomatoes, per lb.	2 0-2 6
Garlic, per lb.	0 6-1 0	Turnips, bun.	0 5-1 0
Herbs, per bunch	0 2-4 0	— new, per bunch	1 3-1 0
Horse Radish, bun.	3 0-4 0		

(POTATOS.—All markets 5s. to 10s. per ton lower, with a bad trade.

## SEEDS.

LONDON: April 8.—There is now a brisk consumptive demand for all the various seeds required for present sowing. Stocks generally are in consequence getting much reduced, and the tendency of values all round is against the buyer; prices, nevertheless, are still most moderate, no great advance this season being expected. Spring Tares exhibit no quotable change. White Mustard is firm. Rape seed continues scarce. Hemp and Canary seed move off at late rates. The trade for feeding Linseed is inactive. *John Shew & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

## CORN.

At Mark Lane on Wednesday trade showed a hardening tendency, but without any tangible revival of demand. For English red Wheats, of which there is but little offering, 1s. advance on the rates current this day week has been obtained, and on some descriptions of foreign 6d. advance has been realised, but the extent of the business is so small that the change is in a great measure nominal. Flour was steadier in sympathy with Wheat, but there was no appreciable change in value. There was no change in the value of Barley, Beans, or Peas. Maize was held for 3d. advance, but very little business done.—Average prices of corn for the week ending March 28:—Wheat, 32s. 6d.; Barley, 31s. 6d.; Oats, 20s. 9d. For the corresponding period last year:—Wheat, 37s. 7d.; Barley, 31s. 3d.; Oats, 19s. 6d.

## CATTLE.

At Copenhagen Fields on Monday trade was rather disappointing. Scotch cattle were short, but better prices were not currently obtainable. English cattle were a very good suitable collection, but met a very dull dragging sale; foreign beasts were more saleable. Sheep met a moderate demand, at about the rates of Monday se'nnight, and lambs sold slowly at the reduced quotations of that day. Calves hardly quotable, and no pigs on offer.—Thursday's trade was steady. There was more doing, at an advance of 2d. per 8 lb. Sheep sold slowly, and were without alteration in value. Lambs were scarce and dear. Calves sold at full prices. Pigs were without change.

## HAY.

The Whitechapel market report states that trade is very dull, with short supplies, and no change in prices. Quotations:—Clover, prime, 85s. to 107s.; prime second cut, 85s. to 105s.; inferior, 46s. to 75s.; hay, prime, 76s. to 95s.; inferior, 25s. to 60s.; and straw, 22s. to 35s. per load.—On Thursday there was a moderate supply on sale. The trade was fair for best qualities.—Cumberland Market quotations:—Clover, best, 90s. to 105s.; inferior, 60s. to 84s.; hay, best, 84s. to 92s.; inferior, 45s. to 75s.; and straw, 30s. to 34s. per load.

## POTATOS.

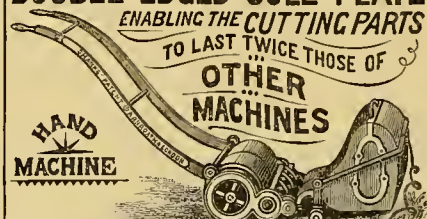
The Borough Market report states that very little is doing, and prices are unchanged. Quotations:—Scotch Regents, 85s. to 95s.; Kent ditto, 76s. to 90s.; Champions, 40s. to 60s.; Magnum Bonums, 55s. to 80s.; and Victorias, 70s. to 90s. per ton.

## COALS.

The following are the prices current in this week's market:—East Wylam, 15s.; Walls End—Tyne (unscreened), 11s. 3d.; Hetton, 17s. 6d.; Hetton Lyons, 16s.; Lambton, 17s.; Wear, 16s.; East Hartlepool, 16s. 9d.

**Government Stock.**—Consols closed on Tuesday at 97½ to 97½ for delivery, and 97½ to 97½ for the account. Wednesday's figures were 97½ to 97½ for delivery, and 97½ to 97½ for the account. Thursday's closing prices were 94½ to 95.

**SHANKS'S PATENT**  
**Lawn Mower**  
THE ONLY LAWN MOWER FITTED WITH  
**DOUBLE EDGED SOLE PLATE**  
ENABLING THE CUTTING PARTS  
TO LAST TWICE THOSE OF  
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Easily Worked  
Making the Lawn like Velvet  
Does not get out of order

PRICES.	
To CUT 10 INCHES WIDE, £3 10 0	To CUT 19 INCHES WIDE, £8 0 0
To CUT 12 INCHES WIDE, 4 10 0	To CUT 22 INCHES WIDE, 8 10 0
To CUT 14 INCHES WIDE, 5 10 0	To CUT 24 INCHES WIDE, 9 0 0
To CUT 16 INCHES WIDE, 6 10 0	

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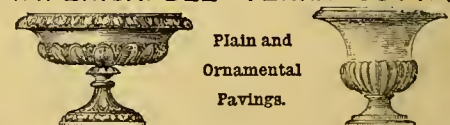
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from 1 to 30 inches diameter, stand the frosts and seldom turn  
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take up little room, and,  
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very durable and of superior finish, and in great variety of design.  
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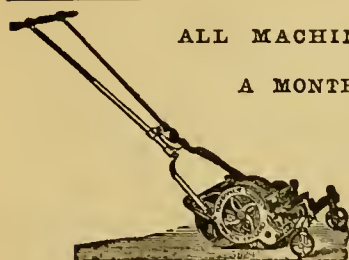
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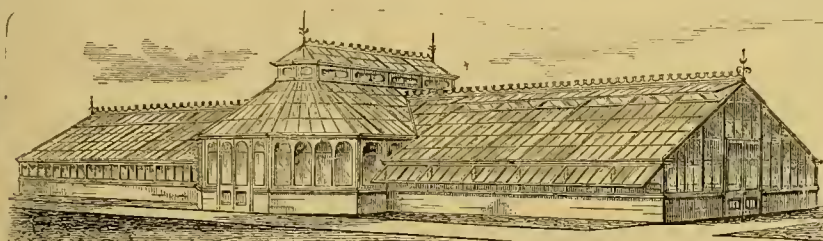
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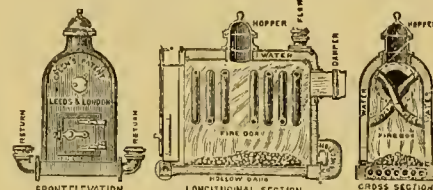
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The Tubular ones are remarkable for their great heating power, slow combustion, and the length of time the fire will burn without requiring attention. This pattern

Had the First and Highest Prize, a Silver Medal, Awarded to it at the Royal Horticultural Society's Exhibition, South Kensington, London, on June 3 1881.



The *Journal of Horticulture* of June 9 says:—

"HEATING APPARATUS.—A great number of boilers, valves, &c., were exhibited by eight competitors, and considerable interest was manifested in the verdict of the judges, and much discussion was brought to bear on the merits and shortcomings of the different boilers. The apparatus for which the Silver Medal was awarded was a wrought-iron saddle boiler, with a series of intersecting tubes, somewhat in the form of a letter X, but the tubes in ogee form, in the crown of the boiler. Most gardeners who examined the boiler expressed a favourable opinion of it. It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the judges."

The *Garden* of June 11 says:—

"The premier prize, a Silver Medal, was taken by Messrs. Green & Son for their new patent tubular saddle boiler. It is a modification of their original patent, the boiler being longer and not so high. It is found to be a powerful and efficient boiler, and heats a large quantity of water quickly with a small consumption of fuel."

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**PARTNER REQUIRED**, in an Established Business, Working or otherwise, but must have some practical knowledge of either Nursery, Florist, or Seed Business, or be capable of Managing a Branch. An energetic business man, married, or single, with £400 to £500 to invest, will find this a good opportunity for prosperity.—H. S. H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

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**WANTED, a PROPAGATOR and FOREMAN**, for Houses. Must be well acquainted in Growing of Cyclamens, Pelargoniums, Fuchsias, and General Work of Houses; also a good WREATH and BOUQUET MAKER.—State wages required and references, &c., to FRANCIS BROS., Nurseries, Hertford.

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**WANTED, an industrious young MAN**, under a Foreman, for General Indoor Nursery Work, of good experience in Potting, Watering, &c. Also a young MAN, under a Foreman, who has had good experience in the Cultivation of Hardy Herbaceous and Alpine Plants.—Apply, by letter, stating particulars, age, and wages required, to D. S. THOMSON AND SONS, Nurseries, Wimbledon.

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**WANTED, between now and early next month, a young LADY**, of good address and appearance, to Manage Large Flower Shop. Female assistants and good salary to thoroughly experienced person.—**J. BURRELL AND CO.**, Howe House Nurseries, Cambridge.

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**GARDENER (HEAD)**.—Married, one child; thoroughly practical in all branches. Well recommended.—**H. KNIGHT**, Knyperley Nursery, Biddulph, Congleton.

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**GARDENER (HEAD)**.—Age 37, married; thoroughly practical. Over twenty years' experience. First-class references.—**HORTUS**, 4, Norman Villas, Elm Road, Kingston-on-Thames.

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**GARDENER (HEAD WORKING)**.—Age 29, married when suited; thoroughly practical in all branches. Can be well recommended from present and previous employers.—**J. MOSS**, The Gardens, Eywood, Tiley, Herefordshire.

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**GARDENER (HEAD WORKING)**.—Middle-aged, no encumbrance; thoroughly competent and trustworthy. Land and Stock if required. Good references.—**J. C.**, 4, Essex Road, Chadwell Heath, Romford, Essex.

**GARDENER (HEAD WORKING)**.—Age 29, married; thoroughly experienced in Orchids, Stove and Greenhouse Plants, Fruit Growing, Indoors and Out; also Management of Pleasure Grounds and Kitchen Garden.—**W. WATKINS**, The Gardeos, Needham Market, Suffolk.

**GARDENER (HEAD WORKING)**; single, Scotch.—**E. M. BROWELL**, Esq., highly recommends the Advertiser as a practical trustworthy man in all branches of the profession. Two years' highest reference.—**J. CAMPBELL**, Felham, Middlesex.

**GARDENER (HEAD WORKING)**, married, no family.—**C. W. ARCHIBALD**, Esq., wishes to recommend his Head Gardener to any Lady or Gentleman requiring the services of a competent and trustworthy man. Six years in present situation.—**H. LITTLE**, Rusland Hall, Ulverston.

**GARDENER (HEAD WORKING)**; age 36.—**G. E. LUTTRELL**, Esq., Dunster Castle, wishes to recommend his Head Gardener to any Gentleman requiring a thorough good Gardener.—**HEAD GARDENER**, Dunster Castle Gardens, Dunster, Somerset.

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**GARDENER (HEAD WORKING)**.—Married, no encumbrance; abstainer. Thoroughly practical in the growing of Grapes, Peaches, Melons, Cucumbers, Forcing, &c., also good Flower and Kitchen Gardener in all branches. Four and a half years' first-class references from late employer.—**A. B.**, 28, Regent Terrace, Escourt Road, Watford, Herts.

**GARDENER (HEAD WORKING)**, where two or more are kept.—Age 28, married; thoroughly understands the profession in all its branches; twelve years' experience. Can have first-class references from previous and present employers.—**W. KEARV**, The Gardens, Shrubland Park, Needham Market, Suffolk.

**GARDENER (HEAD WORKING)**, where two or more are kept.—Age 29, single at present; twelve years' experience in all branches. Two years Second in present place. Leaving through death and place sold. Good character.—Please state particulars to **F. L.**, Grange Cottages, Lindfield, Sussex.

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**GARDENER (HEAD)**, or **SINGLE-HANDED**.—Age 28; understands Melons, Cucumbers, Vines, &c., also Routine of Gardening. Three years' good personal character.—**A. L.**, The Chestnuts, St. Ann's Road, Stamford Hill, N.

**GARDENER (HEAD)**, or **SECOND**, in a good establishment.—Married; well up in all branches of the profession, and can have a thorough recommendation.—**W. MASKELL**, 35, Barnwell Road, Brixton, S.W.

**GARDENER (HEAD or SECOND)**.—Age 30, married, no family; thoroughly experienced in Orchids, Stove and Greenhouse Plants, Fruit Growing Indoors and Out. Good references.—**W. HARVEY**, Langford Park, Maldon, Essex.

**GARDENER**.—Age 37, married; understands Vines, Cucumbers, Melons, Flower and Kitchen Garden. No objection to make himself useful. Seven years' character.—**W. M.**, Rudgwick, Sussex.

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**JOURNEYMAN** (FIRST).—Been five years in Nursery, three and a half in Orchard Department, two years in a first-class establishment. Good character.—HEAD GARDENER, Elmwood, Bickley, Kent.

**JOURNEYMAN** (FIRST), in the Houses in a good establishment.—Age 23; three years' good character from present situation. Bothy preferred.—E. KIRBY, The Gardens, Orto Hall, Peterborough.

**JOURNEYMAN** in the Houses, in a good establishment. Two years' good character from last place.—WILLIAM THOMPSON, Long Street, Atherstone.

**JOURNEYMAN**, in the Houses.—Six years' experience; well recommended.—F. H., The Gardens, Kendall Hall, Elstree, Herts.

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**JOURNEYMAN**, in the Houses, in a good establishment.—Age 21; bothy preferred. Five years' experience. Good character.—J. DEAN, Lower Eaton, Hereford.

**JOURNEYMAN**, in the Houses, in a good establishment.—Age 21; strong and active. Good recommendation from last and previous employer.—W. H., Higher Lytchett, Poole, Dorset.

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**JOURNEYMAN**, in the Houses.—Age 21; ten years' experience in Indoor and Outdoor. Six years' good character from present situation. Bothy preferred.—R. C., The Gardens, Sheen House, Mortlake, Surrey.

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**JOURNEYMAN**, in the Houses, in a Nobleman's or Gentleman's establishment.—Age 21; nine years in present place. Good reference from present place.—State particulars to A. GROVER, Northbrook Cottage, Farham, Surrey.

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**IMPROVER**, in private establishment.—Age 19; nearly five years' good character. Twelve months' experience. Well recommended.—W. E. JONES, The Gardens, The Mount, Shrewsbury.

**TO NURSERYMEN**.—Situation wanted in a Nursery. Used to Growing for Market.—Age 31; good references.—S. DENSON, 1, Trent Villas, Chase Road, Southgate, N.

**TO MARKET NURSERYMEN**.—A young man (aged 20), desires a situation in a large Nursery near London preferred. Three years' experience in Potting, Watering, and General Routine of Nursery Work.—Please state particulars and wages, to R. Mrs. Dodd, Cross Street, Ashton-on-Mersey.

**TO MARKET GARDENERS**.—Wanted, by an experienced young man, a situation in the market or otherwise, where flowers, &c., are grown with great spirit.—G. M., 4, Newgate Road, Bohemia, Hastings.

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**TO NURSERYMEN**.—Wanted, by a young man, a situation in a good Nursery where he would thoroughly learn the profession. Is a good scholar and can be highly recommended.—R. SMITH, Buccleuch Nurseries, Hawick, N.B.

**TO HEAD GARDENERS**.—H. AMBERTIN, Bulwick Park, Wootton, would be pleased to recommend a young man, aged 19—with four years' experience—last two in the Houses. Abstainer.—Address as above.

**TO MARKET GARDENERS and NURSERYMEN**.—Youth (age 16), wants situation as Helper, and to learn the Trade.—M. G., Mr. Watford Hooke, Stationer, 19, Friary Street, Guildford.

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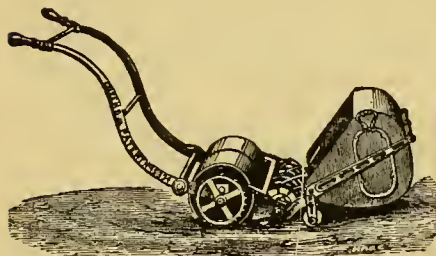
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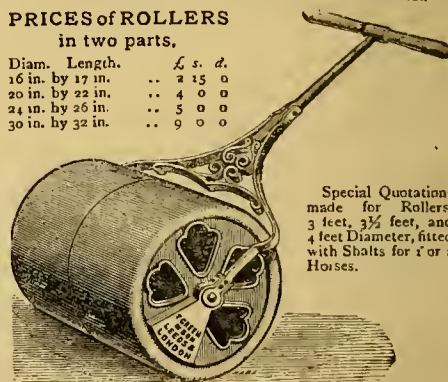
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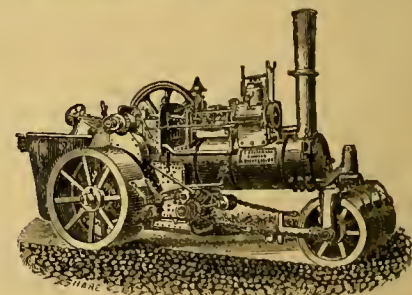
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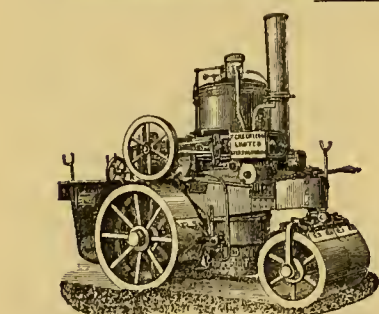
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The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, free of cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

Garden Seats and Chairs, and Horticultural Implements of every Description, Wire Netting, &c., &c.

Descriptive Illustrated Price Lists free on application to

THOMAS GREEN & SON, Limited, Smithfield Ironworks, Leeds; and Surrey Works, Blackfriars Road, London.

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# THE GARDENERS' CHRONICLE.

Established 1841.

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## ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.  
NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 1 P.M., in the Conservatory; Scientific at 1 P.M., in the Library.

GENERAL MEETING for the Election of Fellows, &c., at 3 P.M., on TUESDAY NEXT, April 21. NATIONAL AURICULA SOCIETY'S SHOW and PROMENADE, and Small Band of the Royal Horse Guards from half-past 3 P.M. Admission 2s. 6d.

N.B.—Entrances, N.E. Orchard House, Exhibition Road; and Exhibitors' Entrance west side of Royal Albert Hall.

## ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.  
THE PROMENADE SHOW and MEETINGS of the FRUIT and FLORAL COMMITTEES, announced to be held on the 28th inst., will take place jointly with the National Auricula Society's Show on TUESDAY, 21st inst., and there will be no Meeting on the 28th.

## ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.  
NATIONAL AURICULA SOCIETY'S SHOW, in the Conservatory, on TUESDAY NEXT, April 21. Open to Fellows and their Orders at 12 o'clock, and the Public at 1 o'clock. Fourth Promenade Show (instead of the 28th), and Small Band of the Royal Horse Guards (by permission of Colonel Nolan Home, M.P.), from half-past 3 o'clock. Admission 2s. 6d.

N.B.—Entrances, N.E. Orchard House, Exhibition Road; and Exhibitors' Entrance, west side of Royal Albert Hall.

## THE HEREFORD AND WEST OF ENGLAND ROSE SOCIETY'S NINETEENTH ANNUAL SHOW

will be held in Hereford, on JULY 9 next.

## WINCHESTER HORTICULTURAL SOCIETY

SCHEDULES OF PRIZES for SUMMER (JULY 16), and AUTUMN (NOV. 17 and 18) EXHIBITIONS may now be obtained on application to

R. PORTER, } Hon. Secs.  
JOHN B. COLSON, }

45, Jewry Street, Winchester.

## ABERDARE HORTICULTURAL SOCIETY and COTTAGERS' SHOW.

The ANNUAL FLOWER, FRUIT, and VEGETABLE SHOW will be held on THURSDAY, August 6 next. President: Right Hon. Lord ABERDARE. For Schedule of Prizes and full particulars, apply, on or after May 9, to

D. DAVIES, } Hon. Secs.  
C. KENSHOLE, }

Aberdare, April 2, 1885.

## BATH and WEST OF ENGLAND SOCIETY and SOUTHERN COUNTIES ASSOCIATION.

A CUP or MONEY, VALUE TEN GUINEAS, will be given at the Brighton Exhibition for the best group of Orchids. Also a CUP, VALUE FIVE GUINEAS, for the best Collection of Fruits. Also a 1st Prize of TWO POUNDS and a Prize of ONE POUND for the best Six Dishes of Strawberries.

T. TOWNSEND BOSCAWEN, Steward of Department, Lamorran, Probus, Cornwall.

## SUTTON'S PRIZE LAWN GRASS SEEDS. DIPLOME D'HONNEUR, AMSTERDAM, 1883.

## SUTTON'S PRIZE LAWN GRASS SEEDS. Special Gold Medal, Melbourne, 1880.

## SUTTON'S PRIZE LAWN GRASS SEEDS. Prize Medal, Paris, 1878.

## SUTTON'S GRASS SEEDS for GARDEN LAWNS. Per bushel, 25s.; per gallon, 3s. 3d.

## SUTTON'S GRASS SEEDS for TENNIS LAWNS. Per bushel, 22s. 6d.; per gallon, 3s.

## SUTTON'S GRASS SEEDS for CRICKET GROUNDS. Per bushel, 22s. 6d.; per gallon, 3s.

## SUTTON'S PAMPHLET ON LAWNS, their Formation and Improvement, gratis and post-free.

## SUTTON AND SONS, SEEDSMEN, by Royal Warrants, to H.M. the Queen, and H.R.H. the Prince of Wales, Reading.

Plants for the Season.  
CHARLES TURNER'S Descriptive CATALOGUE, containing some fine novelties as well as the choicest selections of established kinds, is now ready. The present is the best time to procure plants of Carnations, Picotees, Cloves, &c., to ensure a good bloom. Plants are unusually fine this season. The Royal Nurseries, Slough.

PAUL'S, WALTHAM CROSS.—ROSES, TREES, EVERGREENS, SHRUBS, CLIMBING PLANTS, FRUIT TREES, GRAPE VINES, CAMELIAS, BULBS, SEEDS, of every description, of the best quality, and low in price. See Priced Descriptive CATALOGUES, free by post. WM. PAUL AND SON, Paul's Nurseries, Waltham Cross.

GLADIOLI, PYRETHRUMS, and DAHLIAS, the largest collections in Europe. CATALOGUES gratis.—KELWAY AND SON, Langport, Somerset.

## Gardenias.—Gardenias.

JOHN STANDISH AND CO. have to offer a splendid lot of GARDENIA PLANTS clean, bushy and well set, at the undermentioned prices for Cash with order:—In 5-inch pots, 18s. per dozen; in 6-inch pots, 27s. per dozen; in 8-inch pots, 40s. per dozen. Royal Nurseries, Ascot.

TROPÆOLUM SPECIOSUM.—Strong Tubers. To ensure success now is the time to plant. Per dozen, 8s., post-free, Cash. HOWDEN AND CO., The Nurseries, Inverness, N.B.

PELARGONIUMS.—10,000 fine, healthy, bushy plants, in 5-inch pots, leading market varieties, 50s. and 75s. per 100; in bloom, 45s. per 100. Cash with order or reference from unknown correspondents. Messrs. TURNER BROS., Nurserymen and Florists, Green Hill Nursery, Allerton, Liverpool.

## BARR'S THAMES EMBANKMENT GRASS SEED, as supplied by us to the London Embankments and Parks 21s. per bushel.

BARR'S LAWN GRASS MIXTURE, for Improving Old Lawns, Laying Down New ones, Croquet Grounds and Bowling Greens. Per lb. 1s. 4d., 25s. per bushel.

## BARR'S NEW MIXTURE OF DWARF GROWING GRASSES for very fine Lawns. 1s. 8d. lb.

## BARR'S GRASS MIXTURES contain NO CLOVER.

BARR AND SON, King Street, Covent Garden, W.C.

## GRAPE THIS YEAR. FRUITING and PLANTING CANES perfectly ripened without Bottom heat.

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

## Seed Potatoes.

H. AND F. SHARPE have still in stock all the leading kinds of SEED POTATOS, and are now offering them at reduced prices to clear out. Seed Growing Establishment, Wisbech.

WISE AND RIDES, Covent Garden, W.C., are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS, CUCUMBERS, TOMATOS, FRENCH BEANS, Gros Colmar and Alicante GRAPES.

SQUELCH AND BARNHAM, Long Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatos, Cucumbers, choice Flowers, &c.

SQUELCH AND BARNHAM, giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

SQUELCH AND BARNHAM, ACCOUNT SALES sent daily, and CHEQUES forwarded weekly.

BANKERS and TRADE REFERENCES. BASKETS and LABELS supplied.

K E N T I A  
CANTERBURVANA, in seed-pots, 100s. per 100; K. FORSTERIANA, in seed-pots, 50s. per 100. Very nice and healthy plants. ED. PYNAERT, Ghent, Belgium.

GARDENIA INTERMEDIA (true), small established Plants, some well-set with flower-buds, twelve for 6s. Parcel Post free. GARDENER, Holly Lodge, Stamford Hill, N.

GERANIUMS and FUCHSIAS, Surplus Stock (best sorts), strong, well-rooted Plants, 2s per dozen. Package and Parcel Post free. GARDENER, Holly Lodge, Stamford Hill, N.

COCOS WEDDELLIANA, store pots, 20s. per 100. PANDANUS UTILIS, store pots, 8s. per 100. This healthy stuff may be had from J. VANDER SWAELMEN, Lily Nursery, Ghent, Belgium.

CUT FLOWERS OFFERED of HYACINTHS.—Boxes containing 100 fresh flowers, all colours, 4s.; box free. Cash with order. H. SLEGTKAMP, Lisse, near Haarlem, Holland.

Now Ready.  
TEA and NOISETTE ROSES, of best sorts only, in great quantity, and of best possible quality. Prices on application. Priced CATALOGUES shortly. EWING AND CO., Sea View Nurseries, Havant, Hants (late of Eaton, near Norwich).

LAING'S BEGONIA SEED.—GOLD MEDAL STRAIN, from our Prize Plants. Sealed packets, CHOICE MIXED, from single varieties, 1s. and 2s. 6d. per packet; 5s. extra large packets. We regret to say we are sold out of Seed of Double varieties. COLLECTIONS, 12 named varieties, separate, 7s. 6d.; ditto, 6 named varieties, separate, 4s. LAING AND CO., Seed-men, Forest Hill, S.E.

CREEPERS for Walls, Trellises, &c., in great variety. By planting what is suitable, an unsightly object may easily be made beautiful. Descriptive LIST and advice on application. RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

DAFFODILS.—To Amateurs, Collectors, Bulb Merchants, Gardeners, and Others.—Several thousand Bulbs of *Pallidus præcox*, the beautiful Sulphur-colored Trumpet Daffodil, for Sale. Also Hybrids from the Pyrenees. For terms, &c., apply to Madame M. ROCK, Maison Ecart, Rue Bon-Air, Biarritz, France.

HERBACEOUS and ALPINE PLANTS.—Now is the season to plant and insure success. Write for R. H. VERTEGANS' Pocket CATALOGUE, and make your choice from his unrivalled Collection. Chad Valley Nurseries, Edgbastoo, Birmingham.

CARNATIONS, PICOTEEs, CLOVES, PINKS, PANSIES, in the very best varieties, strong, vigorous plants. Special Trade Quotations. SAMUEL HARTLEY, Headingley Nursery, Leeds.

CARNATIONS.—Strong Seedlings, from a splendid Collection of Choice Named Flowers. All to bloom this year. Per dozen, 2s. 6d.; per 100, 15s. DANIELS BROS., Town Close Nurseries, Norwich.

## Hyacinthus candicans.

BUDDENBORG BROS., BULB GROWERS, Hillegom, near Haarlem, Holland, offer the above, splendid white flowering bulb, at 50s. per 1000.

## SPRING CLEARANCE SALE

to avoid planting. LILIAM AURATUM, SINGLE DAHLIAS, IRIS, GLADIOLI, BEGONIAS, and many other Bulbs, with some choice Seeds, at greatly reduced rates. Send for our Special Clearance LIST, No. 73.

NEW PLANT and BULB COMPANY, Lion Walk, Colchester.

Grand New Yellow Hybrid Perpetual Rose of 1885 GLOIRE LYONNAISE.

J. HOUSE begs to offer splendid Plants of the above Novelty at 40s. per dozen. Cash with order from unknown correspondents. JOHN HOUSE, Eastgate Nurseries, Peterborough.

## FIVE THOUSAND PELARGONIUMS.

Must be sold. Clean, large bushy stuff, to flower early. Established in 48-pots, including all the best named varieties, as Dr. Masters, Duchess of Bedford, Bridal Bouquet, Kingston Beauty, &c., 7s. 6d. per dozen for cash. Also ditto in 60s., ready for 48-pots, at 4s. per dozen for cash. Address, MANAGER, The Hill Nurseries, Sandiacre, Notts.

## EIGHTY THOUSAND CLEMATIS in

Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.

RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

## GRAPE VINES, well ripened. SEAKALE.

Low quotations to large buyers. WILL TAYLER, Osborn Nursery, Hampton, Middlesex.



## SALES BY AUCTION.

Thursday Next.—(Sale No. 6865.)

**MR. J. C. STEVENS** will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, April 21, 5000 splendid Bulbs of LILIAM AURATUM, from Japan, in the finest possible condition.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6865.)

VALUABLE IMPORTED ORCHIDS.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on THURSDAY NEXT, April 23, at half-past 12 o'clock precisely, a fine importation of the beautiful CYPRIPEDIUM ARGUS and HAYNALDIANUM, also valuable imports from Mexico consisting of BARKERIA BARKERIANA, LELIA AUTUMNALIS, and ATRO-RUBENS, ONCIDIUM TIGRINUM, ODONTOGLOSSUM INSEAVI LEOPARDINUM, a new BARKERIA, HARTWEGIA PURPUREA, &c.; also a splendid plant in flower of the early flowering MOSSLE, and many other ORCHIDS.

On view morning of Sale, and Catalogues had.

Caversham Park, Reading.

**MR. J. C. STEVENS** has received instructions from the Executors of the late Mrs. Crawshaw to SELL by AUCTION, on the Premises, as above, on MONDAY and TUESDAY, May 4 and 5, at half-past 12 o'clock precisely each day, without reserve, the COLLECTION of STOVE and GREENHOUSE PLANTS, consisting of Crotons, Dracaenas, Marantas, Palms, Alocasias, Camellias, and Azaleas, Ferns, &c.; also 12000 BEDDING PLANTS of all the best varieties; a small collection of ORCHIDS, including several nice plants of Dendrobium nobile, Cypripedium insigne, C. venustum, C. barbatum, Cattleyas of sorts, Anthurium Scherzerianum, and other species. A quantity of IMPLEMENTS, comprising three Rollers, Water-barrows, Cans, Tanks, Mowing Machines, Farm and Spring CARTS, together with a CART-HORSE, COB, &c.

On view the Saturday prior and mornings of Sale, and Catalogues had on the Premises, or of Mr. J. C. STEVENS, Horticultural Auctioneer, 38, King Street, Covent Garden, W.C.

The Collection of Orchids formed by A. D. Berrington, Esq., of Pant-y-Goitre, Abergevenny.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., EARLY in MAY, without the least reserve, the ENTIRE COLLECTION of ORCHIDS formed by A. D. Berrington, Esq., of Pant-y-Goitre, Abergevenny, including, amongst others, Angraecum sesquipedale, with forty leaves; Anguloa Ruckeri, fine plant, with ten tubs; Cologyne tomentosa, two plants; C. viscosa, Cattleya crispata, very fine variety; five plants of the autumn-flowering C. labiata, two plants of C. Lemoniana, Lælia anceps Dawsoni, two good plants; Odontoglossum Bluntii, fine spotted form; O. pulchellum, &c.

Date of Sale will shortly be announced.

Tuesday Next.

BRAZILIAN and BURMESE ORCHIDS.

**MESSRS. PROTHEROE AND MORRIS** will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, April 21, at half-past 12 o'clock precisely, an importation of BRAZILIAN ORCHIDS, in healthy condition, including Houlettias, Cattleya labiata, C. species, Lælia Dayana, Oncidium phymatocylindrum, also a fine lot of Dendrobium Brymerianum, D. Wardianum, D. thyrsiflorum, and other Dendrobies; and 300 lots of various IMPORTED ORCHIDS from Mr. F. Sander.

On view morning of Sale, and Catalogues had.

Wednesday Next.—Carnations and Picotees.

**MESSRS. PROTHEROE AND MORRIS** will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, April 22, at half-past 12 o'clock precisely, 100 lots of choice CARNATIONS and PICOTEES from the celebrated collection of Mr. Charles Turner, Slough; PINKS, CLOVES, AZALEAS, and PICUS from Belgium; English-grown LILIES, and an assortment of hardy BULBS and PLANTS for the Garden.

On view morning of Sale, and Catalogues had.

Ewell, Surrey.

By order of the Trustees of the late George Torr, Esq., IMPORTANT SALE of the celebrated Garbrand Hall COLLECTION of EXHIBITION STOVE and GREENHOUSE PLANTS, which have been exhibited at the leading Shows with such unprecedented success by Mr. J. Child.

**MESSRS. PROTHEROE AND MORRIS** are favoured with instructions to SELL by AUCTION, on the Premises, Garbrand Hall, Ewell, Surrey, on WEDNESDAY, April 22, at 12 o'clock precisely, the whole of the VALUABLE COLLECTION of EXHIBITION STOVE and GREENHOUSE PLANTS, including a large number of thriving young specimen Azalea indica, in grand order for successful exhibition; also fine examples of white Lapagerias, Stephanotis, Dracophyllum and other New Holland plants; Tree, Filmy and other Ferns; the best Collection known of specimen Tuberous-rooted Begonias, a large assortment of Bedding Plants, likewise a few unusually fine specimen ORCHIDS, amongst which may be specially mentioned:—Cypripedium Stonei (the Two Oncidium ampliatum charming Garbrand Hall variety, believed to be the only plant extant), 4 feet across. Aërides Fieldingi floribunda and A. Lobbi, both well-known plants.

Also Two One-horse Exhibition YANS, complete. May be viewed the day prior to the Sale. Catalogues may be had on the Premises, of Mr. CHILD; and at the Auction and Estate Offices, 67 and 68, Cheapside, E.C.

Friday Next.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Messrs. Shuttleworth, Carder & Co., to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, April 24, at half-past 12 o'clock precisely, a fine importation of ONCIDIUM TIGRINUM, ODONTOGLOSSUM INSEAVI LEOPARDINUM, O. CRISPUM (ALEXANDRE), White LÆLIA ANCEPS, established and rare MASDEVALLIAS, and other ORCHIDS.

On view morning of Sale, and Catalogues had.

Flowering Orchids.—Special Sale.

**MESSRS. PROTHEROE AND MORRIS** beg to announce that their NEXT SPECIAL SALE of FLOWERING ORCHIDS will take place on TUESDAY, April 28, for which they will be glad to RECEIVE ENTRIES as EARLY as POSSIBLE.

Established Orchids.

**MESSRS. PROTHEROE AND MORRIS** will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY, April 20, at half-past 12 o'clock precisely, a fine Collection of ESTABLISHED ORCHIDS, including many rare and choice kinds, amongst them the following:—

Cattleya labiata, the true autumn flowering variety	Lælia anceps Dawsoni
Aërides Emericii	Lycaste Skinneri alba
Yanda Cathartii	Epidendrum rhizophorum
Cattleya Trianae alba	Dendrobium Berkeleyi
Calanthe Domini	Læliopsis domingensis
Masdevallia Harryana acanthifolia	Aërides Houlettii
" " conchiflora	Yanda Paribii Martiniottiana
" " regalis	Oncidium sessile
Vanda Denisoniana	Odontoglossum nazium
Epidendrum prismatocarpum	Masdevallia torta
Cattleya nobilior	Cypripedium Druryi
Dendrobium Kingianum	Calanthe pleichroma
Cirriophotum picturatum	Cattleya Regnellii
Dendrobium Schroderi	Cynochilus chlorochilon
	Cymbidium devonianum

Also an importation of ORCHIDS from Burmah, such as Aërides Lobbi, Saccolabium curvifolium, Dendrobium infundibulum, D. Fytcheanum, and some hundreds of Calanthes (useful for winter blooming), probably a new one among them, as Collectors writes they are in three varieties.

On view the morning of Sale, and Catalogues had.

Dublin Citizens' Ball.

April 22, 1885

**MESSRS. J. AND R. THYNE, NURSERYMEN**, Glasgow, having received the entire Order for Horticultural Decorations for the above Ball in connection with the Royal Visit, will SELL by AUCTION, at 12 o'clock on THURSDAY 23d inst., in the Royal Agricultural Hall, Balls Bridge, the entire COLLECTION of PLANTS used, consisting of handsome Palms, Dracaenas, Crotons, Orchids, Azaleas, Rhododendrons, Imantophyllums, Ferns, &c.; also a large variety of Table Plants.

Messrs. F. FLINT AND SONS, 9, Lower Ormond Quay, Dublin, Auctioneers.

Thurcroft Hall, near Rotherham, Yorkshire.

Valuable and extensive COLLECTION of STOVE and GREENHOUSE PLANTS in first-class condition, embracing many excellent Specimens, and including over 100 choice ORCHIDS; also a quantity of strong, healthy BEDDING PLANTS.

**MESSRS. STYRING AND TURNER** are honoured with instructions from Thomas Marian, Esq., to SELL by AUCTION, in the Gardens attached to Thurcroft Hall (situate about 6 miles from Rotherham), the above-named plants, on THURSDAY, May 7, commencing at 11 A.M. The plants will be on view (by Catalogue only) on Monday, April 27 to Saturday, May 2, from 10 to 4 o'clock each day.

Catalogues may be had on application to the Auctioneers, Moorgate Street, Rotherham.

On the day of Sale conveyances will leave the "Ship" Hotel yard, Rotherham, at 10 A.M. for Thurcroft Hall.

There will be a Refreshment Stall.

**TO LET, The NURSERIES, Mill Hill,** near Hendon, Middlesex, late in the occupation of Mr. James Wright. There is a fair amount of Stock, &c., which would be offered on easy terms to a respectable Tenant. There is a cottage and about 5 Acres of Land. Application for terms, &c., to be made to C. DRUMMOND, Estate Agent, Hertford, Herts.

**To Market Gardeners, Flower Salesmen, and others** attending Covent Garden Market.

**BED-ROOMS TO LET.** Apply to J. B., 34, Wellington Street, Covent Garden, W.C.

**THE GATESHEAD PARK COMMITTEE** invite TENDERS for the ERECTION of a CONSERVATORY and PROPAGATING HOUSE in Saltwell Park.

Persons tendering are expected to furnish their own Designs, which must include the means of Heating and all other details. The Conservatory will front the West, on a nearly level frontage, and to the South on a slight inclination. A Plan showing the proposed site, with particulars as to level and inclination of ground, will be furnished on application to the TOWN SURVEYOR, Town Hall, Gateshead.

Tenders must be sent to the Town Clerk not later than APRIL 24. The Town Council do not bind themselves to accept the lowest or any Tender, nor will they pay any expenses which any person tendering may incur in the preparation of his Design.—By order, J. W. SWINBURNE, Town Clerk.

**Croydon Union.—The Rural Sanitary Authority.** **TO FARMERS, MARKET GARDENERS, MANURE MERCHANTS, and OTHERS.**—The Rural Sanitary Authority of the Croydon Union are prepared to RECEIVE TENDERS for the PURCHASE of the PRESSED SLUDGE from their Sewage Works at Merton, Surrey, for a period of Twelve Months from May 1, 1885.

Full Particulars and Conditions of Contract, and Forms of Tender, can be obtained at the Sewage Works as above, where samples of the Sludge can be obtained; and Tenders are to be delivered to Mr. R. M. CHART, Surveyor to the Authority, Lower Mitcham, Surrey, on or before Monday, April 27, 1885. Dated April 13, 1885.

**JOHN KENNARD'S HORTICULTURAL** SUNDRIES, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

**T. HARPHAM, PRACTICAL ROCK BUILDER** and GENERAL HORTICULTURAL DECORATOR (for many years leading hand with Dick Radclyffe & Co., London), 107, Church Street, Edgware Road, London, W.

To Landed Proprietors, &amp;c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS. Plans prepared. 115, Listria Park, Stamford Hill, N.

**PYRAMID PORTUGAL LAURELS**, very handsome Pyramids, from 3 to 8 feet, in fine condition for removal. To be sold cheap. W. B. ROWE AND CO. (Limited), Barbourne Nurseries, Worcester.

**LOVEL'S STRAWBERRY PLANTS.** Price 2s. 6d. per 100, 10s. per 500, 17s. 6d. per 1000. Sample and Pamphlet, post-free, 4d.

W. LOVEL AND SON, Strawberry Growers, Driffield.

Grape Vines for Sale.

**S. BIDE** can offer some really good Planting Canes of Gros Colmar, Lady Downe's, and Foster's Seedling, at 2s. 6d. each. Packages free for cash. S. BIDE, Alma Nursery, Farnham, Surrey.

**SCARLET RUNNERS**, quantity of, for Sale, good samples, for cash, at 1s. per bushel, carriage paid to London. Sacks found at 1s. each. EDWARD WARNER, Seed Grower, Kelvedon, Essex.

**ASPARAGUS and SEAKALE** for Forcing and Planting. Price on application. JAMES DICKSON AND SONS, Newton Nurseries, Chester.

**ASPARAGUS.**—True Giant, 2, 3, and 4-yr. Fine sample 100 or 1000, with price, on application. JAMES BIRD, Nurseryman, Downham.

New Roses of 1885.

**CRANSTON'S NURSERY AND SEED COMPANY** (Limited), King's Acre, Hereford, have ready for delivery strong Plants of the best of the NEW ROSES, carefully selected, including Gloire Lyonnaise, the yellow H.P.; also a splendid stock of Tea-scented and other Roses for Conservatory Decoration or Planting Out. Priced LISTS will be forwarded on application.

Seed Potatoes.

**JOSIAH H. BATH,** York Street, Borough Market, S.E., Offers the following varieties of SEED POTATOES:—

Rivers' Royal Ashleaf.	Fortyfold.
Myatt's Prolific Ashleaf.	Scotch Regent.
White Elephant.	York Regent.
Beauty of Hebron.	Paterson's Victoria.
Snowflake.	Redskin Flourball.
Schoolmaster.	Reading Hero.
Early Rose.	Dalmahoy.
Magnum Bonum.	Early Don.

And other leading varieties. Prices on application.

New Regal Pelargoniums.

**DUCHESS OF ALBANY.**—We are prepared to distribute this new Pelargonium on May 1, which has been pronounced by most competent judges to be a grand acquisition to the Pelargonium tribe. It is of dwarf bushy habit, producing in abundance fine trusses of beautifully fringed flowers, a very distinct and effective variety. Price and particulars on application to J. LEWIS AND SON, Newton Nurseries, Malvern.

**ASPARAGUS.**—A large quantity to offer, of very fine transplanted stuff, 2-yr. and 3-yr., 2s. 6d. and 3s. per 100, 20s. and 25s. per 1000. Also 2-yr. from drills, 10s. per 1000. All packages free on rail. S. BIDE, Alma Nursery, Farnham, Surrey.

**PALM SEEDS** at low rates, post-free.

CARVOTA URENS, 5s. 6d. per 100, 38s. per 1000. ONCOSPERMA FASCICULATA, 5s. 6d. p. 100, 38s. p. 1000. CORPORA UMBRACULIFERA, 12s. per 100, 90s. per 1000. PHENIX SILVESTRIIS, 5s. per 100, 35s. per 1000. Also CINCHONA, CARDAMOM, RUBBER, COFFEE, TEA, and various other SEEDS, &c. Price LIST gratis. Numerous unsolicited testimonials.

Messrs. DAMMAN & Co., Portici, near Naples, write, dating February 10, 1885:—"We beg to thank you very much for the seeds of Oncosperma fasciculata, and of Carvota urens, which arrived quite well and in good condition." Catalogues solicited. Always fresh seeds supplied. All orders should accompany bank drafts or notes on London banks.

J. P. WILLIAMS and BROTHERS, New Product Growers, Seedsmen, &c., "Wilhelm's Rhne," Heneratgoda, Ceylon.

**GERANIUMS.**—Mrs. Pollock, Golden Tricolor, and other good sorts, 2s. per doz., 20s. per 100.

"New varieties, including Masterpieces, &c., 5s. per dozen, 40s. per 100.

Silver Tricolors, including Mrs. Laing and other select varieties, 3s. 6d. per dozen, 25s. per 100.

Silver Variegated, good sorts, 2s. 6d. per dozen, 18s. per 100.

"Ivy-leaf, Single and Double, 2s. 6d. per dozen.

Gold and Bronze, Marshal McMahon, and other choice varieties, 2s. 6d. per dozen, 18s. per 100.

Doubles, in good varieties, 2s. per dozen.

Zonals, good varieties, W. P.'s selection, 12s. per 100.

"Henry Jacoby, John Gibbons, Amaranth, Rev. Atkinson, &c., 2s. 6d. per dozen, 18s. per 100.

FUCHSIAS, good, 12 vars., 2s. Named Double PETUNIAS 3s. per dozen; choice mixed Seedling double, 1s. 6d. per dozen.

HELIOTROPES, good sorts, 2s. 6d. per dozen. ALTERNANTHERAS, in sorts, 2s. per doz.

COLEUS VERSCHAFFELTII, 2s. per dozen; 12 other select named vars., 2s. 6d.

LOBELIA, Brighton Blue, strong bushy plants from cuttings, 12s. per 100, 6s. per 1000.

CALCEOLARIA, Golden Gem, 12s. per 100.

The above are good plants in single pots, 2s. per 100 will be allowed if taken out of pots.

GERANIUMS, Zonal, strong plants, good sorts, from stores, 8s. per 100.

IRISINES, AGERATUMS, ECHEVERIA SECUNDA GLAUCA, MESEMBRYANTEMUM, GOLDEN FEATHER, and other BEDDING PLANTS at low prices.

CHRYSANTHEMUMS, DAHLIAS, PERENNIAL PHLOXES, in god variety, cheap.

WILLIAM POTTEN, Camden Nursery, Sissinghurst, Staplehurst.

**PALMS.**—Specially hardy grown, for Cool Greenhouses and Dwelling-houses. Latania borbonica and Scaevola elegans, splendidly foliaged, 20 inches high, 12s. per dozen; sample plants, 1s. 2d. Same kinds, 12 inches high, 25s. per 100; sample twelve for 4s. All packages and parcels post-free. Postal Orders to GARDENER, Holly Lodge, Stamford Hill London, N.]



**CUPRESSUS LAWSONIANA**  
"ROBUSTA."  
For description see my CATALOGUE, spring 1885.  
Plants of 3 feet 4 inches, 6s. each, 4s. 10s. for 10.  
" " 3 feet, 5s. each, 4s. 10s. for 10.  
" " 1 foot 8 inches, 2s. 6d. each, 14s. for 10, 6s. per 100.  
" " 1 foot 4 inches, 1s. 8d. each, 10s. for 10, 4s. 4s. per 100.  
" " grafted in spring 1884, 10d. each, 5s. for 10, 4s. 2s. per 100.  
A. M. C. JONGKINDI CONINCK, Tottenham Nurseries,  
Dedensvaart, near Zwolle, Netherlands.

**LILIUM AURATUM**.—Special Offer.—Now  
is the best time to plant. Splendid firm 'soud bulbs,  
just arrived, 6 to 8 and 8 to 10 inches in circumference, 28s. and  
35s. per 100, 4s. and 6s. per dozen. The cheapest for quality  
ever offered. Samples 12 stamps.

**SEED POTATOS**.—For Special Prices see former  
advertisements.

MORLE AND CO., 1 and 2, and 162, Fenchurch Street, E.C.

**CATALOGUE** containing a splendid collection  
of finest named Hollyhocks, all fully described and  
priced, also probably the largest, most select, and best collections  
of all other Florists' Flowers, Perennials, &c., ever brought  
together, is now ready, and will be posted on application. It  
consists of eighty pages of closely printed matter, and forms a  
very handy reference book on flowers, which should be in the  
hands of all who cultivate a Garden or Greenhouse.

JOHN FORBES, Nurseryman, Hawick, N.B.

**New and Choice Chrysanthemums.**  
R. OWEN begs to call attention to his  
choice collection, which comprises only the best new and  
old varieties. Strong rooted cuttings, twelve varieties for 1885,  
7s. 6d.; ditto for 1884, 3s. 6d.; best old varieties, 2s. 6d. per dozen  
—cuttings, 6d. per dozen less, post-free for cash. CATALOGUE  
one stamp. Mr. BOWERMAN, Hackwood Park Gardens,  
says:—They are the best cuttings I ever had  
sent me." The Floral Nursery, Maidenhead.

**SPECIAL OFFER.—RETINOSPORA**  
FILIFERA, 1½ to 2 feet, 6s. per dozen; do., 2 to 2½  
feet, 8s. per dozen. THUOPSIS DOLABRATA, 4 to 6 inch-  
2s. 6d. per dozen, 15s. per 100. RHODODENDRONS,  
choice named varieties, 1 to 1½ foot, 17s. per dozen, 130s. per  
100; 1½ to 2 feet, 24s. per dozen, 160s. per 100; PONTI-  
CUM and HYBRIDS, 1½ to 2 feet, 40s. per 100; 1 to 1½ foot,  
25s. per 100; 9 to 12 inches, 15s., and 6 to 9 inches, 15s. per 100;  
2-yr. Seedlings, 4s. 6d. per 1000, 4s. 10d. per 1000; 3-yr. do.,  
6s. 6d. per 1000, 6s. 10d. per 1000. IVY, maculata latifolia,  
2-yr. cuts, 4s. per 100, 35s. per 1000; Silver Queen, in pots, 7s.  
per dozen.

SAMUEL AND JAMES SMITH, Tansley Nurseries, near  
Matlock.

**Surplus Stock.**  
N. LAWRENCE AND SON have to offer  
several thousands of the following at the under-  
mentioned low prices, free by post, or free on rail, including  
packages:—PETUNIAS, very fine, single, in variety, at 6s.  
per 100; IRESINE, 5s. per 100; LOBELIA, new Swanley  
Blue, 4s. per 100. Cheaper by the 1000. All orders must be  
accompanied with cash.

The Burnfield Nurseries, Chatteris, Cambs.

**CHRYSANTHEMUMS**.—Speciality.—420  
varieties, guaranteed true to name. One of the largest  
and cheapest Collections in the Trade. Plants, purchaser's  
selection, 2s. 6d. per dozen, 16s. per 100; cuttings, 1s. 6d. per  
dozen, 10s. per 100; W. E.'s selection, cheaper. For the new  
English and Continental varieties see CATALOGUE, with  
Essay on Cultivation, one stamp.

W. ETHERINGTON, The Manor House, Swanscombe,  
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**Prize Florists' Flowers.**  
JOHN DOWNIE begs to intimate that his  
CATALOGUE of the above is now ready and will be sent  
post-free on application. It comprises the finest varieties of  
Pansies, Violas, Pentstemons, Phloxes, Antirrhinums, Dahlias,  
double and single, &c.

As I am now in business solely on my own account, and from  
a long and varied experience in the cultivation of Florists'  
Flowers, purchasers may rely on nothing being sent them but  
what is really first-rate. Selection and not collection is my  
style of doing business.

Beechhill Nursery, Murrayfield, Edinburgh.

**New Kidney Potato.**  
**BIRD'S DOCTOR BOB**.—This is the  
earliest Kidney variety in existence; a very heavy  
cropper, as many as sixty tubers of all sizes have been counted  
at a root. It is a seedling from Early King. After a trial of  
several years it has never taken disease. Eyes very shallow; a  
good cooker, and fine flavour. 5s. per stone.

JAMES BIRD, American Nurseries, Downham Market.

**Cheap Plants.—Special Offer.**  
WILLIAM BADMAN offers as under for present  
store pots, all healthy, well-rooted, and fit for present  
planting:—

TRICOLORS.—Mrs. Pollock, one of the best, 2s. per dozen,  
15s. per 100; Lady Cullum, S. Dumaresque, Sir R. Napier,  
2s. 6d. per dozen, 18s. per 100. Twelve choice varieties  
Tricolors, for 5s.

SILVERING—May Queen (Turner's). Flower of Spring, Prince  
Silverwings, Little Trot and Bijou, 2s. per doz., 10s. per 100.

GOLD LEAF—Crystal Palace Gem, 2s. per dozen, 10s. per  
100; Happy Thought, 2s. 6d. per dozen.

BRONZE—McMahon, Black Douglas, Czar (best bedders), 2s.  
per dozen, 15s. per 100.

SCARLET—Vesuvius, Jean Sisley, Col. Seely, 1s. 6d. per  
dozen, 8s. per 100.

PINK—Master Christine, Mrs. Levers (fine), 1s. 6d. per dozen,  
10s. per 100.

WHITE—Madame Vaucher and Virgo Marie, 1s. 6d. per dozen,  
10s. per 100.

CRIMSON—Henry Jacoby, 2s. per dozen, 15s. per 100;  
Waltham Seedling, 1s. 6d. per dozen, 8s. per 100.

LOBELIA—Brighton, Blue Stone, Pumila magnifica, 3s. per  
100, 20s. per 1000.

HELIOTROPE—Jean d'Amour, Miss Nightingale and Light,  
6s. per 100.

AGERATUM—Imperial Dwarf Blue, 5s. per 100, 40s. per 1000.

CALCEOLARIA—Golden Gem and Dark Camden Hero, 5s.  
per 100, 40s. per 1000.

COLEUS Verschaffelti and IRESINE Lideni, 5s. per 100.

TROPÆOLUM—Vesuvius, dwarf, good bedder, 8s. per 100.

PELAGONIUM—Show and Fancy, in single pots, 3s. per  
dozen 20s. per 100.

Packing included. Terms Cash.

Cemetery Nursery, Gravesend.

## CARTERS' LAWN SEEDS.

	Per Pound.	Bushel.	s.	d.	0.
CARTERS' INVICTA LAWN SEEDS..	1	3	0	0	0
Carters' Grass Seeds..	For Town	1	3	0	0
Carters' Grass Seeds..	Lawn	1	0	0	0
Carters' Grass Seeds..	for Cricket	1	0	0	0
Carters' Grass Seeds..	Grounds	1	0	0	0
Carters' Grass Seeds..	for Tennis	1	0	0	0
Carters' Grass Seeds..	Grounds	1	0	0	0
Carters' Grass Seeds..	to repair	1	3	0	0
Carters' Grass Seeds..	Old Lawns	1	3	0	0
Carters' Grass Seeds..	for under	1	3	0	0
Carters' Grass Seeds..	Trees	1	3	0	0
Carters' Grass Seeds..	for Pleasure	1	3	0	0
Carters' Grass Seeds..	Grounds	1	3	0	0

—Sow 4 Bushels of Seed per Acre.



**CAUTION.**—Carters' Grass Seeds have never been beaten in any competition. The following Prizes have been won with CARTERS' GRASS SEEDS, &c.:—

ONLY PRIZ D'HONNEUR	AMSTERDAM, 1884.
ONLY GOLD MEDAL	AMSTERDAM, 1884.
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GOLD PRIZE MEDAL	MELBOURNE, 1880.
ONLY GOLD MEDAL	PARIS, 1878.
ONLY PRIZE MEDAL	SYDNEY, 1879.
ONLY GOLD MEDAL	LIMA, 1872.
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ALL PARCELS CARRIAGE FREE.  
For further particulars see Carters' Pamphlet  
"HOW TO FORM A LAWN AND TENNIS GROUND."  
Gratis and Post-free on application.

Seedsman by Royal Warrant to His Royal Highness

THE PRINCE OF WALES,

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Beautiful Flowers for Indoors, selected from an immense stock. Our Glasshouses cover nearly a acre.

Wm. Clibran & Son's New List  
(90 Pages Double Column)

Of the newest and finest varieties of all classes of Plants for Greenhouses, Stoves, &c., may now be had for two stamps. It includes only the best varieties of their respective classes. Every season new sorts are added. Comparison of the varieties when in bloom carefully made, and the inferior kinds discarded. Intending purchasers may rely when selections are ordered as under on being supplied with varieties of merit only.

The following cheap Collections of finest named kinds consist entirely of our selection. Purchasers may select from the Lists at Prices as per CATALOGUE, which please see before ordering else where.

12 Achimenes, 12 sorts, 3s.	12 Geraniums of any or all classes, Zonalis for pots or beds, Ivy-leaf, Doubles, &c., 3s.
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12 " Ornamental, 12 sorts, 6s.	12 Gloxinias, 12 sorts, 6s.
6 " Evergreen, 6 sorts, 2s.	12 Greenhouse Plants, 12 sorts, 9s.
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12 Caladiums, 12 sorts, 6s.	12 Lantanas, 12 sorts, 2s. 6d.
12 Camellias, 12 sorts, 2s.	12 Liliums, 6 sorts, 12s.
12 Chrysanthemums of any or all classes, Large Flowered, Pom-pom, Anemone, or Japanese, 2s. 6d.	12 Palms, 6 sorts, 18s.
50 " " 12s.	12 Pelargoniums, Show, French, Fancy, &c., 9s.
12 Coleus, 12 sorts, 3s.	12 Roses, 15s.
12 Ferns, 12 sorts, 9s.	12 Salvias, 2s. 6d.
12 Fuchsias, 12 sorts, 3s.	12 Stove Plants, Flowering 9s.
25 " 25 sorts, 5s. 6d.	12 " Foliage, 9s.
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100 " 18s.	12 Tree Carnations, 9s.
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W. CLIBRAN AND SON'S NEW CATALOGUE (free for two stamps) of Hardy Plants and Florists' Flowers for outdoors, is a list of the finest Collections in the Country of Low Priced Plants, and includes only varieties which are annually tested and compared to ensure the wedding out of all inferior plants. The following cheap Collections are of our selection only, all named sorts for Garden or Exhibition:—

12 each of ANTIRRHINUMS, PENTSTEMONS, PHLOXES, for 9s., or 12 of any separate for 3s. 6d.	12 PYRETHRUMS, 5s.; 12 POTENTILLAS, 5s.; 12 DELPHINIUMS, 7s. 6d.; 12 PEONIES, 9s.; or 12 of each, 22s. 6d.
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12 lovely IRIS, 3s.; 12 beautiful MIMULUS, 3s.	12 lovely PRIMROSES, Double, 6s.; 12 SAXIFRAGAS, 3s.; 12 SEDUMS, 3s.
12 Sweet VIOLETS, 2s. 6d.; 12 VIOLAS, 2s. 6d.; or 100 in four colours, 12s.	12 beautiful Seedling HOLLYHOCKS, 4s., 50 for 12s. 6d., 100 for 21s.
12 beautiful PRIMULAS SIEBOLDII, 12 sorts, 6s.	40 Acres fine NURSERY STOCK.
5 " HERBACEOUS PLANTS.	5 " GLASS HOUSES.

The Oldfield Nurseries, Altrincham, Cheshire, and the Seed and Bulb and Cut Flower Depot, 12, Market Street, Manchester.

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JOHN SOLOMON offers good, strong, well-rooted Plants, perfectly free from disease. White, Scarlet, Purple, and Pink, 6s. per 100, 5s. per 1000, 2s. 6d. per 100, acs. per 1000. Package included. Terms cash.  
Queen's Road Nursery, Waltham-tow, Essex.

**SURPLUS STOCK.**—Beautiful Specimens of ORNAMENTAL and EVERGREEN TREES, in perfect condition for removal, at extraordinarily low prices.

Special LIST, just published, on application.  
RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

**Special Offer to the Trade.**  
**ARALIAS; AZALEAS INDICA, MOLLIS, and PONTICA; CITRUS, CLIVIA, DRACENAS, FERNS, FICUS, PALMS, and RHODODENDRONS.**  
JULES DE COCK, Ornamental Plant Nurseries, Obert, Belgium.

**TO FLORISTS and OTHERS.**—A quantity of fine MARECHAL NIEL ROSE BLOOMS, now coming on, for Disposal. Cash offers per dozen or 100 winter.  
SAML. COOPER, Cemetery Road, Hazeleigh, Suffolk.

**PANSIES.**—First at Great-International, Dundee, 1884. CATALOGUES free on application.  
ANDREW IRVINE, Tigbna Bruich, Greenock, N.B.

**GERANIUMS** of sorts for Bedding, extra fine plants, from single pots; from 3s. per 1000. Geraniums for pots, the cream of several well-known collections, from single pots, extra fine; priced LIST free. CALCEOLARIA Golden Gem, extra fine, autumn stock, 6s. per 100. Trade LIST on application. Cash, package free; 20s. 10s. B. R. DAVIS, Yeoville Nurseries, Nailsea.

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BARR AND SON, King Street, Covent Garden, W.C.

**YELLOW H.P. ROSE, Gloire Lyonnaise**, strong, well-furnished plants, 3s. each. To the Trade 20s. per dozen, package included. Cash with order. A selection of the best FRENCH ROSES of the year.

Descriptive Price LIST free on application.  
HENRY BENNETT, Pedigree Rose Nursery, Shepperton, Middlesex.

**Surplus Stock of Pelargoniums.**  
SHOW, SPOTTED, FRENCH, and FANCY.

**N. LAWRENCE AND SON** have to offer a very fine stock of the above, in 48s., at the following low price for cash with order, including package free on rail; very fine bushy stuff, now full of flower-buds and ready to open, at 12s. per dozen, two dozen for 18s.; 50 for 30s.; sample half-dozen, 7s.; ditto, very good, to flower later, 9s. per dozen, 14s. for two dozen, and 25s. for 50; sample half-dozen for 6s., selection left to N. L. & Son. Much cheaper by the 100 or 1000. Their stock, upwards of 200 varieties, includes all the best Covent Garden and Show varieties. See our samples.  
The Burnfield Nurseries, Chatteris, Cambs.

**CABBAGE PLANTS**—CABBAGE PLANTS.—Fine autumn sown plants, Early Battersea, Enfield Market, Rainham, and Nonpareil, 3s. per 1000; Red Drumhead (true), 5s. per 1000. Sprouting and Spring BROCCOLI of sorts, BRUSSELS SPROUTS and SAVOYS, 3s. 6d. per 1000. The above are healthy and well-rooted. Delivered free on rail. Cash or reference must accompany all orders from unknown correspondents.  
W. VIRGO, Waners Nurseries, Guildford, Surrey.

**SEEDS TO THE TRADE.**

MANGEL, Champion Yellow Globe, 30s. per cwt.  
" Berkshire Prize, 30s. per cwt.  
" Sutton's Yellow Intermediate, 30s. per cwt.  
SWEDE, Sharpe's Improved Purple-top, 17s. per bushel.  
TURNIP, Green Globe (Imperial), 16s. per bushel.  
" Bradford Hall Yellow, 17s. per bushel; a valuable late-keeping variety.  
Red Globe, 16s. per bushel.  
Satisfactory reference desired from unknown correspondents.  
A. DUCKERING, Seed Grower and Merchant, East Barkwith, near Wragby.

**For Seed—POTATOS—For Seed.**

	At Wholesale Prices to the Million.	Per Peck	Per Bush (56 lb)
EARLY BIRD (Turner's)	..	3s. 0d.	3s. 0d.
HAMMERSMITH KIDNEY (Lee's)	..	3s. 0d.	3s. 0d.
MAGNUM BONDUM (Sutton's)	..	2s. 6d.	2s. 6d.
McKINLAY'S PRIDE	..	3s. 0d.	3s. 0d.
OLD ASHLEAF KIDNEY (W. & L's Select Stock)	..	3s. 0d.	3s. 0d.
VICTORIA (Paterson's)	..	3s. 0d.	3s. 0d.

Bags free of charge. Prices nett cash. Remittance with all orders requested.

**WOOD & INGRAM,**

THE NURSERIES, HUNTINGDON

**SEEDS—SEEDS—SEEDS.**  
**CHARLES TURNER'S**

**DESCRIPTIVE CATALOGUE**  
of New and Select Varieties of every Class of Seeds for the Garden, is now ready.

THE ROYAL NURSERIES, SLOUGH.

**CARNATIONS AND PICOTEES.**

**THOMAS S. WARE**

Has much pleasure in drawing attention to his very fine collection of the above, including

SHOW VARIETIES, BORDER VARIETIES, YELLOW

GROUND, CLOVES, &c

Priced List may be had upon application.

**HALE FARM NURSERIES,**

TOTTENHAM, MIDDLESEX.





**CUTBUSH'S MILL-TRACK MUSHROOM SPAWN.**—Too well known to require description. Price 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by Parcel Post, 1s. No one genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached. WM. CUTBUSH AND SON (Limited), Nurserymen and Seed Merchants, Highgate Nurseries, N.

**Hooper's—**  
The Covent Garden Seed Warehouse  
Splendid Seeds and Bulbs at low prices  
Catalogues free to buyers

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The stock at the Clapton Nursery is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent.

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**SUPERB COLLECTION.** Fine bulbs. Post-free. 12 distinct and beautiful varieties, 6s. and 12s.; 12 choice and rare varieties, 21s.; 12 new and golden-leaved varieties, 42s.; 50, choice collection, 50 varieties, 15s.

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**ALPINE,** named varieties, 6s. to 12s. per dozen.  
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**BORDER SORTS,** Yellow and Purple, 1s. per doz., 6s. per 100.  
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**CERTAINLY AT**  
**H. CANNELL & SONS**  
**THE HOME OF FLOWERS**  
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4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

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**EPSPS'S SELECTED PEAT.**—Forty sacks,

2s. 6d. per sack; 30 ditto, 25s. 9d.; 20 ditto, 3s. 6d.; 10 ditto, 4s. 6d.; sacks, 6d. each. In trucks of 14 cubic yards, 11s. per yard. For Rhododendrons and common purposes,

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**12-oz. Sample Packets,** free by post, 12 stamps.

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**SILVER SAND,** Coarse or Fine, 52s. per Truck of 4 tons.

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A most complete CATALOGUE, including all the really first-class varieties of each section, and the new ones of the present season.

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**GIANT ASPARAGUS.**—Splendid roots, from sandy land, in four sizes, 15s., 21s., 30s. and 40s. per 1000.

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## HERBACEOUS And ALPINE PLANTS.

CATALOGUE of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.

A CAPITAL COLLECTION for Rocks, Stumps and Borders, from 25s. per 100, or 45s. per dozen.

Most of the plants being in pots may be despatched at any time, or by Parcel Post when fit.

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# "ARCHIMEDEAN" AMERICAN LAWN MOWERS.



## HIGHEST PRIZE

AWARDED  
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Paris Exhibition, 1878;  
and the JURY, in their REPORT  
say:—

"The 'ARCHIMEDEAN' did the  
BEST WORK of any Lawn  
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our readers as one of the best mowers  
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## THE "INVINCIBLE" LAWN MOWER.

SAMUEL EDWARDS' PATENT.

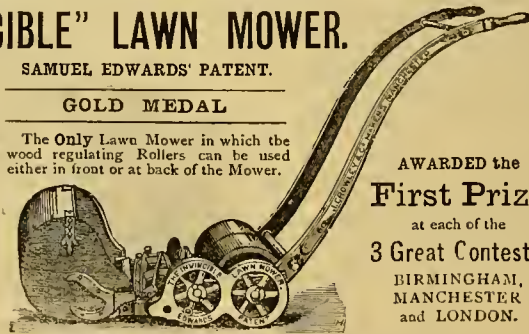
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The Only Lawn Mower in which the  
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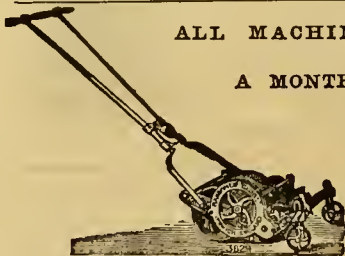
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at each of the  
3 Great Contests,  
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**RESULTS**  
OF  
CONTESTS.

PRICES (including Grass Box).  
6-in. 7-in. 8-in. 9-in. 10-in. 12-in. 14-in. 16-in. 18-in. 20-in. 24-in.  
30s. 40s. 50s. 60s. 70s. 90s. 110s. 130s. 150s. 170s. 190s. £22 £26 £30  
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**THE "WORLD" LAWN MOWERS**  
are the best for cutting long grass, and are constructed on the  
American system with the special advantages of English  
materials and workmanship.

They are made in nine sizes, 8 to 24 inches.

Prices from 45s. to £10.

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are suitable for small gardens and borders. They roll the  
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are the best machines for general purposes and gardeners' use.  
They leave no ribs in the grass but produce a perfect surface.  
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are the best for Large Lawns, Cricket and Lawn Tennis Clubs.  
They are used on the Cricket Grounds of the Oxford and Edin-  
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They are made in six sizes, 26 to 48 inches.

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Complete Price LISTS may be obtained from any respectable Ironmonger, or

**RANSOMES, SIMS & JEFFERIES (Ld.), IPSWICH.**





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Her Majesty the Queen and His Royal Highness the  
Princes of Wales.

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### "Silens Messor" and "Multum in Parvo" LAWN MOWERS

Have been proved to be the best, and they have carried off every  
Prize in all cases of competition.

Every Lawn Mower is guaranteed to give entire satisfaction,  
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HAND MACHINES,  
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To cut 8 in. wide .. £2 10 0	To cut 16 in. wide .. £6 10 0
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Price, £1 16s.

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SIZE,  
8 inches wide by  
7 inches diameter.

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Price 20s.

Small Bag of Marking Compo-  
sition, Mat, and Packing, 1s. 6d.



Price List free on application.

The above Machines can be had of all respectable Iron-  
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the Manufacturers.

THOMAS GREEN & SON  
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SMITHFIELD IRONWORKS, LEEDS; and  
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Carriage paid to all the Principal Railway Stations in  
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PRIZE MEDAL

### FLORISTS' FLOWERS

POST-FREE.

So if only in Sealed Packets bearing my Trade Mark  
The quality of all is alike: the difference in price applies  
to the quantity of seed put into the packets.



	Per Packet.—s. d.
Primula sinensis fimbriata, Chiswick Red, 1s. 6d., 2s. 6d., 3s. 6d., and 5 0	
Primula sinensis fimbriata alba magnifica, 1s. 6d., 2s. 6d., 3s. 6d., and 5 0	
Primula sinensis fimbriata coccinea, 1s. 6d., 2s. 6d., 3s. 6d., and 5 0	
Primula sinensis fimbriata, Meteor, 3s. 6d. and 5 0	
Primula sinensis fimbriata rubro-violacea, 2s. 6d., 3s. 6d., and 5 0	
Primula sinensis fimbriata, Rose Queen, .. .. 5 0	
Primula sinensis fimbriata, Mixed, 1s. 6d., 2s. 6d., 3s. 6d., and 5 0	
Primula sinensis fimbriata, Six Varieties, Mixed, 1s. 6d. and 2 6	
Primula sinensis fimbriata, superb strain, Red, 1s. 6d., 2s. 6d., 3s. 6d., and 5 0	
Primula sinensis fimbriata, superb strain, White, 1s. 6d., 2s. 6d., 3s. 6d. and 5 0	



Cineraria, Williams' Superb Strain, 1s. 6d., 2s. 6d., 3s. 6d., and 5 0	
Cineraria, Large Flowering French, .. .. 2 6	
Cockscomb, Williams' Prize .. .. 2 6	
Cyclamen persicum, Williams' Superb Strain, mixed 1s. 6d., 2s. 6d., 3s. 6d., and 5 0	
Cyclamen persicum, Brilliant 2s. 6d., 3s. 6d., and 5 0	
Cyclamen giganteum, Mixed .. .. 2 6	
Cyclamen giganteum album .. .. 3s. 6d. and 5 0	
Cyclamen giganteum compactum .. .. 3s. 6d. and 5 0	
Cyclamen giganteum .. .. 2s. 6d., 3s. 6d., and 5 0	
Cyclamen giganteum roseum .. .. 3s. 6d. and 5 0	
Cyclamen giganteum rubrum 2s. 6d., 3s. 6d., and 5 0	
Gloxinia, erect, very choice .. .. 1 6	

Illustrated Seed Catalogue for 1885,

Gratis and Post Free on application.



THE

## Gardeners' Chronicle.

SATURDAY, APRIL 18, 1885.

### EUCALYPTUS CULTURE.

THE following communication, forwarded to  
Mr. A. H. Smee by a correspondent in  
Chili, will be found of value, especially to our  
numerous Indian and colonial readers :—

It is not necessary to enter with great  
minuteness into those matters on which all  
are agreed, but rather to accentuate the points  
regarding which my personal experience par-  
tially diverges from, or is found in open con-  
flict with, the current instructions supplied by  
accepted authorities. These points are :—

1. The preparation of the seed-bed.
2. The advisability of rooting the seedlings  
in pots previously to planting them out de-  
finitively.
3. The use of stakes for propping the re-  
cently planted trees.
4. The space to be allotted to each tree.
5. The suitability of marsh land for large  
plantations.

#### 1. THE SEED-BED.

The plants are raised from a small and ex-  
ceedingly hard black seed, which should be  
thoroughly soaked before being sown. As the  
seed germinates with great difficulty, and seems  
unable to overcome the resistance of a soil even  
slightly compact or tenacious, it is usually re-  
commended to form the bed of coarse sand or  
other very light earth; this plan is, however,  
attended with the disadvantages consequent on  
the general poorness of such soils, and the still  
greater one of the difficulty of removing the  
seedlings from the bed without detaching the  
sand adherent to their roots, which is  
fatal to their life if immediately transported  
to the plantation, and causes loss even if  
potted at the edge of the bed. After  
experiencing these evils I ultimately prepared  
seed-beds some six months before sowing, com-  
posed of some garden earth and a large propor-  
tion of leaves (those of the Fig and of the  
Eucalyptus itself are very good) and of sheep's  
dung, which I had continually watered and dug  
over until completely incorporated and rotted.  
The decayed leaves impart to the composition  
a peculiar mellowness, and, while the bed is  
kept damp, that softness so necessary to the  
successful germination of this delicate seed, as  
well as a fertility far superior to that of the  
sand usually recommended; while by leaving the  
bed completely dry and exposed to the sun for  
a few days previously to transplanting the  
seedlings the dung causes it to become hard  
and tenacious, so that each separate plant  
may be cut out with a knife, remain firmly  
embedded in its surrounding earth, and, being  
as easily transported on trays or in carts as  
little bricks, thus rendering unnecessary the use  
of the often costly and always pernicious pot.  
All depends in this plan on the proper propor-  
tions of the ingredients. Should the leaves be  
deficient or clay be present in the earth, the  
surface of the bed will be sticky and the seed  
will not come up; while, should there not be



dung enough (it must be sheep's) the bed when dry will not be sufficiently compact to cling to the roots of the little trees when removed for transplantation. Above all, both leaves and dung must be thoroughly rotten, or larvæ may appear from the latter, and all operations may have to be postponed for a year by the complete ruin of the young plants.

I quite agree with the received opinions that the seed should be sown very light, and rather thin, that the bed should be kept damp by frequent though not too copious waterings, that the young plants should be continually guarded against the small birds which pursue with passion the young plants in their early stage, that they should be protected by mats from the chance of a frosty night and from excessive sunshine. As they may all be lost by the slightest accident a fresh lot of seed should be sown every fourteen days during the season (which lasts, I should imagine, everywhere more or less from midwinter till the end of spring), which plan also ensures a succession of suitable plants as the work of plantation on a large scale progresses.

#### 2. SEED PANS.

Should the sand-bed plan be adopted pots are necessary as a means of transportation to the plantation of the young plants, since the attempt to carry them loose would entail the detachment of their adherent soil and their consequent certain loss. They should, however, be left only a few days in the pots under the penalty of incurring a misfortune gravely compromising to the whole future of the plantation. The roots, rapidly developing, fill up the entire pot with a conorted and interlaced mass, and the tap-root, twisting round like a corkscrew, often assumes an upward direction, which usually causes lingering death, the roots being unable to disentangle themselves and assume their natural direction and relative position; the surviving plants obtain merely a rachitical existence, and very rarely become healthy, and never really fine trees. In large operations any unforeseen delay in carrying on the planting with sufficient rapidity may compel the use of "pot-bound" plants, with all the explained disadvantages, and I therefore declare myself hostile to the pots, and in favour of the direct removal of the seedlings to their plantation from a series of beds prepared as related in the first section, so as to secure by their softness the certain germination of the seed, while assuming, when thoroughly dried, the tenacity of sun-dried brick, thus facilitating the removal of the seedlings without disturbance of their roots. In cutting out the seedlings from the beds the severance of many ends of roots is unavoidable, but occasions no injury whatever, since their general relative disposition and direction (especially important in the tap-root) are preserved, and they have to undergo no struggle to rectify distortions such as they suffer in the pots. Many large plans have failed completely, from the plants having been pot-bound, and the failure is attributed to every cause but the true one. I know, for instance, of a municipality having expended a large sum on the formation of miles of avenues of Eucalyptus, all of which have turned out small, unhealthy, and distorted trees, and which will never be any better. The people themselves blame the trees, and denounce them as unsuitable to the climate and ugly in themselves; but an expert can see evidently that the cause lies in their having been grown in sand and pots, according to the instructions of the local sages.

#### 3. STAKING THE TREES.

It is generally recommended that seedlings should on transplantation be tied to a stake, to prevent their being overthrown by the wind. I think this practice generally mischievous.

The Gum tree, when healthy—*i.e.*, in favourable soil, and starting with sound and uncontorted roots—is quite as able to resist wind as any other tree, in spite of its slender superficial roots, since, armed with the wiles of Nature, they immediately build up a mass of filamentous roots, extending like a net in every direction, and throw out numerous boughs, heavily loaded with foliage of graduated length, from the ground upwards; thus presenting the aspect of a broad-based cone with its centre of gravity in the lower third of its height, so that when agitated by wind they not only hold on by their reticulated surface-

roots but are also sustained by the actual contact of their lower boughs with the soil. Relieved by the props of the necessity of these precautions, they develop fewer roots and lower boughs, and running too soon to height, and shifting upwards their centre of weight, become top-heavy, and can only be saved by substituting longer and longer props, from friction with which they often sustain damage, and rarely turn out quite satisfactory, in spite of the trouble they cause. At the same time it is doubtless necessary to continually examine the young trees, and to prop those partially uprooted, or which, having failed to protect themselves by proper boughs and foliage, have a spindly growth. I may mention that in plantations the trees greatly protect one another by intercepting the wind.

#### 4. DISTANCE AT WHICH THE TREES SHOULD BE PLANTED.

Influenced by the analogy of European plantations many persons have wasted large sums in planting these trees in thick clumps, thinking that as their growth progresses they may be thinned out advantageously, and that those spared will attain the same development as if originally planted at suitable distances, only suffering the usual retardation. Convinced of the necessity of testing this before undertaking an industrial plantation, I planted half an acre favourably situated at distances of 2 metres apart (that often recommended), and a part even closer together, with the bad result which immediately became apparent. Unable to obtain sufficient air and sun, they entered into a frantic struggle to overtop one another; those which were distanced in the race were completely deprived of leaves and eventually died, the remainder could only maintain a scanty foliage at the top, and when already 60 feet high (their growth was rapid enough in height) were not more than 8 inches in diameter, and their wood was nearly worthless. By thinning they were not restored to prosperity; as they had formed no matted surface roots they were most of them blown down, and those which escaped this fate showed no sign, when I last saw them, of any serious increase of girth.

The planter should never lose sight of the main peculiarity of the Blue Gum, *viz.*, that its whole future is irrevocably fixed in early youth, *i.e.*, before it exchanges (at from two to three years old) its abundant boughs, loaded with luxuriant dark blue foliage, for the sparse ramifications, and dark, narrow, and almost shadeless leaf, of its second stage of vegetation. Should its early roots have been unhealthy; if on transplantation it has failed to develop a large crop of inferior boughs and of healthy leaves; if these inferior boughs have been stripped of foliage,\* or have been only clothed at their extremities with leaves; or should the leaves, instead of presenting their healthy tint of glossy dark blue, become clouded with greyish bloom, be red or yellowish, a perfect development will rarely be realised, and I should recommend removal and replacement as a saving of time. I may remark in this connection that a premature change of leaf is a sure indication of ill-health.

I ultimately made the large plantation at the distance of 5 metres, or with 25 square metres to each tree, but on their arriving at four years old, I was convinced that even this distance was not sufficient; as, however, they would not have incommoded one another till long after the change of leaf they might perhaps have been thinned at about ten years old without damage, *i.e.*, obtaining useful timber from those alternately cut down before any appreciable injury would have been incurred by those remaining. I think, however, that the best plan is to plant them at 7 metres apart (if not a little more), utilising the enclosures after a few years where possible for pasturage, since the matured Gum at this distance with its comparatively scanty crown and obliquely set foliage would not prevent the growth of coarse herbage, if soil and moisture were suitable.

The whole beauty and much of the success of the plantation depends on the exact collocation of each tree in its place, so as to form to the eye avenues in every direction; the ground should, therefore, be previously laid out with a theodolite, or it may even be done by a skillful and careful operator with a large compass by the well-known methods employed in such cases. When the ines-

timable advantage of artificial irrigation exists, the gutters should be equidistant and parallel, and the trees placed in them, or at their edge. I must not forget to mention that the young trees at the moment of planting must be watered, as they are always quite dry when planted, whether from pots, or, according to my plan, in little bricks, in order to avoid detachment of the soil from their roots; when there is no irrigation, and rain should be inconveniently delayed, they would doubtless again shortly require to be watered by hand, which is a costly and troublesome proceeding on a large scale. When once rooted they can exist an almost indefinite time without rain, though they will not thrive until they get access to subsoil moisture.

#### 5. PLANTING IN MARSH LAND.

The strangest peculiarity of the Gum is its combination of the greatest avidity for water, which it contains in the form of sap, and throws off from its leaves in almost incredible quantities, with the capacity of surviving prolonged drought, and of thriving fairly in very dry places when once developed to a certain point by a sufficient supply of moisture. It is, however, my opinion that the customary statement, that the Gum tree will grow in rank marshes, *i.e.*, in land completely saturated to the surface with stagnant water, is very extravagant; and I may holdly state that this tree will not grow in waterlogged soil, although it feels much less aversion to running than to stagnant water; enduring, for instance, for a long time complete immersion of its roots in the flood water of a river, while dying rapidly under the influence of the casual elevation of the level of stagnant subsoil water. It will, however, thrive admirably in the ordinary marshy ground, where it enjoys a space of free soil of from 2 to 4 feet deep before reaching the level of the subsoil water, the amount of free soil required apparently depending chiefly on the aëration of the water; if this should be absolutely motionless and charged with salt the Gums are much less tolerant of its proximity than when pure and moved by a slight drainage current.

I think the truth to be that this tree will not endure that its surface roots should be permanently immersed in stagnant water, whatever statements may have been made to the contrary, but that it thrives admirably, although its tap-root (which is virtually a continuation downwards of the trunk) should descend vertically into the same; in other words, it can and will imbibe enormous quantities of water voluntarily, but dies if the water be administered by force. I feel no doubt that marshes fulfilling this condition of the existence of a certain depth of unsaturated superficial soil may be completely drained and sanitarized by extensive plantations, provided the subsoil-water should arise from the imperfect removal by drainage filtration of the merely local accumulation of rainfall; but I utterly refuse to believe that huge spongy plains completely saturated, not only with their own rainfall, but, further absorbing whole rivers discharged from neighbouring hills, can be restored to human habitation and commerce by any such insufficient device. It requires no argument to show that while each tree can pump and discharge into the atmosphere a quantity of water far exceeding the rainfall of the space it occupies, the trees cannot deal with an unlimited quantity of extraneous moisture, and the less so that only the more elevated spots in such plains are at all suitable for their cultivation.

I find I have omitted to mention in its place an interesting experience illustrating the bad effect of superficial stagnant water on Gum trees. I had a flourishing row of large trees growing on the very edge of a permanently flowing irrigation ditch; there occurring a scarcity of water, the ditch was left dry for six days out of seven, and when dry there remained a pool behind a sluice at the foot of one of the trees, which suddenly died. On repeating the experiment with another tree it also died.

#### SEASONING.

The recently felled timber is so charged with sap that in drying it becomes much warped and cracked, and there is no doubt that seasoning it is most difficult and troublesome. I am assured that the Australians immediately strip the trunks, and then keep them for a long time in water—sea-water by preference. On a large scale this difficulty, as well as that of preparing the wood for market, could be easily dealt with by making the requisite pools and constructing saw-mills.

When we consider that the Blue Gum averages a growth of 10 feet a year, that it possesses a bark

\* I need only mention the madness of those persons who recommend the removal of the lower branches to strengthen the growth.



admirable for tanning purposes, that the cast bark serves for firewood, and that its timber endures a crushing or longitudinal strain greater than Oak, and is unsurpassed by any for ship-building and for timbering mines, and is capable of developing heat fierce enough to smelt sulphurets of copper in a reverberatory furnace, and that this wood can be grown in soils often useless for any other purpose, we can find no difficulty in believing that a large business might be made by industrial plantations in selected localities, of which there must exist many in all the subtropical countries, either in dry sandy plains accessible to irrigation, or on the sort of marshlands above described. I need not, however, insist on the necessity of careful study and experiment before embarking definitively in such a venture, both as regards the chance of the tree itself thriving, as well as of the economical conditions relating to expense and final disposal of the timber. My own experience is limited to Chili, in the north of which country I made the plantations alluded to, but they may perhaps be of some use to your friends.

## New Garden Plants.

### ODONTOGLOSSUM BRASSIA, *n. hyb. nat.*

THIS has the straight shape of the sepals, petals, and lip of a Brassia. The lateral sepals are very stiff, linear lanceolate as also is the upper sepal. The lip is deltoid, cuspidate, and has at the base five keels with two anterior projecting ones. The wings of the column are rather poor, lacerate, the whole flower sulphur-coloured. Upper sepal with one, lateral sepals with several, lip with one horse-shoe-like purple spot. It might be regarded as extended *Odontoglossum deltoglossum*. It is by no means one of those starved abortions of which one gets often enough a single crushed flower, but it is decidedly in brilliant health. I had a fine raceme of thirteen large flowers from Mr. F. Sander, and the plant is in Mr. Lee's collection. *H. G. Rehb. f.*

### ÆRIDES ORTGIESIANUM, *n. sp.\**

This looks like a smaller *Ærides quinquevulnerum*, Lindl., though its growth is said to be more slender and its leaves are narrower. The sepals and petals have the usual purple blotch towards the apex, some small ones being scattered on the surface, and some light purple warts also. The side lacinia of the lip are sulphur-coloured, the mid-lacinia white, the spur green—all with small red dots and bars. The mid-lacinia is blunt, bilobe, not serrate at all. In the front part of the spur there stands one horn-like process at the back, there is a triangular callus, and this induced me to regard this recent introduction of Mr. F. Sander as a novelty. It is dedicated to Mr. Ortgies, of Zurich, whose wonderful zeal and activity for garden botany in general, and for Orchids in particular, can only be well appreciated by those who have the advantage of personal acquaintance with the inspector of the Zurich Botanic Garden. *H. G. Rehb. f.*

**USEFUL PLANTS IN THE ISLAND OF ST. THOMAS.**—In a recently issued report on the Island of St. Thomas, Danish West Indies, it is stated that attention has recently been drawn to the possibility of utilising the soil of the island and making it productive. An attempt was made some two years since to revive the cultivation of the Sugar-cane, but it has resulted in heavy losses, and now that the price of sugar is so ruinously low this branch of industry will probably be entirely abandoned. The cultivation of Aloes [*Agaves*] and other fibre-producing plants is now being tried. The climate and soil seem well adapted to such plants, the hills are thickly strewn with them, and if the leaves were collected many hundred tons of fibre could be annually exported without an acre of land being planted. Actual trial, it is said, has, however, demonstrated that 6s. a ton for the crude leaves is the highest price that can be paid, but as this price does not appear to offer any inducement to the peasants to collect the wild leaves, which are so numerous, they remain untouched. It remains to be seen whether cultivation will reduce the cost of collection by localising plants, and thus rendering the gathering of the useful portions easy, rapid, and economical.

\* *Ærides Ortgiesianum*, *n. sp.*—Affine *A. quinquevulnerum*, Lindl., gracilis folio angustius; racemis brevioribus; labelli lamina mediana integerrima apice biloba calcaris antorsor, callo corniformi in pariete antico, callo triangulo in pariete postico. Cl. Ortgies, Zuricensi dicatum. *H. G. Rehb. f.*

## ORCHID FRUITS.

IN continuation of the illustrations of the seed-pods of Orchids we now give representations of those of *Cattleya Dowiciana* (fig. 90), which, as will be seen, are of large size, elliptical, and marked with six prominent ridges. In marked contrast are the long pods of *Brassavola stricta* (fig. 92), and the short 3-valved pods of *Odontoglossum*

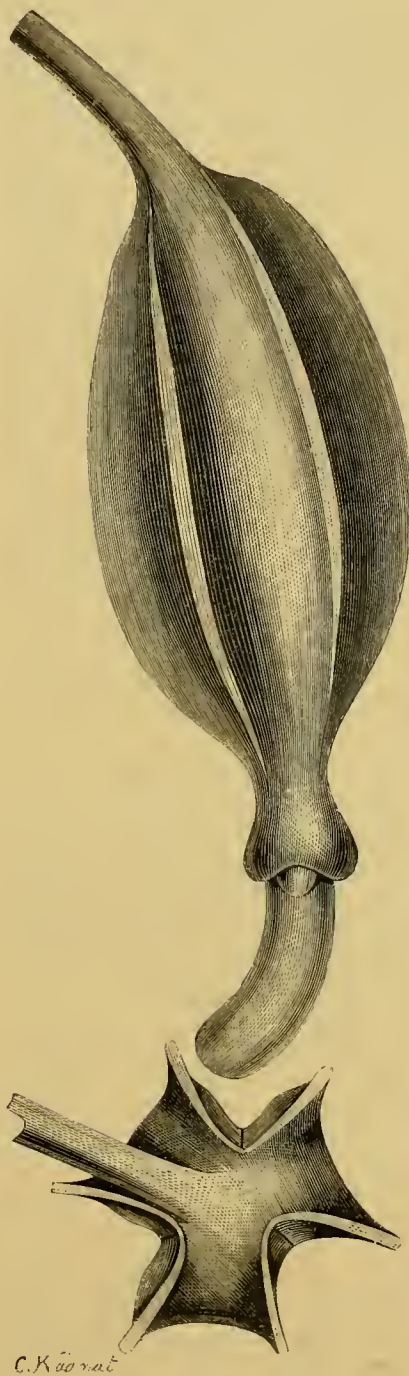


FIG. 90.—CATTLEYA DOWICIANA.

grande (fig. 93), which seem not to break away from the ridges or midribs, as is the case in most Orchids.

**RHODODENDRONS AT MESSRS. J. VEITCH & SONS, CHELSEA.**—A new greenhouse *Rhododendron* named *Forsterii* ×, a cross between *R. Veitchianum* and *R. Edgeworthii*, is very striking, having large fimbriated white flowers, cinnamon-coloured throat, with faint blush on the petals and very sweetly-scented; Lady Alice Fitzwilliam, with its abundant pure white flowers, is very telling; *R. Brookianum*, a species from Borneo, with deep reddish-orange-yellow flowers, is also a good variety.

## NOTES ON THE CULTIVATED ASTERS.—XI.

(Continued from p. 307.)

THIS paper includes the tall perennial species with a biserial pappus, and the few monocarpic types which have found their way into cultivation.

Subgenus XI. DOELLINGERIA. — Bracts of the pauciserial involucre destitute of foliaceous tips. Ray flowers short, white. Achenes flattened, many-nerved; pappus distinctly biserial. Stem long. Leaves broad.

58. *A. umbellatus*, Miller. *Diplopappus umbellatus* and *amygdalinus*, Torrey and Gray. *Diplostegium umbellatum* and *amygdalinum*, Cass. — Stems stout, erect, glabrous, 2–6 feet long. Stem-leaves sessile, oblong-lanceolate or lanceolate, acuminate, entire, the lower ones 3–4 inches long,  $\frac{1}{2}$ – $\frac{3}{4}$  inch broad at the middle. Heads very numerous, middle sized, arranged in an ample panicle with corymbose branches. Involucre campanulate, pauciserial,  $\frac{1}{2}$  inch diameter; bracts lanceolate, pale green, closely imbricated, uniform in texture throughout. Ligules 10–12, white, linear,  $\frac{1}{2}$  inch long. Achene nearly glabrous; pappus copious, pale red, longer than the achene, moderately firm in texture, with a distinct regular row of short bristles on the outside.

Spread from Labrador, Newfoundland, and Saskatchewan, through Canada and the Northern United States, to Arkansas and Georgia. *D. amygdalinus* of Torrey and Gray is a well marked variety, with shorter ovate-lanceolate or ovate leaves, which extends further south than the type, reaching Texas and Florida. *A. infirmus*, Michx., has fewer heads, fewer obovate or oblong leaves, and a multiserial involucre, with thicker more obtuse bracts.

59. *A. reticulatus*, Pursh. *Aster obovatus* and *dichotomus*, Elliott. *Diplostegium obovatum* and *dichotomum*, DC. *D. boreale*, Spreng. — Stems firm, slender, erect, 2–3 feet long, hairy all the way down. Leaves numerous, sessile, obovate-oblong, coriaceous, entire, deltoid at the base, the lower 2–3 inches long; veinlets of the under-surface raised. Heads moderately numerous, middle-sized, arranged in a flat-topped panicle. Involucre campanulate,  $\frac{1}{2}$ – $\frac{1}{3}$  inch diameter; bracts pauciserial, lanceolate, pubescent. Ligules 10–12, white,  $\frac{1}{2}$ – $\frac{3}{4}$  inch long. Achene clavate, very pubescent; pappus pale red,  $\frac{1}{2}$  inch long, with a distinct outer row of short bristles.

South Carolina to Florida. A very distinct species.

Subgenus XII. IANTHE. — Involucre multiserial; bracts rigid, without leafy tips. Ligules bright lilac. Leaves linear, 1-nerved. Pappus with an outer row of very short bristles.

60. *A. linariifolius*, Linn. *A. rigidus*, Linn. *A. pulcherrimus*, Lodd., Bot. Cab., t. 6. *Diplopappus linariifolius*, Hook.; *D. rigidus*, Lindl. — Stems 1–1½ foot long, erect, scabrous. Leaves numerous, linear, rigid, sessile, spreading, 1-nerved, entire, 1–1½ inch long. Heads few or many, corymbose. Involucre campanulate, multiserial,  $\frac{1}{2}$  inch in diameter; bracts lanceolate, firm in texture, with erect tips. Ligules about a dozen, bright lilac,  $\frac{1}{2}$  inch long. Achene ob-lanceolate, very silky; pappus pale red, with an outer row of short bristles.

Dry sandy and gravelly soil, Newfoundland to Wisconsin and Texas. A very distinct and handsome species, most resembling a *Calliastrium*, except for its pappus and involucre. There are three other species of this subgenus—*A. scopulorum* and *A. stenomeris* of A. Gray, and *A. ericefolius*, Rothrock; all inhabitants of the Rocky Mountains and Western States.

Subgenus XIII. TRIPOLIUM. — Stems annual or biennial. Involucral bracts few, lanceolate, without leafy tips. Inner flowers of the disc sterile. Achene flattened; pappus of fine slender bristles.

61. *A. Tripolium*, Linn. *Tripolium vulgare*, Nees. — Stems 2–3 feet long, stout, erect. Leaves few, lanceolate or linear, entire. Heads many, corymbose, middle-sized. Involucre campanulate,  $\frac{1}{2}$  inch diameter; bracts pauciserial, linear-oblong, adpressed, obtuse. Ligules 10–12, lilac,  $\frac{1}{2}$  inch long, sometimes fewer or absent. Achene linear, glabrescent; pappus fine, copious, slender, white,  $\frac{1}{4}$  inch long.

Shores throughout Europe, extending to North Africa and Siberia.

There are two allied sub-genera in America confined to maritime and subsaline situations, viz., *Oxytripolium*, with a multiserial involucre, with



acute bracts, with two species, extending as far south as Chili and Buenos Ayres; and Conyzopsis, which extends also to Siberia, and connects Aster and Conysa. Neither of the two contain aught of gardening value. *J. G. Baker.*

(To be continued.)

## CULTIVATION OF LETTUCE UNDER GLASS.

COMMERCIALLY speaking this proceeding may not be necessary, because most of our markets are abundantly supplied from foreign places; but otherwise such an estimable edible, almost universally esteemed, and quite indispensable for the salad, is surely deserving of some extra labour and attention in order to have it ready for use before those grown outside in a natural way are available. For instance, the conditions in a cool orchard-house are so well suited to the purpose that where one exists accommodation might be found to grow enough Lettuces for the requirements of a private establishment for at least three weeks before those outside come into use; or otherwise, if such a place is not available, by means of those simple contrivances, cold frames, a crop can be ensured a fortnight earlier; either way it is a significant advantage, and worth the time and trouble it involves.

I set apart two four-light frames for this subject, which together enclose an area of 32 feet by 4 feet. One half is applied to Cos, and the other to Cabbage Lettuces. The frames are placed in a convenient and sheltered position facing the south; the soil within them is well enriched, and made moderately firm, its surface inclining slightly to the south. The seed is sown in the last week in August, and the frames are filled with the plants in lines 8 inches apart all ways. The chief point in management is to get the plants as hardy as possible, only using a slight covering when absolutely necessary, and keeping them dry during the winter months. In early spring, when growth begins, it should be encouraged, and more protection afforded, in order to get them fit for use as early as possible, which is usually by the first week in April. From my experience in this way I find Hicks' Hardy White Cos, and Stanstead Winter Cabbage Lettuce, the two best kinds for the purpose, which under these conditions we are now (April 1) able to draw for use. *G. T. Miles, Wycombe Abbey.*

## DAFFODILS.

THE GREAT SIR WATKIN DAFFODIL.—At the request of a correspondent, Mr. F. J. Broome, I gave an account last year in the *Manchester City News*, August 8, of the origin of this grand Daffodil, which was brought out by our townsman, Mr. William Pickstone, after having been cultivated at his estate, Maesmynan, near Caerwys, for many years, until he became possessed of a very large stock of it. No Daffodil has ever before produced such a sensation amongst florists, and its early promise is now being amply fulfilled, as it stands pre-eminently the finest of all the incomparable section—a peerless Daffodil.

In the *Manchester City News*, October 18, 1884, a letter appeared, signed by William George, Brook Street, Chester, stating that it was an old type of the Giant or Mountain Daffodil, improved in colour and substance under cultivation, and that the same type could be found in many old gardens throughout North Wales, and also in its wild state in at least two counties, and that it had been known to exist there over forty years, and that this Sir Watkin was an old founding under a new name.

Very soon after this letter appeared two of our leading seedsmen offered me bulbs of this wild form, which were expected to turn out to be the real Sir Watkin, and they were prepared to supply these bulbs by the thousand at a very moderate price. Similar offers were abroad, so that the opportunity was pretty widely known, and no doubt many took the risk and ventured to order. A few bulbs were presented to me as samples, and for trial, but as I had a good stock of the true Sir Watkin I found on comparing the bulbs that they were much smaller, and I therefore declined to purchase a quantity. The name of the person who was thus offering bulbs was then given to me, and I lost no time in communicating with him. He had the subject well mastered, and gave a very plausible account of the Daffodil as he knew it to occur in wild Wales, and he was quite

ready to supply bulbs in any quantity. I took down his narrative, and made a bargain by which he undertook to accompany me to the spot this spring, and I undertook to respect his secret and to see that he benefited if he could really prove the truth of his statement.

The time of blooming is here, Sir Watkin is in his glory, but his rivals prove to be mere common Pseudo-Narcissus, as it occurs wild in North Wales. The man himself is not to be found. It may be true for all this, but at present the whole affair looks like a cleverly laid scheme for trading profitably upon the fame of the grand new Daffodil, if buyers could be found willing to take the risk.

There is, however, a very solid foundation for the statement that Sir Watkin was descended from the Great Mountain or Giant Daffodil, well known in Wales more than forty years ago. In that fine old and very rare book, *Hales' Eden*, published in 1757, is to be found an account of the Nonpareil Daffodil, and a full-sized engraving of it is given in plate 41. This is indisputably like the Sir Watkin Daffodil as figured by the Rev. C. Wolley Dod, of Malpas, in the *Gardeners' Chronicle* for April 26, 1884, p. 553, and which is the best illustration we yet possess of Mr. Pickstone's Daffodil. The *Gardening World* of Saturday last contains an excellent plate of several of our best Daffodils, Sir Watkin being at the head; and this illustration by Mr. F. W. Burbidge, the best authority on the Narcissus, is again exactly like the plate in *Hales' Eden*, if we make allowance for the difference (here but slight) between a wild flower and a cultivated garden flower, the latter probably grown under glass.

Mr. Pickstone lays no claim to having raised the Sir Watkin Daffodil from seed. He states that he found it growing in a garden he became possessed of in a mining district in Merionethshire about seventeen years ago. How it got there he does not know. He found it there, recognised its beauty, and kept it to himself until he had a very large stock, and he deserved the profit he gained by its sale. It is thus clear that we really know nothing of its origin, and it is likely enough that it may be found elsewhere if search is made for it. *Wm. Brockbank, in "Manchester City News."*

### DOUBLE DAFFODILS.

In many places all the Daffodils are doubles over pretty large areas where they have been allowed to increase unmolested for a long period. It occurred to me that if seedlings could be found in such places they would afford conclusive evidence that double Daffodils spread by seeding. I therefore wrote to several friends who had favourable opportunities for observing this point, and have received the confirmatory information from three quarters.

Your well-known correspondent, Mr. A. D. Webster, of Llandegai, writes me as follows:—"I send you a few genuine seedlings of *N. Telamonius plenus* from a wood where they grow in plenty. They were found at too great a distance from any clump for it to be supposed they are offshoots, and no single Daffodils grow within miles. I have sent a few of the seedlings to several others of the Narcissus Committee in corroboration of your statement that *N. Telamonius pl.* produces seed. Some sceptics cannot be convinced, but the thing is a fact nevertheless. There are hundreds of these seedlings growing under Conifers, where it is very improbable they could have been placed." Another correspondent points out that if doubles increased only from the roots they would form only dense clumps, whereas they are in reality found dotted over the orchards and fields where they occur, each clump separated from its neighbour, and this could only occur by seeding.

I think, therefore, we may now consider the proof of the seeding of double Daffodil, and their spreading thereby, as complete.

In a clump of single Tenbys, which has been planted here two years, one plant has come double this season. I should have thought it probable that this had happened by culture but for the fact that I have received flowers of the true double Tenby from the same place this season. I therefore prefer to conclude that there was a bulb which had not yet flowered, and which was a double when it came to me. If any of our single Tenbys should hereafter become doubles I might alter this opinion, but up to this time, out of some 20,000 singles grown here, I have not yet seen the evidence of one which has turned to a double.

After careful observation of our singles and doubles, I have come to the conclusion that each single variety produces its own double, and we frequently find these coming from the same garden whence singles and doubles are sent to us. I could certainly show singles and doubles of the following varieties now in bloom here:—*N. Pseudo-Narcissus Telamonius*, *N. major*, *N. maximus*, *N. obvallaris*, *N. princeps*, and *N. cernuus*.

The shades of difference in the wild forms of single *N. Pseudo-Narcissus* all the way up to *N. Telamonius* and its Irish representative, *N. princeps*, are so gradual that it is almost impossible to draw a line, and to say where *N. Telamonius* begins and ends. How impossible, then, to solve the question whether single *N. Pseudo-Narcissus* turns to *N. telamonius plenus*! For my own part I think this portion of the work undertaken by the Narcissus Conference will be labour thrown away. I maintain for the present that each single has its own double.

A correspondent has this week sent me a single Tenby Daffodil with seven perianth segments, and he states that it was from a bulb planted 8 inches deep. Another flower from the same clump had eight segments. Can it be that this extra size in the flower was due to the stored-up vital power in the bulb, owing to the time it would take to grow to the surface and mature its flowers? I notice frequently that deeply planted bulbs produce finer flowers and taller plants than shallow planted bulbs. At any rate here is a stage towards doubling apparently due to this peculiar circumstance. *Wm. Brockbank, Brockhurst, Didsbury, April 11.*

## SPREKELIA GLAUCA.

I AM much obliged to "W. W." for drawing the attention of the readers of the *Gardeners' Chronicle* to the above fine-flowering plant, in consequence of an advertisement of my firm in the columns of this paper. "W. W." is quite right when he supposes that the word "parent" in the advertisement meant the wider signification of relative. But as for the plant itself it is not my task to make out if it is a species or a variety, and this is indeed not of great consequence from a horticulturist's point of view; if both are considered to belong to the same species the question of parentage, however, may be put. *Sprekelia formosissima* and *S. glauca* are both original Mexican plants. The dark flowering *S. formosissima* was introduced as long ago as 1593—the lighter coloured *S. glauca* was only figured and described in 1840. Now from this difference in time of introduction there cannot be any criterion as to the one form or the other being the original. In most of the descriptions of *S. glauca* it is stated that the plant has smaller flowers and smaller bulbs than *S. formosissima*; this, however, is not according to my experience. I have cultivated both *S. formosissima* and *S. glauca* in the same way with great success, and find the flowers as well as the bulbs of *S. glauca* are larger. Probably, as was often the case in former times with different bulbs, the specimens of *S. glauca* examined for the descriptions were of inferior growth. When we see *S. glauca* producing larger flowers than *S. formosissima* the hypothesis does not seem absurd to me that it has as good right to be considered as the parent of *S. formosissima*, as that I should be obliged to consider *formosissima* to be the parent of *S. glauca*.

In many instances with monocotyledonous plants the dark varieties come after the paler ones, the most usual primitive form is a neutral pale unicolor, in this instance red; by variation the colour may become darker, and thus the size of the flower often decreases, or there comes variation with white, &c., and the colour becomes in the coloured parts the more bright in the same proportion, the white parts become larger and purer white. Nobody, I suppose, will be able to say if *S. formosissima* originated from *S. glauca*, but I suppose that possibly, it may be *S. glauca* from seed gives forms of the same colour, but of different size and good quality as an ornamental plant. Only the best forms are recommendable for cultivation. Probably, among the introduced *S. glauca* there, too, are different forms; sometimes *S. glauca* has been introduced under the erroneous name of *S. formosissima*. Lately, a coloured plate and description was given of *S. glauca* in the *Garten Zeitung*, edited by Dr. Wittmack, vol. i. (Berlin, 1882), p. 513–514, where the numerous species given by Lindley are maintained. In the



*Gartenflora*, vol. ii. (1883), p. 45, some remarks were given to complete the former article.

I cultivate both *Sprekelias* here with much success: in summer in the open ground, the bulbs are flowering; late in autumn, before frost comes, they are cleaned and dried in the air, and then stored during winter in a dry and warm place. They are replanted in the open ground in the late spring, when no frost is now to be feared. *J. H. Krelage, Haarlem, April 8.*

## POTATO CROPS AND METHODS OF PLANTING.

I HAD before read of the wonderful crops of Potatoes said to have been obtained by Mr. Andrew Knight, especially of Ashleaf Kidney, as mentioned by Mr. Douglas at p. 440, but had not learnt of the method of planting which he adopted to obtain these crops. I have to thank Mr. Douglas for now giving the information, and, if I may so put it, bursting "the bubble reputation" which had hitherto thrown such glamour over Mr. Knight's efforts. That such a moderate cropping kind as the Ashleaf Kidney should ever have produced such an enormous crop as twenty-four tons per acre was to me always a staggerer, and therefore, not wishing to hold Mr. Knight's word in doubt, I am all the more glad to have the matter explained. We very commonly plant Ashleaf Kidney Potatoes in rows 2 feet apart because the tops are of moderate height, and that distance under fair culture usually suffices. But then we seldom plant our sets in the rows at less than 12 inches apart, usually rather wider, but 12 inches will suffice for comparison. We also should plant for Ashleaf's sets about ten to the pound, and find these excellent. That gives in round numbers about a peck of 14 lb. to the rod, or 40 bushels (one ton) of seed per acre. On good ground the produce would be about 2 bushels per rod, or 8 tons of produce per acre. Now Mr. Knight admits that he planted the largest tubers, and taking these at five to the pound—not so very large either—he would at our rate of planting employ two tons of seed per acre. But then he tells us that instead of planting at 12 inches apart, he put the sets in at 4 inches apart, which means three times that quantity—really 6 tons of seed per acre, and, after all, his produce is only 24 tons, or an increase in bulk by four times only: really nothing to boast of after all. When we regard the weight of seed per acre that must have been planted by Mr. Knight, it is evident that the plan could only have been tried on a small scale. For instance, at the rate of planting shown by Mr. Knight, he must have used 384 sets per rod. Taking five to the pound as a fair size for good seed, I find the result in weight to be 76 lb. Where, then, is there anything to boast of? Why, even when planting strong growing kinds in rows 4 feet apart, and the sets 6 inches apart in the rows, 128 tubers must have been planted per rod, or, at half a pound each, 64 lb.—an inordinate quantity of seed. We now-a-days plant about 20 lb. per rod of fine seed, and get in good ground 180 lb. in return. Could Mr. Knight show better results? We may take it for granted that results in the way of Potato crops have been obtained in these degenerate days that would have astonished even Mr. Knight.

Mr. Douglas deprecates the use of the dibber in Potato planting. Against his opinion may be placed that of hundreds of large growers, who plant with this implement many acres every year, and seem to prefer that method of planting to any other. I use it largely myself every year, and, because expedition in planting is needful, find it to be the most acceptable way. The experience I have here of a stiffish soil prevents me from agreeing to the dictum that the ground for Potatoes should be well dug as soon as the previous crop has been removed, that the winter frosts may pulverise it. My advice rather in the case of such soils is to leave it alone till the spring, as the winter rains will otherwise pound it into the consistency of clay. There is no greater fallacy than is found in the eternal iteration of the advice—turn up your soil in the autumn that it may get the benefit of the winter frost. The soil which has been left untouched all the winter and is full of worm-holes, through which both moisture and air can pass freely, will be always found in the spring more thoroughly aerated and friable than is the soil which has been dug or ridged. It is about time the elementary twaddle found in garden school-books were revised

in accordance with the experience of practical men. We dibble our Potato sets in here as fast as the soil is dug, always planting the strong growing late kinds first, hence we don't get them up to catch the late spring frosts, for really the tubers lie dormant longer in the soil than out of it. Thus, if digging begins as this year in the month of February we can follow with the dibber at once, and so we go on, and as the soil, when fresh dug, lies light the little pressure given in dibbling and planting helps to consolidate it. The large growers dibble immediately after the plough, taking, as a rule, every third furrow for their line. Hence, they dibble in just where the soil lies loosest, and the supposition that the dibble in making the cavity for holding the sets necessarily makes a basin to hold water is incorrect. Really, the soil gets no more pressure than would be the case were it seeded and well rolled. If any one will but watch the planters following the plough they will not fail to observe that the ease and rapidity with which holes are made shows that the pressure on or in the soil is of the most trifling kind. Again, in covering up dibbled sets with a hoe—the invariable rule—it is seen that only light loose soil is drawn in, that the sets are evenly covered, and later results show that over vast breadths the tops come through wonderfully even and regular.

The planting of sets which need cutting is by no means a common rule—at least, in this district; the rule is to save or purchase for planting good seed size, and plant whole, therefore homilies about the evil of cutting sets are lost this way. I may, however, say that when I am sometimes obliged to cut sets sent me that are rather large I rarely find, if properly cut—and there is something in that—that failure results. Of my own seed, however, I always prefer to select samples of even size, that give all I hope for with a minimum of waste and of risk. *A. D.*

## BRITISH APPLES.

SOMETHING like surprise has, I believe, been expressed at the variety known as the King of the Pippins displacing the old and well known Ribston Pippin; this, however, it appears to have done, as it has received the greatest number of

such varieties as the Oslin Pippin, Court of Wick, Worcester Pearmain, &c.; while the Ribston Pippin is placed at the top of the lists, followed by King of the Pippins, Kerry Pippin, &c.; while as regards Ireland the two finest dessert varieties are shown to be Irish Peach and Summer Strawberry.

Where the poll was taken for the whole of Great Britain, King of the Pippins was placed first as a dessert variety, followed by Cox's Orange Pippin, then Ribston Pippin, and Kerry Pippin, &c. And as regards culinary varieties, Lord Suffield is placed first, followed by Dumelow's Seedling, Keswick Codlin, Warner's King, &c.

Several of our deservedly esteemed dessert Apples are found to occupy a lower position in the various lists than might have been expected to be the case, such as Golden Harvey, or the Brandy Apple, Court of Wick, Scarlet Nonpareil, Lamb Abbey Pearmain, and several others. This appears to be on account of their comparatively small size. Many growers, however, may consider size as of less importance than quality in the case of the dessert varieties of the Apple. *P. Grieve, Bury St. Edmunds.*

## NOTES FROM SYON.

A WALK round this admirably managed place cannot fail to leave a pleasant impression on the visitor. Things are generally so well done, that it is a difficult matter to decide as to which shall be noticed when space will not admit all. The forced Strawberries (*La Grosse Sucrée*) were carrying an abundant crop of very fine fruit; Keens' Seedling, too, was giving promise of an excellent crop. There do not appear to have been so many complaints this season of Strawberries and other forced fruits not setting, which may, no doubt, be traced to the fine season of last year for ripening the crowns, wood, &c. The early Peaches and Nectarines were simply "smothered" with fruit, nearly every bloom having set. In the Bananahouses is growing the *Vanilla planifolia*, most vigorously, and carrying any amount of flower. Before pods are formed the flowers have to undergo a careful manipulation or mutilation before they can be impregnated; here they are very successful, securing annually a fine crop of pods.

Group I.	Group II.	Group III.	Group IV.	Group V.	Group VI.
Southern Counties.	Eastern Counties.	South Midland Counties.	North Midland Counties.	Western Counties.	Northern Counties.
Cox's Orange	Cox's Orange	Cox's Orange	Cox's Orange	Cox's Orange	Cox's Orange
King of the Pippins	Blenheim Orange	King of the Pippins	Blenheim Orange	King of the Pippins	King of the Pippins
Ribston Pippin	Kerry Pippin	Ribston Pippin	King of the Pippins	Ribston Pippin	Ribston Pippin
Blenheim Orange	Irish Peach	Kerry Pippin	Ribston Pippin	Irish Peach	Blenheim Orange
Kerry Pippin	Sturmer Pippin	Devonshire Quarrenden	Irish Peach	Margil	Irish Peach
Devonshire Quarrenden	Golden Harvey	Irish Peach	Court of Wick	Court Pendu Plat	Kerry Pippin
Court of Wick	Red Quarrenden	Fearn's Pippin	Kerry Pippin	Devonshire Quarrenden	Early Margaret
Sturmer Pippin	Golden Winter Pearmain	Claygate Pearmain	Sturmer Pippin	Kerry Pippin	Claygate Pearmain
Scarlet Nonpareil	Lord Lennox	Adam's Pearmain	Fearn's Pippin	Blenheim Orange	Devonshire Quarrenden
Irish Peach	Russet Nonpareil	Scarlet Nonpareil	Maltster	Ashmead's Kernel	Red Astrachan
Yellow Ingestre	Scarlet Nonpareil	Wyken Pippin	Mr. Gladstone	Sturmer Pippin	Yellow Ingestre
Fearn's Pippin	Ribston Pippin	Court of Wick	Nonpareil	Scarlet Nonpareil	Adam's Pearmain

votes of any dessert variety of Apple. But in the lists of varieties selected by the various exhibitors as best suited for cultivation in their respective districts, Cox's Orange Pippin would appear to be an equally universal favourite, as in the six groups into which the counties of England are divided this variety is in each instance placed first upon the list, or as having been the greatest number of times selected. The accompanying tabular form will, however, show the names of a dozen of the first-named varieties in each group, placed in juxtaposition with each other, and it will be observed that considerable uniformity exists in regard to the estimation in which the varieties are held. As has already been stated, Cox's Orange Pippin is in each instance placed first, while in four cases out of the six King of the Pippins has been placed second, and in four instances out of the six the Ribston Pippin has been placed third. In Scotland Cox's Orange Pippin may as yet be little known, or it is possible that this variety may not succeed so well in the North as it does in the southern portion of the island—at all events, it is placed somewhat low in the lists, in some instances falling under

In one of the stoves, *Gardenias* planted out in a shallow box were carrying immense quantities of bloom; also *Eucharis amazonica*, very healthy: we were told this batch of *Eucharis* flowered six or seven times a year, and were never thoroughly dried off. There is also a fine batch of the lovely *Pancratium*-looking *Hymenocallis macrostephana*, from which they are enabled to gather flowers nearly all the year round. A fine terrestrial Orchid from Tropical America, *Cyrtopodium punctatum*, was throwing up a fine strong spike; it was flowered here six years ago, and was exhibited at South Kensington: the flowers are yellow and brown.

Pleiones are growing very strongly, and seem to appreciate the manure-water supplied to them. There are some fine pieces of *Anthurium Scherzerianum* and *A. Woodbridgei*, an excellent deep coloured variety with large spathe, broad and long, and lying close in to the stem; a lot of seedlings of the above variety were looking well. Some plants of *Odontoglossum vexillarium* were in most luxuriant health, many of them throwing three spikes. A collection of Cape bulbs which had a house devoted to them



were doing well, and contained some beautiful things. A pretty little *Primula* is *P. amoena*, with its bright rosy-pink flowers; a *Rose*, Chesnut Hybrid, had an extraordinary amount of buds on it. For a neat table decorative plant few things could equal *Gymnogramma schizophyllum* as it is done at Syon. Two grand *Acacias* for conservatory decoration are *A. longifolia* and *A. verticillata*; a bulb of *Crinum Macowanii* was carrying a fine truss of its lovely flowers.

In the fruit-houses the Vines, Figs, Melons, &c., were all giving promise of excellent crops, and some young fourteen months old Vines were growing very vigorously.

## Orchid Notes and Gleanings.

### ORCHIDS AT BIRCHFIELD, FALLOWFIELD, MANCHESTER.

THE pleasant blooms of the winter season have almost all bidden us adieu. The *Calanthes* are past, and started on again for the preparation of another season's growth and development of bulbs for future blooming; the *Coelogynes* are almost bare, though a few of their useful flowers still remain; *Lælia anceps* and *L. autumnalis* are over and gone; but what a host are trooping up. It cannot be said that any new methods are adopted here, or that any original ideas are carried out in the culture of these plants; but it can be affirmed that the principles of Orchid culture are thoroughly understood, and that every detail is carried out in a practical manner—Mr. J. Craggs being quite an enthusiast, and his success imparts a fresh zest to the pursuit; and liberal assistance and encouragement are rendered by an employer who is passionately fond of his plants, and whose success in so short a time is certainly unusual. The *Dendrobiums* just now claim attention, and *D. Wardianum* is the most prominent. Very wisely Mr. Craggs has managed these, so that they will flower in separate batches; the first lot is now just in excellent condition. The plants are almost all two years imported plants, and during the past summer made very fine and stout bulbs; this is shown by the blooming—500 flowers on seven plants; the best bulb has thirty-nine perfect blooms, many other bulbs producing from twenty to thirty. This number of flowers of this most beautiful *Dendrobe*, intermixed with several fine plants of *D. nobile*, and with a variety of *D. nobile* of an unusual depth of colour, almost the colour of *D. Freemanii*, *D. crassinode* *Barberianum*, *D. Findleyanum*, and *D. prmlulinum*, make an effective display in one of the houses. In other divisions *Cattleya Trianae*, *C. speciosissima*, and *C. amethystoglossa*, the latter being a variety of very good colour and spotting. Of *Odontoglossums* a very strong plant of *O. Alexandræ* has sent up two spikes, which have branched, one spike measuring 4 feet, the other 4 feet 2 inches. The flowers on each spike are nineteen and twenty-one respectively, a very stellate form, perfectly flat, but very narrow in each division; this is somewhat disappointing, but is one of the experiences that all Orchidist have to pass through. A later batch of this beautiful Orchid gives promise of finer forms and of stouter substance. *O. Pescatorei*, *O. nebulosum*, *O. triumphans*, *O. Sanderianum*, with a variety that is much like *O. Chestertonii*; but it will be better to wait another season, as the spotting in recent imported plants is not always constant. *Cypripedium Boxalli*, *C. niveum*, *C. Lawrenceanum* are nicely in flower, also the scarce *Oncidium trilingue* has produced a lengthy spike and blossoms of a rich chocolate-brown edged with pale yellow, with its singular lip, are conspicuous amongst and above the other plants. *Cattleya Mossiæ*, *C. Warneri*, and *Mendelii*, are now pushing up in their sheaths, and by-and-bye the blooms will be counted by the hundreds. *W. Swan, Fallowfield.*

#### EPIDENDRUM ENDRESII.

This charming Orchid has flowered with Sir Trevor Lawrence, Bart., M.P., this spring, in his rich collection at Burford Lodge, and to him we are indebted for the means of giving an illustration of it (fig. 91). The plant was originally discovered by Endres in Costa Rica, and afterwards found there by Mr. Lehmann in 1878, who endeavoured to send it over alive, but not with success, until after repeated attempts,

and then only a plant or so survived the journey. Messrs. F. Sander & Co. have frequently tried to get plants of it to England, but, owing to its being a very bad traveller, they also have met with but a poor reward for their trouble, only succeeding in getting three or four plants to survive. In March, 1883, however, it flowered at St. Albans, and in the issue of the *Gardeners' Chronicle*, April 7, 1883, Professor H. G. Reichenbach—naming it after poor Endres, who had sent him the original specimen—described it. The same plant which supplied the description is now in bloom with Messrs. F. Sander & Co., and, therefore, we may conclude that its proper time of flowering here will be March and April, the same time that Mr. Lehmann found it blooming in Costa Rica, although Endres gathered it in flower in December. When strong, however, its period of flowering will no doubt be very protracted, and let us hope that such a pretty and modest-looking beauty will not long be with-



FIG. 91.—EPIDENDRUM ENDRESII: FLOWERS WHITE.

holden from us, although its very unpopular name, *Epidendrum*, gives but little hope to the importer that it will ever attain a commercial value commensurate with the trouble and expense of importing. *E. Endresii* is of compact growth, having rather hard stems and leaves, which Professor Reichenbach happily terms "like those of *Box*"—a term which well marks their difference from the usually fleshy leaves of others of like habit of growth. The flowers are of the purest white, waxlike in texture, the only colour being some prettily arranged violet spots on the centre of the lip and its wings enclosing the column, and two raised orange-coloured marks in the middle of the lip, and immediately beneath the cap of the column. The difficulty lies in getting the plant alive, for once obtained it seems to grow well in a rather shady part of the intermediate-house. Some day, when good specimens of it are to be found covered with its charming blooms, *E. Endresii* will do much to right the wrongs of slighted genus. *James O'Brien.*

#### ODONTOGLOSSUM MARRIOTTIANUM.

This rare plant has again flowered with Mr. Geo. Marriott, at Upper Edmonton, and, as was expected, it has improved by culture. It is evidently a cross between *O. crispum* and *O. cirrosum*. In size the flowers are as large as a good *O. crispum*, the segments being formed as in *O. cirrosum*, the tail-like points being the same as in that species; the lip, too, is elongated, and has a twisted point, as in *O. cirrosum*. The flowers are of the purest white, delicately frosted over, and sparsely marked with spots of the *O. cirrosum* character. It is a charming plant, and Mr. Marriott sets great store by it. Some good *Cattleyas* and *Dendrobies* are also in flower with Mr. Marriott, and a fine lot of *Oncidium Marshallianum*, and a grand lot of Mexican Orchids coming on in fine order.

#### ODONTOGLOSSUM TRIUMPHANS.

A superb variety of this noble cool-house Orchid is now in flower with Messrs. John Laing & Co., at Forest Hill, who are making good progress with Orchid culture. The blooms of the plant in question are 3½ inches across. The sepals and petals, which are very broad, are all equal, the ground colour bright yellow, barred and blotched with shining chestnut-brown. The straight projecting column is over an inch in length, pure white, with crimson cup and wings; lip 1½ inch long, pure white at the base, reddish-brown in front, the margin being bright yellow. *O. triumphans* is always good, and Messrs. Laing's variety exceptionally so.

#### VANDA CŒRULESCENS.

Blue Orchids are so rare that we can afford to overlook any deficiency or weak point affecting their value as decorative subjects, or that ideal excellence rather too frequently dwelt upon, namely size. The species under notice is inferior in point of size to the old *V. cœrulea*; but the plate in the *Botanical Magazine*, t. 5834, scarcely conveys a true idea of its beautiful colour. At all events a specimen flowering in the East-Indian section of the Orchid-house at Kew has the sepals and petals of a clear sky-blue, while the lip although rather small is deep blue. The species is also described as having the flowers in a pendulous raceme, but the peduncle of the above mentioned specimen is erect from a spreading or decumbent base. These are characters of minor importance, but certainly they are sufficiently noticeable to command attention. The unusual colour in this great natural order is a sufficient guarantee for the admission of this plant in a collection whose value would be greatly enhanced thereby. There is another figure of the plant in question in the *Gardeners' Chronicle*, 1870, p. 529, fig. 97. *J. G.*

#### CŒLOGYNE CRISTATA AS A COMMERCIAL PLANT.

Peter McKenzie in his suburban greenhouses, &c., in the neighbourhood of Paisley has a superb collection of *Cœlogyne cristata*. I counted some fifty specimens, and it seems to be such a favourite with his customers who do business with him in his Glasgow shop, that it pays him over and over again. The varieties among the lot comprise about three distinct forms, the earliest one being the typical plant, which is distinguished for its longer sheaths than the other forms. There the lemon form which is as easily distinguished as an old white *Camellia* among its competitors by having a much shorter sheath, and when in bud is only faintly discoloured, so different from the typical variety. Some of these lemon forms almost disappear into the concoloured form which seem to command a fancy price in these times. The crest which is more or less tinged with from a faint lemon to a showy yellow, is much larger and longer on the one than the other. Probably the most useful of the three is the latest flowering one which has been seen in Chatsworth and in Veitch's collection, but is much scarcer than the other two forms. Any of them for cut flowers individually command more than even a *Maréchal Niel* Rose or the finest of *Camellias*, and is well worthy the attention of all those who can command a market in varied cut flowers. *A.*

#### ODONTOGLOSSUM POLLETTIANUM.

This beautiful hybrid *Odontoglossum* is now in flower at Messrs. F. Sander & Co.'s Orchid nursery, St. Albans, where, seen as it is, among a large and interesting group of hybrids, a good opportunity is given of judging of its merits. No one who sees it will say that the First-class Certificate which was



awarded to it when Mr. H. M. Pollett, of Fernside, Bickley, exhibited the original plant at the Royal Horticultural Society was not well deserved, as its flowers have size, form, substance, colour, and durability in a degree not combined in any other of its class. The flowers may be described as being like those of a medium-sized *O. crispum*, but decidedly of the wax-like substance of *O. Ruckerianum*. They are heavily blotched and spotted with rich claret-crimson. *O. Pollettianum* may be regarded with relation to *O. Ruckerianum* to hold the same place as *O. crispum* *Veitchianum* does in the *O. crispum* section. *J. O'Brien*.

#### DENDROBIUM NOBILE VARIETIES.

The handsome and fragrant old *D. nobile* seems again to be coming to the front, and its good varieties taking rank as plants of high commercial value. Recently Mr. J. C. Stevens sold a large plant in bloom for 10 guineas, and a smaller one of a better variety fetched 18½ guineas. Recent importations show that this Orchid varies very much in specimens from different localities, whilst in certain localities the forms are superb. Messrs. F. Sander & Co., of St. Albans, have now a large batch in bloom which they received from their collector with advice that they should be flowered. They are a superb strain, the colour of the flowers varying from white to bluish-crimson, and the labellums from crimson to nearly black, many of them, too, are prettily tinged with primrose-yellow. The plants were found growing with *D. lituiflorum*, and those varieties which approach the rich bluish-crimson of *D. n. nobiliss* show traces of that species, their lips being somewhat of the trumpet-shape, and having the brightly tinted sharp pointed lower half as in *D. lituiflorum*. It may well be that the two species have intercrossed. On the other hand, many of Mr. Sander's *D. nobile* have round flat lips, tinged with yellow, and shaped something like those of *D. primulinum*. In their growth and in the odour of the flowers there is so much variation that it seems to point conclusively to the fact that the lovely family are of mixed parentage. *J. O'Brien*.

## The Rosery.

#### TEA ROSES IN APRIL AND MAY.

In the notes given at p. 382, reference was made simply to the class of hybrid perpetuals, and the general condition of the Rose garden at this season; the class of Tea Roses cultivated in the open air require a separate notice, as they require (or even if they do not require they receive) a separate treatment; indeed the treatment varies to a considerable extent with the part of the country in which they are grown. In the South of England and in the South-west of Scotland, and other parts where the magical influence of the Gulf Stream is felt, they are grown in the open, and slight protection given to them in severe weather. In the Midlands and more northern parts of our islands it is necessary either to give them very substantial shelter, or else to lay them in until all fear of frost is over, and then plant. The use of raised beds where the soil is heavy, or the situation unfavourable, has led to many being cultivated in the open air where the attempt had not been previously made, while there are no doubt many who, like myself, having raised some in the autumn, have thought it wiser to lay them in, and are now preparing to plant; indeed this question of autumn or spring planting has been much mooted with regard even to hybrid perpetuals, when the question has reference mainly to transferring from one portion of the rosery to another, or the planting of trees obtained from a nurseryman near at hand. Where one can select his own plants, and bring them away with him, there cannot, I think, be a question as to the preference to be given to autumn planting; but when they have to be obtained from a distance, when you do not know how long they may have been in the packing shed before they are sent off, and when in some cases probably a week has elapsed from the time of lifting until the time of planting, then I say by all means, when they are received, lay them in, and wait for spring planting; but whatever may be the case as to hybrid perpetuals, I am quite convinced that for Teas it is best, however obtained, to lay them in during the winter months and have a mat or some covering close at hand to put over them when severe weather

comes. I live in the south-east of England, and we are not as some people imagine thereby protected from cold; nowhere, except perhaps in East Anglia, are the effects of the vile north-easter more felt—things will not live out-of-doors here which flourish in the Isle of



FIG. 52.—BRASSAVOLA STRICTA.



FIG. 53.—OOENTOGLOSSUM GRANDE.

Wight, or in South Wales, or Devonshire. The great advantage which I think we possess is the dryness of our atmosphere; we are not exempt from spring frosts, and in three years out of four our Cherry crop is thereby destroyed, so that my own method of procedure may be a guide to a good many places if they choose to follow it. I have a considerable number of Teas on the seedling Briers, which have been laid

in under a south wall, and which I am now preparing to plant: of course all fear of frost is not gone, but none that will hurt the plants themselves, although some of the shoots may be cut off. The bed into which they are to be planted was prepared in the autumn and has been lying roughly turned up all the winter; the plants I find have been throwing out rootlets, but as they will be taken immediately from the place where they have been laid on to the bed these will not have time to dry, and will not, I hope, suffer by the removal: at any rate, as the seedling Brier is such a famous stock for bearing many roots, I do not from my experience of former years anticipate that they will be much checked. Previous to planting each plant is pruned, and as this is the first year of their planting, they will be pruned quite hard, that is, back to three or four eyes. I have found that when this is done strong shoots are thrown up from the bottom, which give an abundance of bloom, and quite late too in the autumn. A certain amount of retarding is caused by thus removing, and therefore they are not likely to be so forward as those which have been in their position for some years; this will help towards having a continuous bloom.

The old-established beds which have existed now for some years look very well, and the question now comes how they shall be pruned. Last year one of my beds was pruned very hard, and as a consequence I had a very large quantity of strong growth, so that the plants are now almost touching one another. If I do the same this year I suppose that the same result will ensue, and I therefore shall not cut them hard. It is strange how opinions vary on this subject. Mr. Prince, who is one of our greatest authorities on Teas, says "Hardly prune at all," while others say "Shorten growth about one half," and others "Only take off the end of the shoots." My own experience leads me to believe that if you require to get vigorous growth and a well furnished plant that it is best to prune hard. You will also get good blooms somewhat later, but borne in profusion. If you require early and choice blooms for exhibition a more tender use of the knife will be advisable. In some seasons after a severe winter there is no choice about pruning, for, unless the heads have been protected by bracken or some other material, the shoots will have been severely hit, and it will be necessary to cut below any part which has been affected by the frost, but this year there has not been—with us at any rate—any frost sufficient to injure them, and as I have said they are fuller of young shoots than the hybrid perpetuals. The beds which I did not prune so hard last year have not made as much growth, and I shall give them this year a turn of hard pruning, so as to get, I hope, more growth with them. *Wild Rose*.

(To be continued.)

#### TEA ROSE HOUSES.

THIS subject, and the best mode of cultivating Tea Roses under glass, has been most ably put forward by "Wild Rose," and, being myself well acquainted with the propagating and growing of Tea Roses, I cannot agree with the mode of growing described by "A. D." in the *Gardeners' Chronicle* of the 14th ult. I may mention that I have worked in the large Tea-house at Messrs. Cranston & Co., of Hereford, previously spoken of by "Wild Rose," and a finer lot of well grown Tea Roses cannot be seen. This house has both top and side ventilators, and upon all favourable occasions in the blooming and growing season air is given freely. Of course care is always taken that no strong draught can play through the house, as the air is always given on the proper side. The growth on these trees is particularly strong, and the blooms are of extra size and quality. By the end of autumn the wood is always well matured and ripened, and in the following February it receives a careful pruning. I have myself a small house of newly grafted dwarf and climbing Tea Roses in pots which I well ventilate on all bright and warm days, closing the house early in the afternoon, at the same time syringing the plants. These have made under this treatment some fine strong short-jointed growth. I also would remark in reference to the statement made by "A. D." as to the large market plant growing establishments where plants are grown in low span-roofed houses being sparingly ventilated—I think every gardener is perhaps acquainted with the fact that these growers cultivate for quantity, and for producing their stuff economically and quickly to meet the demand; but the question is this—Will Tea



Roses retain their fine quality in such ill ventilated houses and under such treatment? My experience is that the growth becomes miserably weak, the plants soon get exhausted, and have frequently to be replaced by new ones. It may not be the case with "A. D.'s" climbing Roses, still I cannot think but that the growth is thin, and the blooms not very first-class. I shall, however, continue to grow my Tea Roses as I have always done, with air carefully given, and shall have much pleasure in reading and studying the practical hints given by "Wild Rose" on growing Tea Roses. *Edmund Williams, Pearmarsh Place Gardens.*

#### JAPANESE ROSE HEDGE.

*Rosa rugosa* should make a good and ornamental hedge. I have used seedlings for the experiment, suckers would save time, and where this Rose is grown in good soil and thrives it throws up suckers in abundance; the advantages which strike me are, the large sharp clear thorns, the pretty foliage which comes out early, and which stands frost; that the fruit is almost as beautiful as the flowers, that the growth is quick and the wood stands close pruning when required. Large plants give much seed, and this comes up well in the seed bed. If the hedge comes much into use the hawfinches will have a good time. I recommend nurserymen to consider the subject of this new hedge. *G. F. Wilson.*

#### A REMARKABLE ROSE TREE.

At the new gardens, Whitby, there is growing a remarkable Rose tree of the *Maréchal Niel* variety. It was planted, or rather budded, on Victoria stock by the late Mr. Willison in the year 1865, so that it is nearly, if not quite, twenty years old. For many years it produced regularly large quantities of Roses of perfect beauty and rare perfume; but it was not till the year 1882 that the full number of blooms was accurately counted, when no fewer than 2500 single Roses were recorded. This is believed to be the largest number ever grown on the tree during one season. In 1883 there was a falling off in the number of Roses grown of about 1000, the actual number plucked being a few less than 1500. Last year (1884) there was a further diminution in the number, as only 850 blooms were plucked. It was then thought that the tree had seen its best days, and that, considering its age, its vitality was on the wane, and that its powers of production would lessen every year. There is, however, more than sufficient reason to believe that there is abundant life in the old tree yet. Since last season Messrs. Brown & Co., who are the proprietors of the gardens, have devoted considerable care and attention to the tree, and there is now the best evidence of the probability of their industry being amply rewarded, for at the present time, early though it is, there are many hundreds of buds in various stages of forwardness—some on the point of opening, and others just visible at the ends of its long and vigorous lateral growths. There is every reason to believe that the tree this year will be more prolific than ever, the proprietors estimating the number of probable blooms at not less than 3000. Cuttings and blooms from this remarkable Rose tree are sent all over the kingdom during the season. It is believed to be the largest and most prolific tree of its kind in England.

#### THE PROPAGATION AND CULTURE OF DIEFFENBACHIAS.

ONE way of propagating these plants is by cutting off the top growths with about  $1\frac{1}{2}$  inch of the main stem, and putting them in as cuttings. In potting well drained 60-sized pots should be used, and a little sand should be placed around the bottom of each cutting. A stick should also be placed to each pot to support the cutting; they can then be placed in a cutting case or frame upon a brisk bottom-heat, where they must not be watered at all for the first four days, but at the end of that time they should receive a good watering with a fine spout pot. It would not be loss of time if the cuttings were taken out of the case on this occasion and afterwards replaced in the case to be watered as they become dry.

During the whole time the cuttings are in the case great care should be taken not to water them overhead, because the plants, being of a succulent nature, are apt to rot if too much moisture hangs about them. They should be shaded from the sun, and for ventilating purposes the lights or glasses of the frame should be removed for an hour both at night and in

the morning, but when the cuttings have well rooted an inch of air should be allowed to remain on both night and day. After three or four days they will have gained strength enough to permit of their being turned out upon the open bottom-heat: here the plants should be allowed to remain for a week, and then should be potted into 32-size pots. It will be necessary to replace the plants upon the open bottom-heat, and to keep them there until they have become thoroughly established. They can again be potted if necessary or removed to any other warm house where they may be required.

#### THE OLD PLANTS,

the heads of which have been taken out for the cuttings, can be further cut down to within an inch of the soil, and the piece of main stem thus cut off can be divided into lengths of  $1\frac{1}{2}$  inch. Each piece should possess an eye, and a little sand should be placed at both ends to prevent the sap exuding. In potting, small 60-sized pots should be used, and a little sand should be placed at the bottom and around each piece, the top of which should be level with the surface of the soil. When they have been a week in the cutting-case they should receive a good watering, but not till then, and from that time it is only necessary to water them as they become dry. The case should be shaded from the sun and ventilated for an hour in the evening and morning of every day. As soon as the growths or shoots, the pieces of stem will send up, have attained the length of 6 inches they should be cut off and put into small pots as cuttings. The old pieces of stem should be replaced in the frame until the fresh growth they will form has grown to the length of 2 or 3 inches, and then if roots have been formed they can be turned out upon the open bottom-heat to be potted on as they grow in size and strength.

#### THE CUTTINGS.

The shoots which have been put in as cuttings must be placed in the frame and hardened off in the usual way. When they have rooted they can be potted into large 60-size pots, but they must be replaced upon the open bottom-heat, and can be treated in a similar way to the other cuttings.

The soil for potting the cuttings should be composed of one-half peat, one-fourth good yellow loam, and one-fourth river-sand, and a small quantity of finely broken potsherds. Before it is used it should be well mixed together, and both sifted and rubbed through a quarter-inch sieve.

For the old plants the following should be used:—Half good yellow turfy loam, one-third peat, and a quarter river-sand, to which should be added small quantities of leaf-mould and finely broken potsherds. The old plants should be grown in a brisk temperature, and during the growing season should be well supplied with water at the roots and syringed twice daily, besides being lightly shaded from the sun and ventilated upon all fine days.

#### VARIETIES.

Of those which deserve the attention of the propagator are—*D. Barquiniana*, *D. brasiliensis*, *D. picta*, *D. Bausei*, *D. Bowmani*, *D. Imperator*, *D. insignis*, *D. Leopoldi*, *D. marmorata*, *D. Pearcei*, *D. sequina picta*, *D. Shuttleworthi*, *D. splendens*, *D. Weiri superba*, *D. Carderi*, and *D. eburnea*. *T. O. B.*

#### FRUIT NOTES.

FRUIT PROSPECTS.—It may seem early to write of these, but the swelling buds enable us to say that there has seldom been better promise of huge fruit-baskets of all sorts of fruit than that presented to the open-eyed pomologist this April. Of course there may be many a slip between this cup and our lips—these fair promises and the blighted performances of several months hence. Yet can nothing rob us of the promise, as already stated, is all that can be desired, barring the birds. The latter are ever with us, and are far less problematic evils than the first. The latter may come and blight all, but the former are already carrying wreck and ruin at a fearful rate among the fruit-buds. No one who has not seen a few tomtits or bullfinches at work among the Pears and the Plums can have any idea of their enormous powers of destruction. We are often told, "A few buds to feed such tiny birds, what are they among so many?" What indeed, if they only took sufficient to fill them; but that is not their mode of proceeding. It cannot

be too often repeated that the birds chew, not eat the buds. They simply smack them down at the rate of a score or more a minute. Whether they retain a morsel for themselves in the process is doubtful; but down they go before them as snow melts under the fierce sunheat, and whereas the tree was yesterday all bloom, to-day it is bloomless. But that is hardly a truthful way of putting it, for the birds do not wait for the trees to be in bloom before they attack them. It is not a new edition of the nursery rhyme that when the pie was opened the birds began to sing. Before the buds are opening the birds began to dash them all to the ground. Pomologists are told that this is the punishment of insects and that the birds are their best friends, &c.: what when all are scattered? Better a good many worms in the bud, than all the latter scattered like a shower of hail on to the cold earth. And any one who has seen the birds at work will then relinquish the insect-hunting theory on the instant; the birds exercise no discrimination, they are simply wholesale plunderers, reckless destructionists, stripping the whole tree, bough by bough, branch by branch, just as a huge snail will browse off a bed of young Cabbage or Lettuce plants, so far as it can feed at one meal—but with this difference, that as the birds do not seem to feed on the buds, they will strip on for hours at the rate of twenty or more a minute, and the entire stripping of fruit trees or Gooseberry bushes, leaving our fairest prospects of plenty on the ground instead of on the plants. But apart from the ravages of birds, so far the season has dealt kindly with the fruit crops; though the frosts have been sharp, neither Pears nor Plums, nor Peaches, Apricots, nor Nectarines, in the open, have suffered much, if at all; and with ordinary skill in protection, and the rigid suppression of insects so soon as they appear, there is every prospect of a splendid fruit harvest. Pears are specially promising, and will be specially welcome after the scant harvest of the last two or three years. *D. T. Fish.*

#### RIBSTON, COX'S ORANGE, AND KING OF THE PIPPINS APPLES.

Although the note on p. 384 is doubtless quite right as regards the place mentioned, it is scarcely applicable to the whole district north of the Trent. Here, nearly 20 miles north of York, we had fine fruit of each last year, and of the three Cox's Orange was, without doubt, far the best, the King coming second, and the Ribston behind both. *Thomas Trollope.*

## Florists' Flowers.

#### THE HYACINTH.

I HAVE been recently turning over the pages of Hogg's book on florists' flowers, which includes the culture, &c., of the Hyacinth. It does not seem that we have learned a great deal in the method of culture. Perhaps in those days out-of-doors culture was better understood than it is now, and hardy plants like the Hyacinth were always much valued for the embellishment of the flower garden in spring. Hogg writes as if protecting the flowers from the sun were of much importance. Doubtless it is, and our forefathers thought nothing of putting up some arrangement of framework, which was covered with canvas, to shelter choice flowers from sun, rain, and wind; indeed, an old florist's garden used to be a very untidy place, as all his choice flowers required to be covered up in some way or other.

After the Hyacinth the late Tulips came in, to be succeeded by the Ranunculus beds in June and the Carnations in July. It is much better to let the whole of them take their chance in the open ground, as even if the litter could be tolerated the plants do not mature their growth under canvas or shading of any kind so well as they do in the open air, even in our cold and changeable climate. It is stated in Hogg's book that the best customers to the Dutch growers were the English, and the demand for bulbs was regular and progressive. It seemed to be the custom to destroy the bulbs that had been forced, and import a fresh supply annually. Against this Hogg protested, and made a suggestion that no doubt had been made before, and has frequently been made since, that we should compete with the Dutch in



growing our own Hyacinths. A list of the best cultivated varieties is given, and comprises 125 double varieties and only thirty-one single.

Since 1839, when the book was published, there has been quite a revolution in the popular estimate of what constitutes a good Hyacinth. The proportion of single to double varieties has been reversed, and scarcely any of the Hyacinths popular then are grown now. Even during the last quarter of a century the improvement has been very great indeed. In all the classes there have been improvements very recently in the colour of the flowers and the form of the spikes. The dark purple-blue *Souvenir de I. St. Veen* has flowered well this year, and promises to be a very fine exhibition kind; *King of the Blacks* has been well shown: *Sultan*, a rich purple-blue, forms a massive spike of well formed bells, and is highly thought of by Mr. James Cutbush, of Highgate.

In the pale blue class *Princess Mary of Cambridge* is the most attractive of the new varieties. It forms a tall spike quite different from the broad massive one of *Lord Derby*, the best of the older varieties. *Grand Maître* is very distinct, the bells are very large and of good form, but not very thickly placed on the spikes.

We have now some distinct and good new varieties in the class for single reds. The latest and best is the *Queen of Reds*, exhibited by Messrs. Veitch at South Kensington and Regent's Park. It did not receive a Certificate, probably the plant was not strong enough; but as it is a sport from the *King of the Blues*, it will rise to the highest position in its class: the colour is a bright red. *Garibaldi* is not very common as yet, but it is the best of the brilliant red kinds, and has been well shown this year. This and *Vuurbaak* are the best dark red varieties. *Morena* promises well; it is a distinct and very fine variety, the colour a peculiar salmon-buff.

In the white varieties *Anna* is likely to hold a foremost place; it is not white but bluish, and caused quite a sensation when exhibited by Messrs. Veitch, of Chelsea, some years ago: no such massive spikes were ever before seen. It has not subsequently been so well developed. *Galatea*, exhibited by Messrs. Cutbush, of Highgate, is a very distinct variety with large flowers of a bluish-white, and forms a good spike. None of the new pure white varieties are yet to be compared with the splendid kind *La Grandesse*. Amongst the yellow varieties the recent improvements have been very marked. *Admiration*, exhibited by Messrs. Veitch as a new kind, is very promising; the spike is large and very symmetrically formed. It may take its place as about equal to *King of the Yellows* and *Bird of Paradise*, but it will not surpass those fine varieties. The names of many new varieties are creeping into the catalogues at reasonable prices, and some of them are destined to take a permanent place there; but their characters cannot be ascertained by merely seeing them in single specimens at a flower show; there are some varieties that will produce a splendid spike occasionally, but it may be necessary to grow twenty bulbs to obtain it, whereas such a variety as *King of the Blues* will produce all its spikes fit for exhibition, but this is one of the most constant of Hyacinths. Still there are some others that may be depended upon to produce good exhibition spikes every year if three or four bulbs are grown. Many, of course, grow for the rich and distinct colours of the individual specimens, and do not care to sacrifice individuality for mere size of spike, and in that case bright and decided colours have the best effect arranged with other flowers.

In cultivating the Hyacinth it is important to take into account the rapid development of the plants after they are removed into the houses. Whether the pots are well filled with roots or not, the development is very rapid; if there are few roots the spikes will be weakly, and they will be strong just in proportion to the character of the roots. September and October are the best months in which to pot the bulbs. Five and 6-inch pots should be used, and a single bulb ought to be potted in each, using rich sandy loam, with a liberal proportion of sand, leaf-mould, and decayed manure. The pots ought to be placed closely together on a hard dry bottom, and be covered with about 3 inches of cocoa-nut fibre refuse over the crowns of the bulbs. Here they ought to remain for three months, and by that time plenty of roots will have formed, and the spikes will be pushing strongly from the centre of the crowns; after this time they may be removed into a cool house for a few days until the leaves become green; they may then be

forced in a warm house or grown on to flower in the greenhouse, according to the will of the cultivator. What they require in order to have the leaves erect and of good substance is to be placed near to the glass as soon as the leaves are green; what I mean by this is that the plants should be within a foot or 18 inches of the glass roof. This closeness to the glass gives richness of colour and good substance to the flowers and the spikes are better developed. When the flowers have faded we do not throw our bulbs away. The pots containing them are placed in a sheltered place out-of-doors, and they are supplied with water until the leaves naturally decay. The bulbs are then cleaned and stored away for potting next season. We pot three in a 6-inch pot of these home-saved bulbs, and very useful they are for furnishing the greenhouse and conservatory early in the season. Sometimes we have planted them in the open borders, and here also they make a very rich display the following and successive seasons. *J. Douglas.*

## Plants and their Culture.

### BULBOUS PLANTS.

OF Lilliums I purpose giving a trial to *L. auratum* for late autumn blooming by potting up some sound bulbs that are still to be obtained in the dormant state. I think they will prove valuable after the other established Lillies are over. When potted they will be kept moderately dry at the root till the young growths are well above the soil; this will consist of peat and loam in about equal proportions, with a liberal addition of silver-sand; a small handful of the latter will be used around the bulb itself. Pots of moderate size will be used, but such bulbs as thrive the most satisfactorily will again receive attention after the flower-spikes have died down, and larger pots be given them. I do not believe in the dry course of treatment that Lilliums in pots sometimes receive, as an examination of this course would convince any one of the mistake they are making, and which can be easily seen by inspecting the roots after the flower-spikes have died down. These will generally be found in a growing state proportionate to the vigour of the bulb itself.

### SCHIZOSTYLIS COCCINEA

which have done duty during the winter might now be shaken out of their pots, and planted into good soil in the open ground. The stock can be easily increased by division, and should there be a goodly quantity at disposal I advise a portion to be planted in a sheltered nook, or where they could have a movable frame placed over them when the spikes appear in the autumn, as a safeguard against injury from frost. In this way a quantity of spikes will be obtainable for cutting at a needful time.

### HELLEBORUS NIGER

(Christmas Rose) and its varieties, if still in pots, after having done service in that manner, should be treated the same as recommended for the *Schizostylis*. This treatment will be found far better than allowing such valuable material to stand about for a few weeks longer before getting attention; the probability is they would frequently become dry at the root and thereby considerably weakened if this work is postponed.

### FORCED PLANTS.

Through want of room and time, and sometimes from thoughtlessness, plants that have been forced get but scant attention afterwards. Any place is considered good enough for them, but it would be better to throw them to the rubbish-heap at once than to let them thus become spoiled for future use. Of all forced shrubs there is perhaps none pays better for kind attention than *Dentzia gracilis*. On previous occasions I have advised a due regard being paid to this plant, and I am more convinced than ever that the system followed here is a good one by the abundant crops of bloom that the plants are bearing this season. We treat them in the same manner as *Indian Azaleas* after flowering, removing the flower-spikes and placing the plants in a vinery where they will receive frequent syringing and a plentiful supply of water at the roots. When the growths are completed the plants are gradually inured to the open air and a sunny position, the pots being plunged in a bed of coal-ashes. Our

stock has not received a shift for the past nine years, yet they do not show the least signs of exhaustion. Top-dressing has at times been given them and liquid-manure at intervals during the season. *Rhododendrons*, *Kalmias*, and *Andromedas* after being forced and gradually hardened off can be turned to good account in making up any vacancies among the American plants in the open air. *James Hudson, The Gardens, Gunnersbury House, Acton, W.*

## FRUITS UNDER GLASS.

### ORANGES.

THE Taogierie variety, and, indeed, the other varieties also, have now passed through the period of fruit setting, and should be grown on in quite a tropical temperature and atmosphere, if the best results are to be obtained. They succeed all the better if they are well syringed twice a day from now until the fruit begins to colour. The water that is applied to the roots and also that used for syringing should be at least as warm as the atmosphere; but it may even be warmer if warmed over the hot-water pipes. We keep a number of water-pots constantly filled with rain water in all our hothouses over the hot-water pipes, and it is always ready either for watering or syringing. Instead of using manure-water we take a handful of rich prepared compost and spread over the soil in pots. The best material for Orange trees is equal parts of loam and decayed manure reduced to powder; added to this some bone manure reduced to powder, and some powdered charcoal. The trees require repotting at uncertain intervals, and if they require it now it is a good time to do it. The Orange trees may live in the poor, black peaty mould in which they are some times potted, but they will not carry full-sized good flavoured fruit unless they are potted in substantial loam, crushed bones, and some good stable manure added. Charcoal is a good mechanical agent to mix with it. *J. Douglas.*

## The Kitchen Garden.

### FORCING DEPARTMENT: CUCUMBERS.

THE young plants from the January sowing, if they have been well treated, will now be fruiting freely, and the old plants which have occupied space through the winter may now be safely removed, and, if necessary, replaced with another lot. Large seedling plants not being available for this purpose, some excellent cuttings may now be taken from the young fruiters of this year's sowing. Remove the growths to form cuttings at the base of the third or fourth partly developed leaf. It is best to have two leaves at least, after removing the one to form the base of the cutting. Place the cuttings singly into small pots, such as 60's, in light soil, with a good addition of sand. They must then be placed beneath a bell-glass, or in a propagating-frame, where a somewhat brisk and regular bottom-heat can be maintained, shade from bright sunshine, and after they have been in for several days, should the closeness produce too much moisture about the foliage, care must be taken that the points of the cuttings do not damp off. A little air may be left continually on the frame or bell-glass, or the glass inside may be wiped over with a sponge occasionally to prevent drip. As root-action commences admit a little air, and gradually expose them to full sunshine and the air of an ordinary Cucumber-house or pit. Cuttings or seedlings may be planted out in frames on hotbeds now with every chance of success, keeping good linings round the frame in order to ensure a good top-heat as well as bottom. When planting on newly-formed hotbeds leave a chink of air on the lights continually to let out the steam, and cover the glass at nights with mats when necessary.

### TOMATOS

in pots and planted out will now be growing rapidly. Do not allow the shoots to become too thick. The shoots of plants in pots should be regularly pinched after each successive show of bloom, to induce fruit to set evenly all over the plants. Those planted out, of course, will be treated in this respect according to space and other circumstances. Apply no stimulants until a good number of fruits are set and swelling.

Pot off early sown Capsicums, also prick off any herbs requiring it. *G. H. Richards, Somerley Gardens, Ringwood.*



## APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, April 21	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.
	National Auricula, Carnation, and Picotee Society's Show of Auriculas, at South Kensington.
WEDNESDAY, April 22	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
	Show at the Royal Botanic Society's Gardens.
THURSDAY, April 23	Sale of Carnations, Picotees, Plants, &c., at Protheroe & Morris' Rooms.
	Sale of the celebrated Collection of Stove and Greenhouse Plants and Orchids, at Garbrand Hall, Ewell, by Protheroe & Morris.
FRIDAY, April 24	Sale of Valuable Imported Orchids, from Mr. Sander, St. Albans, at Stevens' Rooms.
	Sale of Imported Orchids, at Protheroe & Morris' Rooms.

It is a disappointing thing when one is looking for a satisfactory explanation of any particular phenomenon to be told that it is due to some internal force which cannot be defined except by its results. When the candidate for a medical degree was asked why opium acted as a soporific, he is reported to have answered, "*Quia est in eo virtus dormitiva.*" Unfortunately we have in many cases no better answer to give about the commonest phenomena. We talk glibly enough about gravitation, we assign particular effects to it as a cause, but we are as entirely ignorant of what gravitation is as we are of what constitutes heat or what is the nature of electricity. We allude to the subject because a Swiss Professor has lately been investigating the upward growth of the stem and the downward growth of the root, but after all his experiments all he can tell us is that it is due to "polarity," and this polarity manifests itself in the fact that branches tend to produce new branches near their summit, while in roots the tendency is to produce branches near the base.

M. VÖCHTING is at great pains to show that this polarity manifests itself in detached portions of the plant, as when a branch of a Willow is suspended in a dark room in a reversed position. After a while, buds will be formed at the organic upper end and roots at the upper extremity in spite of their reversed position. We need not specify M. VÖCHTING'S experiments, because they are just what experience has taught us to expect, and what many of us have frequently witnessed.

It is, however, important to remark that M. VÖCHTING proves that gravitation has nothing to do with the phenomena, for on so repeating the experiments (by the use of a clinostat) that the action of gravity is nullified, the results remain the same. Alluding to the different kinds of branches that one meets with in fruit trees, M. VÖCHTING shows how each variety of branch, leader, shoot, lateral, fruit-spur, spine, may proceed from buds of identically the same character and that the character of the shoot may be determined by the experimenter. It is obvious here that we are dealing with the physiological basis of pruning. The facts specified by M. VÖCHTING have been known and acted on for centuries, and various explanations have been given of them. In gardening books, even many of the best modern books, we find the sap credited with this, that, and the other, according to its nature, and the supposed directions and concentration of its currents.

The teaching of modern physiology takes a very long time filtering through horticultural books, and so we find even now the best gardeners among us still hugging the belief in the mysterious and diversified powers of the sap, long after such powers have been shown to be purely visionary. We need not now stop to point out what the accepted doctrine is, as we have so frequently done so in these columns, and it is given in all the modern botanical text-books. That no attribute of the sap, so far as we know at present, suffices to explain polarity in M. VÖCHTING'S sense, is made by him abundantly obvious, but unluckily, while like his pre-

decessors among vegetable physiologists he takes away our sap as a motive force, he does not provide us with any more tangible substitute than an "internal force" called polarity. It is something—it is a great deal, however, to have errors eliminated—destructive criticism at least paves the way for constructive action; and so we may in passing allude to some peculiarities pointed out by M. VÖCHTING which are not generally known. Thus, if a detached branch be suspended in a horizontal or sloping position buds will, under suitable conditions, be formed all round the summit and on the under-surface near the summit, while the roots will spring at the base from the circumference of the branch and from the lower surface of the branch for a certain distance from the base. In the branch still attached to the tree the buds at the apex of the shoot forming the crown are always developed, the other buds on the upper side of the shoot are developed in a degree corresponding with the more or less horizontal position of the branch. In the case of the pendulous branches (as of the Weeping Ash for example) when severed from the tree, the crown of buds at the end is produced as usual, while the other buds are equally developed on all sides. As to the subsequent growth of these buds the author shows that the force of growth is greater in proportion as the shoots have a vertical direction and the force of growth is universally proportionate to the angle which the branches make with the trunk.

In the case of branches, which are directed more or less horizontally, the force and direction of growth depend upon the distance of the bud from the apex of the shoot, the degree of development already obtained, the degree of inclination of the shoot, and its position on the upper or lower surface of the branch, as the case may be. In the Pear and the Apple the diminished intensity of growth on the lower surface of the shoots naturally favours the development of flowers.

The author sums up the general results of his experiments thus:—"In considering the mode and direction of branching two factors have to be considered—an internal force—'polarity'—and gravitation. Polarity tends to the production of shoots from the tip or free end of the branch; gravitation, on the other hand, induces the development of branches in the highest parts. According to inclination to the horizon, these factors may act together or in opposition one to the other. In other words gravitation joins with polarity when the position of the branch is between horizontal and vertical (less than 90°), and it hinders polarity when the inclination is more than 90°, and it directly opposes it when the direction of the branch is vertically downwards."

As to the relation between roots and branches M. VÖCHTING relies upon such facts as these:—An Apple tree growing on the border between turf on the one side and a kitchen garden on the other will develop itself more fully on the side towards the tilled ground. If a strong root of a fruit tree be severed one of the branches suffers an arrest of growth; and other considerations are adduced to show the relation between roots and leaf-bearing branches.

Beginning with circumstances of this character M. VÖCHTING next directs his attention to practical matters, such as the culture of fruit trees in pots, root-pruning, and ringing. In the case of pot fruit trees, where the roots are confined in a restricted space, the whole of the vegetative system is checked; each branch produces but a single shoot, and cultivators are sometimes under the necessity of "heading back" to secure a sufficiency of branches. On the other hand the production of flowers is favoured to a great degree. The life of the tree is, however, shortened by these procedures. Root-pruning rests on a similar basis: if the strong roots are severed occasionally the tree

produces a mass of fibrous roots; the production of wood is much restricted, that of flowers is promoted. Lifting and transplanting have the same effect.

Ringing has the same effect as a total severance of the branch, and is equivalent to the formation of a new individual, which grows independently of the mother plant, receiving from it merely water. The portion of the plant above the wound then behaves like a plant whose roots have been cut. The production of wood is checked, but that of fruit is favoured. Above the wound from the base of the new individual plant, if it may be so called, roots are produced, while from the upper end of the parent branch below the wound spring branches, and thus the "polarity" above alluded to is once more called into play. These facts are familiar enough to all gardeners, so much so, that they will be as much surprised to see them treated at such length in a physiological treatise as the physiologists are astonished at the wonderful theories invented by the gardeners to explain their procedure. But after all, the reference of the phenomena to intangible forces, external or internal, is not much more satisfactory than the allegations as to the ebb and flow of the sap, except to those to whom a sounding phrase, like "that blessed word, Mesopotamia," conveys ample satisfaction.

— ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of this Society will take place jointly with the National Auricula Society's show, in the conservatory; and the Scientific Committee in the Library; on Tuesday, the 21st inst., instead of on April 28, when no meeting will be held.

— ROSE TUNNEL IN THE LUCKNOW HORTICULTURAL GARDENS.—This remarkable feature of these gardens, shown in fig. 94, consists mainly of Maréchal Niel Roses, that grow and flower as well in that tropical land as in England. The Roses were planted by our correspondent, Dr. E. BONAVIA, of Etawah, who formerly held the appointment of Director of the gardens till the year 1877, when his connection with them ceased, owing to the amalgamation of Oudh with the North-west Provinces, when the appointment was abolished. We hope shortly to give a full account of these useful horticultural gardens, accompanied by a figure of a group of Palms standing therein.

— SOCIÉTÉ NATIONALE D'HORTICULTURE OF FRANCE.—We are requested to state that arrangements for the show are progressing satisfactorily. Over £400 has been received for extra prizes. Application for schedules should be made at once as well as application for space to exhibit, as large numbers of applicants have already applied. Applications must be made on or before April 25. The show opens on May 20, and the jury meets on the day before, viz., the 19th.

— INTERNATIONAL BOTANICAL AND HORTICULTURAL CONGRESS IN PARIS, MAY, 1885.—In connection with the International Flower Show, the Société Nationale d'Horticulture of France has decided to hold a Congress in May. Further particulars as to date, &c., will be published next week, but nurserymen and amateurs wishing to become members should send their names at once to the President of the Society, 84, Rue de Grenelle, Paris. The committee for the organisation of the Congress is composed of Messrs. DUCHARTRE, Membre de l'Institut; CHAS. VERDIER, nurseryman; JAMAIN, FERD. TRUFFAUT FILS, BERGMAN FILS.

— THE PHYLLOXERA.—The Government of Russia has issued the following notices relating to the introduction of plants, &c., into Russia:—The importation into Russia of manure, garden soil, Vine layers, or Vine cuttings, with or without roots, and in general all parts of this plant, with the exception of the fruits and seeds, is forbidden throughout the empire. The importation into Russia of other living plants, or parts of them, as well as Grapes, is only authorised at certain custom-houses, and after the application of certain measures. These measures will be taken by the



Minister of Domaios, and by the Minister of Finance. Further, the Minister of Domaios and of Finance may prohibit the importation of vegetables in cases where they might contribute to the spread of the *Phylloxera*. All attempts to evade the measures against the *Phylloxera* will be punished by a fine of not more than 300 roubles, or imprisonment for not more than three months.

— **ROYAL HORTICULTURAL SOCIETY.**—At a general meeting held on April 14, Sir JAMES TYLER in the chair, the following candidates were unanimously elected Fellows, viz.:—C. Bloodworth, W. Boutcher, Mrs. Bramwell, John Brill, William Brockbank, F.L.S., F.G.S.; George Browiog, George T. Chambers, Walter Christmas, William

be valuable for reference, but serve as a pleasant narrative for perusal. So many novelties from foreign countries now make their appearance in the markets, that a book giving exact information respecting them will meet a want often felt.

— **"CHRYSANTHEMUMS AND THEIR CULTURE"** is the title of a small *brochure* written by Mr. JOHN BARDNER, of the Arley Hill Nursery, Bristol, a well known West-Country grower, and successful exhibitor of these much-admired flowers. Such being the qualifications of the writer we may naturally look for trustworthy directions as to the cultivation of the *Chrysanthemum*, and which we find in the concise, easily understood language of this literary venture. We find propagating, potting, soils, disbudding,

are given in which the path of the destroying *suogus* is traced through the Pine woods of Russia.

— **"UNBEATEN TRACKS IN JAPAN."**—We are pleased to announce the publication of a new and abridged edition of Miss BIRD's work on Japan (MURRAY), and which is sure to be acceptable to the public, especially at a time when Japan and its wonderful people are exciting special attention and interest. It is a novel feature to read a book upon a far distant land and then with little trouble or fatigue be able to compare the description of the inhabitants and their industries (as described in the book) with the people themselves. This may be done in the present instance, and a visit to the Japanese Village at Hyde Park will enable us to verify, in numerous cases, the



FIG. 94.—THE ROSE TUNNEL IN THE LUCKNOW BOTANIC GARDEN. (SEE P. 508.)

Bedford Dyson, John Edwards, Charles J. Gapp, J. T. Gideon, Hugh Roumieu Gough, F.R.I.B.A.; Richard Grice, Mrs. Hatch, Thomas Every Innous, N. Kempthorne, Benjamin Thompson Lowne, W. H. Mann, M. L. Massouee, Frederick McTier, W. D'Arcy Godolphin Osborne, W. J. Plaister, Newton Pratt, T. A. Rolls, M.P.; A. O. Saunders, Thomas Simpson, J. Surrey, Charles Todd, Frederick Tyler, and Wm. Layton Vincent.

— **"FRUITS AND FRUIT TREES, HOME AND FOREIGN."**—This is the title of a new work by Mr. LEO H. GRINDON, with descriptions, histories, and other particulars, and will contain details respecting every kind of fruit esteemed in Britain, whether ripened in our own islands or imported from abroad. The history, the particular merits, and a great variety of curious and interesting information of a miscellaneous character will be introduced, so that the book will not only

stopping, formation of exhibition plants, are all treated in a practical manner; and the value is enhanced by a select list given of the best of each section.

— **THE WEATHER IN MIDLOTHIAN.**—A correspondent writes:—"Within the last few days the weather has taken a favourable change, and with the heavy rain of the 10th and 11th, and the mild genial weather since, vegetation is pushing away vigorously, and appearances are all in favour now of heavy crops. Fruit of all kinds never looked more promising."

— **TREE FUNGUS IN RUSSIA.**—According to the *Bulletin* of the Society of Naturalists of Moscow, the hitherto unaccountable destruction of Pine forests is caused by the ravages of a species of Mushroom which takes growth on the surface of the wood, and afterwards penetrates and destroys the tree. Maps

accuracy and skill with which Miss BIRD has depicted the manners and customs of the Japanese at home, and has, moreover, made solid contributions to our knowledge by giving the results of her travels in regions scarcely known to European travellers—regions, moreover, of special interest to horticulturists. The book is nicely printed and bound, and will be useful for reading aloud to classes of young people, and very acceptable to them as a gift-book or school prize in its present form. It will make an agreeable change from the "Moral Tales," "Lives of Celebrated Men," and "Selections from the Poets," usually chosen for presentation on such occasions.

— **EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY.**—This flourishing suburban Society, which was established in 1863, will this summer hold its twenty-first exhibition, and in order to do justice to this important event a special two



lands could be rendered more remunerative. The proper treatment of forest lands, he said, was of the greatest importance ; and the forest interests of India and the colonies demanded such an institution as a School of Forestry in this country. There were many other considerations that might be urged in its favour, and it was very desirable that our young men should be able to get instruction on the subject at home, instead of being obliged to go to France and Germany to find it, as had hitherto been the practice. The Convention unanimously agreed to the Lord Provost's motion to petition Parliament on the subject.

— THE HEREFORD AND WEST OF ENGLAND ROSE SOCIETY'S nineteenth annual show will be held in Hereford on July 9 next.

— PRESENTATION TO MR. HENDERSON.—On Thursday, the 2d inst., the "Golden Lion," 11 High Street, Fulham, was the scene of a very pleasant gathering of the members of the Fulham Palace Cricket Club, the occasion being the presentation of a handsome marble timepiece to Mr. ROBERT HENDERSON, who was for over thirty years the Head Gardener to the late Bishop JACKSON, and from whom the club has received for several years much assistance in endeavouring to provide a good ground in the pretty field known as the "Bishop" Warren."

— BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.—We are requested to state that a Cup, or money, value 10 guineas, will be given at the Brighton exhibition for the best group of Orchids; also a Cup, value 5 guineas, for the best collection of fruits; also a first prize of £2, and second prize of £1, for the best six dishes of Strawberries. The Hon. and Rev. J. TOWNSHEND BOSCAWEN, Lamorna, Probus, Cornwall, is steward of department.

— PUBLICATION RECEIVED.—*Report of the Public Gardens and Plantations of Jamaica*, for the year ended September 30, 1884: by D. MORRIS, M.A., F.L.S., Director.

THE CULTIVATION OF PLANTS.

Name	..	..	..	..	..
Natural Order	..	..	..	..	..
Native Region	..	..	..	..	..
Description	..	..	..	..	..
Properties and Uses	..	..	..	..	..
Soil	..	..	..	..	..
Situation	..	..	..	..	..
Propagation	..	..	..	..	..
After-Culture and Treatment	..	..	..	..	..

Suffolk.—H. E. GRIBBLE, late of Canon Hill, Maidenhead, as Head Gardener to the Marquis of LONDONDERRY, Wynyard Park, Stockton-on-Tees.—J. NICOL, late Gardener at Alderbrook, Surrey, as Head Gardener to His Grace, the Duke of LEEDS, Bedale.—RICHARD ELLERKER, late Foreman to Mr. JAMES GIBSON, Chevet Park, Wakefield, as Head Gardener to A. J. CHOLMLEY, Esq., Newton Hall, Rillington, Yorkshire.—JOHN SNOW, as Head Gardener to —BRUCE, Esq., Southwell Park, Wadhurst, Sussex.

— **SCHOOL OF FORESTRY.**—At a meeting of the Convention of Royal and Parliamentary Burghs of Scotland, held in Edinburgh on April 8, the President, Sir GEORGE HARRISON, Lord Provost of Edinburgh, called attention to the state of forestry in this country, and moved the Convention to petition Parliament for a committee to consider whether, by the establishment of a forest school or otherwise, wood-

days' show will take place in the grounds of Gunnersbury Park, the residence of the ROTHSCCHILD family, on Tuesday, July 7, and Wednesday, July 8. The sum of £75 is offered in prizes, open to all England, and an additional £200 is offered for competition among subscribers. This is the first time these well known grounds have been available for such a purpose, and as they are situated in the centre of a rapidly increasing district, numbering its population by thousands, a great success may be predicted, judging from the desire so freely expressed to see what the gardens are like.

— BUSINESS ANNOUNCEMENT. — We are informed that Mr. J. CLARKE, who was formerly Head Gardener to Lord HASTINGS, at Melton Coastable, and previously at Farnham Castle, has commenced business as a florist and seedsman at the Albion Nursery, Farnham.

— WHITE CINERARIA SNOWFLAKE.—This fine pure glistening white variety has been sent to us by Messrs. J. CARTER & CO. for inspection. The flowers are  $1\frac{1}{2}$  inch in diameter, with sufficient smooth petals to make a regular form, the eye being dark purple. The variety is a long way ahead of any other that we are acquainted with.

— EPIPHYLLUM RUSSELLIANUM VAR. GÆRTNERI.—This curious plant, which was exhibited at the Royal Horticultural Society on Tuesday last, has the general habit of an Epiphyllum, but its fleshy jointed branches are less flattened than in most Epiphyllums, and more like those of Cereus except in the jointed character. The flowers are borne either singly or in groups of three from the ends of the joints as in Epiphyllum (not from the axils of the notches as in Cereus), and have the regular funnel-shaped form of Cereus with the orange-red colour of that genus, as distinguished from the irregular flattened pink flowers of Epiphyllum. In spite, however, of these intermediate characters, Dr. VON REGEL in the *Gartenflora*, November, 1884, tab. 1173, describes it as a variety of E. Russellianum, which, he says, resembles, in the form of the branch joint, E. truncatum, but the flower is regular in outline, and with regular spreading petals. HOOKER (fig. 3717, *Bot. Mac.*), describes this species, which has lilac-rose flowers, from specimens collected in the Organ Mountains, near Rio Janeiro. The variety figured (E. Russellianum Gærtneri) was sent to HAAGE & SCHMIDT from Blumenau, near Rio Janeiro, by H. GÆRTNER, and differs in having scarlet-red flowers. There are numerous intermediate forms of these three species, the produce of a variety of crossings, the flowers of which vary according to the sort from dark violet to purple and scarlet, but mostly partaking of the characteristics of E. Altensteini. From E. Russellianum, so far as is known, no (hybrid) varieties have been produced with the exception of this one, in the possession of HAAGE & SCHMIDT. The specimen exhibited came from Messrs. HINRICH of Altona. A list of cultivated Epiphyllums is given in our number for April 2, 1864, p. 318.

— SCOTTISH HORTICULTURAL ASSOCIATION. —  
 The first ordinary meeting of the above Association was held at 5, St. Andrew's Square, Edinburgh, on Tuesday evening, the 7th inst. Mr. JOHN METHVEN, the retiring President, occupied the chair, and in a few appropriate remarks introduced Mr. W. THOMSON, Clovenfords, the new President, who delivered his inaugural address, taking for his subject "The National Importance of Horticulture." Mr. DUNN, Dalkeith Palace Gardens, brought under the notice of the meeting the proposed formation of a Gardeners' Benevolent Society for Scotland. After some remarks from Mr. DOWNIE, Mr. METHVEN, and the President, the matter was ultimately remitted to the Council of the Association. The President intimated that Mr. GEORGE McLURE, Trinity Grove, would read a paper at next meeting on "Alpine Auriculas," and Mr. A. N. McALPINE, B.Sc., Minto House, Edinburgh, on "The Functions of the Root."

— COYENT GARDEN MARKET REGULATIONS. —  
Mr. HOWARD, of Southgate, has published a lengthy correspondence detailing certain grievances alleged to be experienced by those who frequent the flower market. The Duke of BEDFORD's agent, in reply, says that those who use the market must conform to the regulations, and that, if just cause for complaint arises, that representations should be made to the Superintendent of the Market, on the spot. It is



## HOME CORRESPONDENCE.

**Pæonia arborea in Pots.**—The cultivation of Tree Pæonies in pots for winter gardens, conservatories, and other purposes cannot be too much recommended. If treated well, flowering specimens of this fine class of plants may be had as fine, if not finer in winter than is possible in the open ground. An important point is to have good established plants which have been in pots undisturbed for at least one year before forcing them. Forcing Tree Pæonies has been a custom in Holland for a long time. My father, as long ago as 1833, obtained a Silver Medal (the highest award) at a flower show of the Society of Industry, held at Haarlem on February 23 of that year. It was a splendid specimen of the old sort of Tree Pæony, with several open flowers as large and fine as they had ever been seen. The forcing of the plant at so early a period was then considered an extraordinary fact, on account of the inferior arrangements then obtainable as compared with those of the present time. Some fine Tree Pæonies in bloom were exhibited by my firm at several late shows, beginning at Amsterdam April, 1856, and lately a dozen varieties were shown at the Grand Haarlem Exhibition. *E. H. Krelage, Haarlem.*

**Daffodils Doubling.**—Holding rather strong opinions on the subject, and being eager to join the fray, I should like very much to relate what has happened under my own eye in this garden. Thirteen years ago we received in a parcel of 109 species of "herbaceous" plants from Aberdeenshire two bulbs of *Narcissus incomparabilis* (in the list accompanying them *Narcissus Pseudo-Narcissus bicolor*—evidently a misnomer). There is no doubt that it is the incomparabilis of Daffodilists of the present day, although the incomparabilis, which I have myself found wild in the South of France, is long-tubed, and this has a short cup. For eight years this beautiful flower, whose roots until last year have never been disturbed (and have increased to a good sized clump), was a joy through all the too fleeting Daffodil-tide. It was perfect in its starry singleness. Five years ago, however, "a change came o'er the spirit of its dream," and it began to double. Once begun, the doubling has progressed in double quick time, till last spring only two blooms came single, and I became seriously alarmed, fearing I should eventually lose my lovely incomparabilis in its perfect form. So the two remaining single flowers were marked, and at the proper season the bulbs belonging to them were taken up and replanted separately at a little distance from the group, though in the same border. I have been anxiously on the watch, and now, oh horror! (with just a little triumph mixed), two flowers have opened from the transplanted single-flowered bulbs, and they are both double!—that is, in the ugliest stage of half doubling. Thus in thirteen years one bulb of incomparabilis, with all its increase, has entirely changed its character and become a double Daffodil. The same thing has happened with another group of single short-cupped Daffodils, at some little distance from incomparabilis, growing, not in a border, but on a pit of poor land under some Elms. I now believe that long-tubed Daffodils will never double, and that, therefore, the wild Lent Lilies may be transplanted for ever from fields into the garden without any change occurring in the character of their flowers; but that, on the other hand, the short-cupped Daffodils are never safe. It will be a happy disappointment to me if I find half a dozen single flowers on any of our short-cupped varieties this season! I find, on the other hand, that *Narcissus poeticus flore-pleno* has a tendency to "undouble" under certain conditions. *E. V. E.*

—It is curious that, having lately inquired whether cases of reversion on the part of double Daffodils to single were known, I should have found here to-day what seems to me to be a clear case of reversion. I have a quantity of the common double Daffodil which has been growing here for the past ten years, and in the same spot, having been lifted, divided, and replanted, in the same place once some three years since. I have never before seen a single flower amongst them, all being true double Daffodils. I have now found a perfect single flower—one only—and one of a small clump which has produced no other flower this season. I find also a few flowers the tubes of which are perfect, not being at all split

or broken up, and enclosing others just as we see in the double Canterbury Bells. If desirable, I can mark and lift the bulbs. I think I shall have a green double flower open in a few days. Would that be a novelty? *A. Dean.*

—In the *Gardeners' Chronicle* of last week, I understand, from a letter of Mr. Wolley Dod (p. 482) on the subject of Daffodil doubling, that he tried some bulbs received from Mr. Archer Hind of a double Daffodil at Edge Hall, which became after a year or two quite single. Mr. Dod then returned the bulbs in this state to Devonshire, where they flowered the next spring with quite double flowers. Last year Mr. Archer Hind sent back again some of these redoubled flowers to Mr. Wolley Dod; these were carefully planted (I presume last autumn), and are now in blossom, the flowers being nearly single. Surely Mr. Wolley Dod is aware that bulbs form their flower-buds the previous year, and whether planted in good or bad soil, or even in water, would blossom the subsequent year as formed in the bulbs the previous year, single or double. If Mr. Dod had cut the bulbs open last autumn he would have found the blossoms formed in the bulbs. *A Member of the Daffodil Committee.* [The framework of the flower is so formed, but it is possible that a change might be effected during subsequent growth. This has to be tested. *Ed.*]

**Eucharis amazonica.**—The large number of letters which have lately appeared respecting this plant sufficiently attest the lively interest which the subject commands. Every ill-conditioned bulb is filled with insects, but the real cause of the disease, in my opinion, precedes their appearance, and they have no more to do with the disease than the desert eagle has with the death of the camel he devours. [But it is well ascertained that one particular kind of mite, figured in a recent issue, murders as well as eats—others only eat. *Ed.*] The decay may not always proceed from the same cause any more than the ill-condition of any other plant under bad artificial conditions, but I think one correspondent struck the common key-note of danger when he stated his conviction that the prevalent custom of trying to make the plant flower three or four times in the year was one of the chief causes of mischief. This practice may succeed for a time, but failure will assuredly follow such forced treatment, as it would in the case of the most enduring plant. Again, some cultivators keep it plunged in a strong bottom-heat during its period of growth, and then, with the intention of resting it, place it either on the hot-water pipes or on the stage in an airy house, where it is exposed to the full sun, allowed to become perfectly dry and shrivelled for weeks together. One person I know planted a whole houseful; the borders were well prepared, and the plants made such progress and flowered so profusely for years as to be the admiration of all who saw them. Eventually the soil and drainage, from frequent deluges with liquid-manure, became clogged and sour, and before remedial measures were thought of the plants became sickly. Eighteen years ago I had a large quantity, and caused them to flower so freely that they were thought too common, and I received instructions to discard them; instead of carrying this out to the letter, a number of them were placed under the stage, where they received much water and little light, a few others were placed on the top shelf out of the way, where they received but little water and were extremely dry. Under these opposite and unfavourable conditions they remained with scarcely any attention for three years, with the result that very little foliage remained upon them, and the few leaves which they had retained, were sickly and shrivelled, while the old bulbs were in an advanced stage of decay and literally covered with the red or orange spots, and the small insects already referred to. Their real value was at this time felt by their absence from the drawing-room, and I was instructed to replace them. They were turned out of the pots, the soil was removed, and the old bulbs were thrown away, as it was thought safer to depend on the youngbulbs only; these as well as the roots were carefully washed, after which they were repotted into 7 and 8-inch pots, placing eight to twelve bulbs in a pot according to size. The drainage was abundant, and the soil was composed of sandy loam to which was added one-fourth of hard sandy peat such as would be used in the cultivation of hard-wooded plants. In this compost they were potted

firmly, after which they were placed in a moderate stove temperature, shaded from bright sunshine, and syringed lightly overhead in the after-part of the day, giving them but little water at the root. Under these conditions they made slow but very satisfactory growth; the old leaves did not regain their proper colour, but the young ones were free from defect, and in twelve months I had the satisfaction of seeing a perfectly healthy and vigorous stock, with plenty of bloom during the winter season, and I am happy to say they still continue free from spot, and give me a profusion of bloom every winter. After flowering they receive three months' rest in an intermediate-house, during which period they are neither shrivelled by dryness, scorched by sun, nor chilled by cold: they receive regular supplies of clear water, and the foliage is kept clean. Afterwards they are transferred to a warmer and moister atmosphere, and when growth commences they receive an occasional watering with weak liquid manure made from soot and deer's dung. By altering their period of rest I find no difficulty in having them in bloom from November to March. They never have bottom-heat, nor do they require it, as their foliage and flowers are of great substance, and endure longer than when so treated. If we only consider that they do not naturally grow in an extremely hot climate, we may feel assured that the varied treatment they too often receive must result in injury. The climate of New Grenada varies considerably, but in no part is it particularly hot, and most certainly not extremely dry, even in the dry season, and in the neighbourhood of Choco, from whence *Eucharis grandiflora* is said to have been introduced, the climate is at all times moderate in respect to heat, nor is it, even in the dry seasons, by any means parching, as may be inferred from its great elevation, and from the reports of those travellers who have described its climate. The *Eucharis* is said to grow chiefly on the sandy, firm, and moist river banks, in which position it must always receive abundance of water at the root, and at such an elevation the atmospheric moisture is undoubtedly considerable, especially in the vicinity of the rivers. Looking at these natural conditions, and comparing them with our methods of treatment, it seems only reasonable to conclude that failures arise chiefly from the following causes—extreme temperatures, strong bottom-heat, imperfect drainage, and loose, soft, spongy soil. *T. S. C.*

—I note what Mr. McDonald says in your issue of March 21 about *Eucharis* disease, but I consider he is wrong, and that he is not troubled with the real thing. Evidently his plants suffered from bad drainage, and not from the mites. I send you a bulb herewith; if you examine it under a microscope you will see there are active little insects and thousands of eggs. My plants had good drainage and proper treatment in every way, but the leaves died down and would not grow. The bulbs rotted off, and I then discovered these pests. They will attack a healthy bulb on the side, bottom, or top, make a wound, when, after due time, it will rot away altogether. The smell is abominable. I turned all the bulbs out of the pots, and have washed and cleaned them in soft-soap water, removing the outside skin of the bulb, behind which there are thousands of eggs, and completely dried them off. I am told this disease is common, and that the cure is to put the bulbs in soot and lime, which will kill these pests, and nothing else will, but will not the soot and lime injure the bulbs? Could you or any of your correspondents tell me what to do, and the cause of these pests? [See the article and figure at p. 440 *Gardeners' Chronicle* for April 4, 1885. *Ed.*] I bought a fresh lot of plants the other day, and I find these have the same disease. It is most disheartening. *W. R. Lees.*

**National Auricula Society.**—Allow me to remind your readers who are interested in this Society that an exhibition will be held on April 21, in the conservatory of the Royal Horticultural Society. Entries should be sent at once to Mr. A. F. Barron, South Kensington. Those exhibitors who bring their plants out of the pots will have pots provided to place them in, and green moss to place over the surface. It is absolutely necessary that all exhibits be placed ready for the judges at 11 A.M. Those who have been accustomed to exhibit seedlings will kindly take note of Rule X. in the schedule—that all plants submitted for certificates must be staged separately from the collections.



It may not be generally known that there is a separate fund for seedlings, the subscribers to it, according to the last published balance-sheet, being six persons interested in seedling raising, the balance in hand being £7 4s. It may also be well to state that it is proposed to hold a Primula Conference in 1886, and the preliminary arrangements will be made on the 21st. The luncheon will take place at 2 o'clock P.M., when John T. D. Llewellyn, Esq., will preside, the subject of discussion after luncheon being the proposed conference. The Council of the Royal Horticultural Society have appointed Colonels Clarke and Beddome, The Hon. and Rev. J. T. Boscawen, Messrs. Loder, G. F. Wilson, Llewellyn, and Godman to confer with the Society. Tickets for luncheon are 3s. 6d. each, and may be obtained on application to Mr. Rolt, Hartfield Road, New Wimbledon. *J. Douglas.*

**Peas.**—If your correspondent, "G. M. W.," wants a real good Pea I would advise him to try Huntingdonian, if he has not already done so; it is the best Pea that I am acquainted with. I have grown several sorts side by side with it at different times, and have invited people to taste them all, and one and all have given the palm to Huntingdonian for flavour. It is a good grower, and an excellent cropper. I have grown it for several years, but it is one that I think is not very much known, as I have met with a good many people who have not known it, and I seldom see it in catalogues except Wood & Ingram's, of Huntingdon, where I think it was raised some years ago. It is a main crop Pea, and when once it is fit to pick and my employer has a dish of it he wants no other. Our garden being small, I have no opportunity to try novelties—I leave that to those with more room; but if any one has found a Pea to beat it I shall feel grateful if he will give its name, as my employer knows and appreciates a real good Pea. *H. L., Sherwood, Beckenham.*

**Melon Canker.**—At p. 448, "C. H." asks me if my Melons were ever cankered previous to using the glass collar. I have had individual plants so bad as to render the functions of the plants useless before ripening started. I do not wish to mislead any one. They must understand I recommend it only in protecting the collars against the ravages of woodlice, having here and at other places seen the damages done to the necks of Melon plants by them, weakening the capacities of the plants; with the results of badly finished fruits or no finish at all. The soiling system he recommends, a gardener of my acquaintance adopts to the letter as described in "C. H.'s" note, and I can assure him I have seen canker rampant. *Alexander Methuen.*

**Gathering and Pickling Samphire.**—The following information may have an interest for, even if it does not prove of use, to many of your readers. It is supplied by Mr. Sidney Ford, of Leonardslee, Hortham, to enable me to answer the question of a correspondent as to when was the best time to gather Samphire, and how to pickle it. Mr. Ford began by informing me that Samphire is not to be found on the coast below the district where he resides; "but I was staying at Worthing, and had some given to me from the coast of Ilfracombe, where it grows freely, and we have it in pickle now. For pickling purposes it may be gathered green and growing. It should be soaked for two days in brine, then placed in a stone jar with peppercorns and allspice, covered with vinegar, then placed in an oven, where it should be allowed to boil only till quite crisp, and when cold, corked up securely." *R. Dean.* [It is abundant on the chalk cliffs near Dover, as it was in Shakspeare's time, and occurs also on the beach at Littlehampton. *Ed.*]

**Mushroom Growing.**—In a late issue I am asked to give a detailed account of our system of Mushroom growing, which I think would be superfluous, seeing that your Leicester correspondent (Mr. Davies) has already promised your readers a greater treat on the subject (p. 186). His method is certainly in advance of anything practised here, when he tells us a bed (9 feet long and 4 feet wide) spawned on December 6 produced on the 25th (or in nineteen days) 12 lb. of Mushrooms, and in forty-seven days 200 lb., or something over 4 lb. daily of 36 superficial feet. This must be the system to adopt in future. For my own part I do not like these precocious beds; I often find if they are early to come they are also early to go.

Our beds have yielded a continuous supply since the middle of December, and the cry is still they come, and in quantity too, while for size, form, and colour such as are seldom seen indoors or out. I may mention that a gentleman staying in this town, and seeing a daily supply of the above in our own and other shop windows, made it his business to find out where they were grown, and was so pleased with the rough-and-ready way in which they were produced that on his return he sent his gardener all the way from Manchester (expenses paid) to see the same thing, which I consider as being the best test of interest taken in gardening matters by employers. I sincerely wish there were more gentlemen possessing an equal interest; gardening would become a still pleasanter occupation than it is at present, it would also prove a greater stimulus to good cultivation. *E. Crump, Ranelagh Gardens, Leamington.*

**The Waddesdon Plant Truck.**—Which of us in our young days does not remember how tired we were when night came after a long day at the hand-barrow in the bedding-out season, and how often my heart has ached to see perhaps an intelligent youth with perhaps not an over-robust frame staggering under a load of plants on the hand-barrow, much too heavy for him to carry. I was rejoiced to see the above truck advertised by Holliday, The Pheasantry, Beaufort Street, Chelsea, and at once sent for one, and I cannot tell what a boon it is for carrying plants. It is mounted on springs, and has two wheels, and holds about a third more than a common hand-barrow, and is so easily pushed that a mere youth can move it along quite smartly. I really cannot say what a benefit it will be, and the saving of labour in about a month's time, when bedding-out commences. Perhaps its size will be better understood when I say that it carries a hundred large 60-sized pots. The thing is well made, and the price is £5. *J. Rust, Eridge Castle.*

**Lilium auratum.**—If you do not think the *Lilium auratum* question sufficiently exhausted, I would like to add a few words of my own experience about the too-well-known disease. I once grew a single bulb of this *Lilium* with fifty-six well developed blooms. I do not want to be laughed at for mentioning it, as I am well aware that plants have been exhibited with over 100 blooms, although I have never seen one. But when at one of the Bath summer shows I observed that everybody admired a plant with from fifteen to twenty blooms on it, it struck me that I had not half appreciated my own fifty-sixer. That plant has, however, long since gone the way of a good many more, and since then I have never had its equal. Although I have purchased many bulbs, and taken great pains to grow them to a large size, unfortunately with the same results as scores of others, they became a prey to the disease, or bruise-rot, which I call it. It is of course a difficult matter to determine the cause of this, as well as many other diseases, which that most responsible man—the gardener—is called upon to explain, which, considering that oftentimes the only lens he can bring to bear upon it is his own unaided sight, which he generally contrives to do to his own satisfaction, but frequently to the discredit of the firm that supplied the bulb. This by no means settles the question, as it neither restores the plant to life, nor yields any return for money spent. There are several causes from which I think this fungus or rottenness is likely to spring—one is, lifting and packing the bulbs before they are thoroughly matured, in order to be first in the market; another is, that they are so packed as to ferment more or less on their passage hitherward. I have this year started with a dozen bulbs obtained from Messrs. Cooling & Son; it was towards the end of January. After carefully removing all the decayed portion they were immediately potted in the usual way in pots, according to size of bulb, but rather small than otherwise; drainage was abundant; the compost, as usual, rough, fibry loam and peat with plenty of sand, and a small heap of sand under and surrounding the bulbs. They were gently pressed into the soil, and filled up till just hidden from view, and as the soil happened to be drier than I usually like to pot with, I gave them just sufficient water through a fine-rose watering-pot to moisten without soddening the mass; they were then taken to a frame which I had just put on a moderate hotbed, and on which I had placed soil for a few small seeds. I plunged them in a row at the back of the frame up to the rim of the pots in the soil, and covered them with about 4 inches of

leaf-mould; the temperature at no time exceeded 80°, and the bed being largely composed of leaves, did not vary much for the next month; they had plenty of top air, and the result is that every one is alive and looking well. Some have shoots 6 inches long, and only one is what we term just beginning to smile; but on examination I find that it has made, if anything, stronger roots than those that have made long shoots; all of them, however, have plenty of roots, and I have now removed them to the shady side of a low house, outside, where they are sheltered from heavy rain and strong sun, which they do not like at any time. They have still a covering of leaf-mould, pots and all, into which they are beginning to emit roots from the base of the shoots, and which the plunging material accelerates, and will I hope contribute to the building up of plants constitutionally free from disease. *H. Gay, Shockerwick House, near Bath.*

**Sixpenny Telegrams.**—The discussion upon sixpenny telegrams, and the desirability or otherwise of abbreviated addresses, brings out some curious statistics in the history of the seed trade. We find upon scrutinising that amongst our customers we can only muster 851 Smiths, against Messrs. Sutton's 1060, but when we come to the Browns we are brought to the front with a total of 503 against Messrs. Sutton's 450, and we can throw in 205 Robinsons. We must leave some wiser head than ours to account for the peculiarities of these statistics. *James Carter & Co.*

**Abnormal Tints in *Odontoglossum Alexandræ*.**—Regarding a very curious novelty in a plant of *Odontoglossum Alexandræ*, you kindly published a letter from Professor Reichenbach in your issue of June 16, 1883; the inflorescence there spoken of consisted of two white flowers and one yellow one. The plant is again in flower, and, strange to say, this extraordinary peculiarity appears to it a fixed characteristic, as it now bears upon a stem six flowers, three of which are yellow and three white, lightly blotched, as described by Professor Reichenbach two years since. *W. J. Cross, Salisbury.*

**Improvement in Vegetables?**—I think that the majority of practical gardeners will—notwithstanding the editorial notes in your issue of March 21—agree with me, that there has been very little real improvement in vegetables for the last ten or fifteen years, certainly not in proportion to the yearly flourish of trumpets made by our leading retail seed houses. Taking the kinds enumerated last week first—Cabbages—is there any real advance on Enfield Market? Peas—is there any more reliable sort than the old Champion of England, which I have never known to give dissatisfaction, either in the kitchen or dining-room? I certainly cannot say the same of the large show kinds that are now so popular with a great many people, especially amateurs. Broccoli and Cauliflowers, with the exception of Veitch's Autumn Giant Cauliflower, which is, I might almost say, "a pearl above price," both to the gardening fraternity and the market growers, I think we may safely say we have made no advance on the kinds cultivated fifteen years ago. Again, Beet-root, what a host of kinds have been sent out, and still one of the best is Whyte's Black. In Onions we still have nothing better than White Spanish and James' Keeping. Another important vegetable—Celery—has not a better or more distinct variety than Williams' Matchless Red, and I have known this for about eighteen years. I speak from memory. Once more, before I cease comparisons, after all the Melons that have been sent out the last fifteen years, is there anything to equal Golden Perfection or Beechwood? I think I may venture to say that if novelties were not more eagerly sought after by amateurs than they are by professional gardeners we should both see and hear less of so-called improvements, or rather selections of good old varieties, which most of them are. With regard to the advice given as to selection of specialties from different sources there are one or two grave objections, viz., a multiplication of accounts, both troublesome to the gardener and very objectionable to most employers. Again, at the present time all the large retail houses have special varieties of every kind of vegetable seeds which they extol as the very best in its class, and so keen is the competition in garden seeds that I believe that if the varieties recommended by any substantial house are purchased no better can be procured even if selected from a dozen different catalogues. *John Wilkes, The Hayes, Stone, Staffordshire.* [Our correspondent is evidently no believer in novelties, even when incontrovertible evidence can be adduced that some of them are really earlier, more prolific, and better flavoured than the old kinds. *Ed.*]



## CULTURE OF PLANTS IN SMALL POTS.

IN supplying cultivated plants with the manurial food they require over and above that which the soil to which their roots have access naturally contains, two courses are usually followed—either to fill the storehouse, namely, the soil, at the commencement of operations with as much as is supposed to be required, or to put in less at the beginning, and to make additions from time to time as occasion requires afterwards. Each course has its advantages; the former plan, where all is given at once, leaves the roots to help themselves as they choose, and is the simplest, entailing no further trouble with after-applications. The latter method, whilst giving the roots as much as they need continuously, does not admit of over-gorging at any one time, as may occur where enough to suffice for a lengthened period is placed within their reach at once. The ill effects of this practice becomes most apparent where the roots are confined within a limited space, and the manure is consequently placed before them in a manner that makes over-feeding all but a matter of certainty. To this cause may be attributed the disparity between the gross leaves and the small amount of flowers sometimes noticeable in pot-grown plants, where as much manure has been mixed with the soil they were potted in as was supposed to suffice for the season. When the highest results attainable in the cultivation of plants in very small pots is aimed at—the root space often being restricted to the lowest possible point—the system of frequent manurial feeding becomes a necessity, which must be met by applications in liquid form or in a dry concentrated condition to the surface of the soil, to be washed down when water is given. By either of these means the supply can be regulated in accordance with the demand, giving least in the early stages when growth is less active, and more when the rate of progress is such as enables the plants to feed more freely.

It may be said that the fullest exemplification of what it is possible to accomplish with pot-grown plants is to be seen in the two extremes where very large or very small pots are used. Of the former there is no lack of examples at the various horticultural exhibitions that annually occur throughout the country. The latter are comparatively little seen at these gatherings, being more in the hands of those who cultivate for sale, especially the market growers, whose plants in little pots are at the present day nothing less than marvellous. At one time it would have been thought impossible to have produced them with their roots confined in so little material. The growers of this kind of stock have evidently studied the requirements of each of the different kinds of plants they cultivate, and have also got the exact gauge of the amount of feeding they will bear, for there can be little doubt that if stimulation were carried further than this the result would be failure. With plants, as with animals, if more food is taken than can be assimilated the constitution gives way; yet there is this difference that animals usually leave off eating when they have had enough, whereas plants have not the same power of rejecting an excess of food. Water, when within reach of their roots they will take up, and if it is too strongly impregnated with even such elements as needful to support growth, plethora follows. The immense increase in the demand for plants in small pots necessitates their being grown in private gardens in numbers greatly exceeding what were once required, and some who have them to provide find a difficulty in getting them equal to such as are forthcoming from the market growers, who have made this little-pot culture their especial study, and have learnt exactly at each stage of growth, in the respective kinds of plants they take in hand, what amount of stimulants they will bear. Needless to say this is a matter that can only be got at by practice; as a rule, the freer and quicker the growth of the plant is naturally the more stimulating food it is capable of taking, giving in all cases weaker applications during the earlier stages of the plant's existence, whilst root and top-growth are alike progressing slower than later on. The old theory about not giving anything in the way of stimulants until the flowers are visible requires to be got rid of, so far as the flowering section of the class of plants under notice is concerned, for if nothing of an invigorating

character is applied until then, they will not be likely to attain more than half the size they should do. The little-pot system of culture means regular feeding from the time there is enough root and top growth present to take it. Another matter of importance where high feeding of this kind is followed, is that the plants must from the first have all the light it is possible to give them by being stood close to the roof in light houses; and with the same object of encouraging sturdy, robust growth there must never be anything approaching crowding. If in the early stages there is the least approach to a drawn condition, nothing that can be done afterwards will remedy the evil. A point that needs to be also considered with stock of all kinds grown in little pots is that from the time the soil gets full of roots the plants will be more injured should they ever be allowed to suffer for want of water, than if their heads had not been disproportionately large to that of the root-space. The higher the cultivation resulting from liberal feeding, the less able are the plants to bear short-comings. From the same cause there requires to be no falling off in the liberal feeding when once begun with. *T. Baines.*

## NARCISSUS MINNIE WARREN.

NARCISSUS Minnie Warren (fig. 95), which is in all probability a derivative from *N. moschatus*, is a very pretty novelty, flowers of which were sent us by



FIG. 95.—NARCISSUS MOSCHATUS ("MINNIE WARREN"): FLOWERS PALE CREAM COLOUR.

Mr. F. W. Burbidge. The flowers measure about  $1\frac{1}{2}$  inch in length, with a funnel-shaped flower-tube, yellowish at the base, and with six lanceolate, slightly twisted, creamy-white segments, which are about the same length as the cream-coloured, trumpet-shaped corona, whose erect edge divides into shallow lobes and notches.

## Reports of Societies.

### ROYAL HORTICULTURAL: April 14.

THIS promenade show was the means of bringing together one of the prettiest of spring flower shows; and the promised Daffodils exhibited by several of the largest growers of these now much admired flowers gave in their abundance just that amount of bright colour that is required in that dingy place, the South Kensington conservatory. One side of the middle area was set apart for Daffodils, and well filled were the portions allotted to Mr. Walker, Messrs. Veitch & Sons, Messrs. P. Barr & Son, and Messrs. Collins Brothers & Gabriel; the palm for perfection of flower being given to the first-named exhibitor. Some fine Amaryllis were shown by Messrs. J. Veitch & Sons, and by Mr. B. S. Williams; these, and a few Orchids, Cyclamen from Mr. Clarke, hardy flowers from Messrs. Paul & Son, and Azalea indica and Laurustinus from Messrs. Cutbush & Son, gave the

requisite amount of varied colour to the display. Of new plants or new varieties there were not many, and certificates were fortunately sparingly bestowed.

### Scientific Committee.

F. Pascoe, Esq., in the chair. Present: Messrs. MacLachlan, Michael, Boulger, Murray, Ridley, Smea, Loder, Beddome, Col. Clarke, Drs. Lowe and Masters.

### CYRIPEDIUM HOOKERÆ.

Dr. Masters reported on this flower, referred to him at a former meeting. The sepals, petals, and lip were normal, but the column was represented by five petaloid segments, which from their relative position appeared to represent the stamen opposite to the lip (absent in normal *Cypripedium* or represented only by a shield-like rudiment, a 1 of the recognised diagrams, the other two stamens of the outer row A 2, being unrepresented. Two of the inner stamens, a 1, a 2, were present, as is usually the case in *Cypripedium*, but were here petaloid, while a 3, generally absent, was here present in the form of a secondary lip. In addition, one of the styles, G 1, was present as a petal, so that the flower may be described as a partially double *Cypripedium* in which some of the stamens and one of the styles were present in a petaloid guise.

### FUNGUS ON NARCISSUS.

Mr. Murray agreed with Mr. Plowright, and suggested that the fungus affecting *Narcissus* and *Hyacinth* bulbs was *Pleospora Hyacinthi*, and suggested that diseased bulbs should be sent for cultivation.

### WEEVILS IN LENTILS.

Mr. MacLachlan showed specimens of Lentils attacked by weevils (*Bruchus* sp.) in the manner so common in Peas and Beans. The insect perforates the cotyledons, leaving the plumule generally intact, so that Beans of this character are not affected as to their germinating power. When the beetle cannot perforate the hard rind, it perishes with the seed.

### CHINESE WAX.

Mr. MacLachlan read extracts from a communication of Mr. Alexander Hosie.

During the present year, in the months of May and June respectively, I had the opportunity of examining these galls (female insects of *Coccus* sp.) and their contents with some minuteness in the neighbourhood of Ch'ung'king, and within the jurisdiction of Cheating Fu, the chief wax-producing country in the province. In the former case I should state that the insect has reached Ch'ung'king and its neighbourhood from Chia-ting by short annual stages, being propagated on the insect tree in the country lying between these two cities. Thirty li to the east of Ch'ung'king I plucked the galls [the female scale-like insect] from the trees [*Ligustrum lucidum*], and on opening them they were very brittle. I found a swarm of brown creatures like minute lice crawling about [young scale insects]. The great majority of the scales also contained either a small white bag or cocoon containing a chrysalis, whose movements again were visible through the thin covering, or a small black beetle. The beetle is called by the Chinese in Chia-ting the "Nui-erk," or "buffalo." If left undisturbed in the broken scale the "buffalo" will, heedless of the wax insects which begin to crawl inside and outside the scale, continue to burrow with his proboscis and pincers in the inner lining of the scale, which is apparently his food. The Chinese declare that the beetle eats his minute companions in the scale, or at least injures them by the pressure of his comparatively heavy body; and it is a fact that the scales from Chien-ch'ang in which the beetles are numerous, are sold cheaper than those in which they are absent. A careful examination, however, has forced me to the conclusion that the beetle is there for a far more useful purpose. When a gall [scale] is plucked from the insect tree an orifice is disclosed where it was attached to the bark; how can the wax insects escape from their imprisonment? I carried back with me a bough with a number of insect scale clinging to it, and watched day by day for signs of life. At last my patience was rewarded by seeing the pincers of the beetle gradually boring a hole through the scale. This scale, when completed, was circular, and of sufficient size to allow him to escape from his imprisonment. Although he did not issue when he had broken his prison wall, but continued to burrow in the inner lining, the wax insects began to crawl out and in, and I am persuaded that the beetle is a wise provision of Nature to afford an outlet for the wax insects. That the beetle devours the insects may well be doubted, for I endeavoured, but without success, to feed him with the daintiest morsels; he always turned away and recommenced burrowing. When I removed the beetles from the scales some of them made efforts of fly, but at that time their elytra were not sufficiently developed, and they had to content themselves with crawling—a movement which, owing to the long proboscis, they performed very clumsily.

The Beetle in question, said Mr. MacLachlan, who altogether doubts the explanation given by Mr. Hosie, is a parasitic beetle of the genus *Brachytarsus*. He observed that the subject was important in two ways; that the wax is excreted (or secreted) by the male



insect only, and that the female has a parasitic beetle of the genus *Brachytarsus* attached to it, as is the case in some European species of *Coccidae*.

#### TEASELS.

Col. Clarke showed specimens of the cultivated Teasel, grown in Northamptonshire, with a smaller form, probably introduced with foreign seed, and referred to Mr. Ridley for identification.

#### CYCLAMEN.

From Mr. Clarke, of Twickenham, came a specimen of *Cyclamen*, showing curious outgrowths from the upper surface of the leaves, as well as from the petals, to which we shall hereafter refer more at length.

#### CANKER ON HAWTHORN.

Mr. Plowright sent specimens illustrative of the peculiar appearance left on Hawthorn twigs after the death of the spawn of *Rostelia lacerata*, as determined after actual experiment.

#### CHIMONANTHUS GRANDIFLORUS.

Fruits and a seedling plant from Mr. Noble were shown. The two seed-leaves are very large, like those of the Beech, but much thicker, and dark green in colour.

#### PRIMULAS.

Mr. Henslow showed illustrations of flowers gradually losing their brilliancy of colour and becoming at the same time uniform as regards the length of their stamens and pistil. As the attraction for insects is less, and the length of the stamens and style adapted for close fertilisation, cross fertilisation did not occur, and the number of seedlings was proportionately increased.

#### EUCALYPTUS.

Mr. Smee communicated a paper on the culture of these plants in Chili. (See p. 499.)

#### PLANTS EXHIBITED.

In addition to the *Epiphyllum* and *Cyclamen* above-mentioned, flowers of *Calceolaria Burbridgei*, *Ranunculus cortusifolius*, *Villarsia parnassifolia*, and *Spiranthes convallarioides* were shown by Mr. Loder; and Dr. Masters showed specimens of the curious excrescences found on the stems of *Cryptomeria* by Mr. Mills. (See p. 416, March 28, 1885.)

#### Floral Committee.

Present:—Shirley Hibberd, Esq., in the chair; and Messrs. G. Henslow, W. Wilks, H. Bennett, W. Bealby, J. Child, H. Herbst, J. Walker, J. James, C. Noble, J. Fraser, G. Duffield, Dr. Masters, H. M. Pollett, J. O'Brien, H. Ballantine, H. Turner, E. Hill, W. B. Kellock, J. Douglas.

Messrs. J. Veitch & Sons exhibited several new forms in *Amaryllis*, as *Lady Howard de Walden*, a well formed white flower of medium size, but of more than usual substance in the petals; *Archimedes*, a crimson self; *Rosslyn*, bright scarlet, with a white band on the petals and a white star; *Duchess of Edinburgh*, with a crimson coloured suffusion over a white ground, and several others of handsome colours. *Gladolus blandus* *Rosy Gem*, pale pink, with bright cerise circles on the segments of the flower; *Tree Carnation* *Sir Charles Wilson*, of deep crimson, a good bloom, full, compact, and smooth; and *Tree Carnation* *Niobe*, a fine crimson.

Mr. B. S. Williams, Holloway Nurseries, showed a collection of *Amaryllis* hybrids, containing distinct and pleasing colours, but of which none obtained recognition. *Guiding Star*, a crimson, having a white band on the petals; *Magnifica*, a scarlet of excellent build; and Dr. Masters *Improved*, were among the most striking. He exhibited *Clivia* *Madame Reimers*, now pretty well known as one of the finest hybrids of this beautiful genus, *C. miniata* being shown to mark the advance in this flower of late years; *C. Madame Van Houtte* was also a fine form, but would be taken to rank second only; *Odontoglossum Andersonianum* *grandiflorum*, a fine variety, with crimson spots, sepals and petals spotted alike, the blooms being of great size—the plant carried two flower-spikes of fifteen blooms; *O. radiatum*, a curious form, with many hairs on the labellum, which is likewise much dentated at the edges, the prevailing colours of the flowers being brown and gold; *Begonia gogoensis*, a prostrate plant, with bronzy-green foliage and pale green nerves and veins—pretty; *Aralia regina*, with finely divided leaf segments; *Pan-cratiun calathinum*, with two white blooms standing on a very strong flower-stalk, the perianth projecting much beyond the flower; *Ochna multiflora*, with green berries and red calices; a new red Beet, with straplike foliage, likely to prove a useful subject in the flower garden, came from the Holloway Nurseries.

Mr. Ballantine, gr. to Baron Schröder, The Dell, Egham, showed several fine things, as *Lælia bella*, the splendid hybrid raised by Messrs. Veitch & Sons, Chelsea, the gorgeous purple lip, with, as it were, the edge of a silver lining seen on the margin, being of great development; *Dendrobium macrophyllum* *Burkei*, a very vigorous spike of creamy coloured flowers, having the faintest trace of pink at the base of the petals; some *Cattleya Trianae* flowers, and a spike of *Odontoglossum crispum*, spotted like *O. Ruckerianum*—very fine in the markings, and the spike of considerable size.

John Day, Esq., Tottenham, showed the rarely seen *Vanda coriulensis*, a spike small and compact, with blooms 1 inch across, rosy-lilac-sepals and petals, and a crimson lip, the crest tipped white. Mr. Denny, gr. to S. W. Marriott, Esq., Down House, Blandford, showed *Ornithogalum gracile* and a large bloom of *Anthurium Andreanum*. Mr. C. W. Scott, Woodbank, Dumfries, showed a hybrid *Odontoglossum crispum*, with suffused pink petals and brown spots (six) on each, the crest being lemon coloured. Mr. Ross, gr., Welford Park, showed *Dracena Eyrei*, a dwarf compact variety, with red, green, and white foliage markings. Messrs. Heinrich, Altona, Hamburg, exhibited a new hybrid (?) *Cactus*, *Epiphyllum Russellianum* var. *Gertneri*, with the growth of a *Cereus* and *Epiphyllum* combined, the flowers being numerous and of a vivid scarlet colour. Mr. Douglas, Great Gearies, Ilford, had show *Auricula* *Dr. Kidd*, a smooth white-edged flower, and Mrs. Moore, an equally good grey-eyed bloom.

From Mr. C. Turner, Slough, came *Carnations* *Snowball*, a white, fairly full flower; *F. W. Girdlestone*, yellow ground, scarlet flake, a distinct flower of its class; *A. H. Kennedy*, a beautiful crimson, full, regular, and particularly smooth in outline; others of lesser merit were *Antonio*, *Heroine*, and *Salamander*. From the same nursery were *Azalea indica* *Elise Lieber*, a large white, here and there spotted and barred with cerise, and having a few abortive petals in the centre of the flower; and *Rose Gloire Lyonnaise* (Guillet), new H.P., but with a slight suspicion of a Tea derivation as to fragrance.

H. M. Pollett, Esq., Ferside, Bickley, showed a spike of *Odontoglossum Pollettianum*—a dense spike of this much spotted variety. *C. Dorman*, Esq., The Firs, Laurie Park, had *Dendrobium Dormanianum*, white sepals and petals, purple tipped, as is likewise the lip, this last being cupped, and of a fine lively golden colour, relieved by two brown spots on either side; *Odontoglossum constrictum*, a small inconspicuous bloom of greenish-yellow; *Dendrobium Domini*, a variety of *D. nobile*.

Messrs. Collins Bros. & Gabriel, 39, Waterloo Road, had a large collection of numerous varieties of *Daffodils*, *Galanthus Elwesii*, *Anemone apennina*, *Erythronium muscari*, fine flower sprays of *Berberis Darwini*, &c.; fine double yellow *Wallflowers*, and a very choice lot of *Anemones*, striking in colour and markings. The Silver Banksian Medal was awarded for this collection.

Messrs. J. Veitch & Sons, Chelsea, had a large collection of *Daffodils*, *Anemones*, &c., of the choicest varieties, which, along with Messrs. Barr & Son's collection, formed a bank of the different shades of yellow, which was most happily relieved with small *Palms*, &c., and which without these auxiliaries would not have produced such a pleasing display. Both exhibitors received equal honours—the Silver-gilt Banksian Medal. Messrs. W. Cutbush & Son, Highgate, had six fine dwarf robust plants of *Laurustinus lucidus* in 8-inch pots, very well flowered; also five new varieties of *Azaleas*, viz., *A. Imperatrice des Indes*, a fine semi-double salmon, edged with white, and spotted with dark crimson—a sweet flower; *A. King of Whites*, a very large white flower, with distinct foliage—a good thing; *A. Bignonia flore-pleno*, fine semi-double deep rose; *A. Queen of Whites*, fine large flower, with very large petals, which, being crimped, gives the flower a very distinct appearance; *A. La Flambeau*, most brilliant crimson—rather a small flower, but very telling. Rev. C. Wolley Dod, Malpas, had a collection of *Daffodils* of much interest, as showing the origin of some of the double varieties, and as affording links between the wild *Daffodil*, *N. Telamonius*, *N. major*, and bicolor varieties. One form of the *Daffodil* was a self white from a field near Bicester. The New Plant and Bulb Company, Colchester, had a nice collection of *Daffodils*. Mr. J. King, Rousham, Aylesbury, had several seedling *Primroses*, amongst others *Rousham Blue*—hardly blue, but approaching as closely to it as any variety we have seen. Messrs. Paul & Son, the "Old" Nurseries, Cheshunt, showed a select interesting collection of alpine and other plants, consisting of fine plants of *Convallaria multiflora* (Solomon's Seal), *Muscari*, *Fritillarias*, the charming little *Polygala chamaebuxus*, and *P. c. purpurea*, several double *Primroses* of different shades of colour, *Saxifragas* in variety, *Primula Cusii* and *P. Obstris*, the yellow-flowered *Rosa berberifolia* var. *Hardyi*, *Rosa microphylla rubra plena*, *White Pet*, and *White Baroness*, H.P.; *Gentiana verna*, *Aubrietia purpurea variegata*, *Doronicum austriacum*, *Impatiens Sultanii* *alba*, *Viola gracilis*, the parent, so far as known, of the garden *Pansy*; and the new H.P. *Rose Gloire Lyonnaise*.

Mr. R. Clark, Twickenham, had again a fine choice lot of dwarf *Cyclamens*, also a white one, mentioned elsewhere, which was much admired; he was awarded the Bronze Banksian Medal. Dr. Brown, Hull, had a small collection of *Daffodils*. Mr. T. S. Ware, Tottenham, a large group of *Daffodils*, intermixed with *Muscari*, *Scillas*, *Anemones*, *Saxifragas*, *Doronicum caucasicum*, *Dielytra spectabilis*, *Iris*, *Galanthus*, *Lachenalia*, *Primulas*, &c., receiving a Silver-gilt Banksian Medal. Messrs. E. H. Krelage & Son, Haarlem, Holland, showed *Pseudo-Narcissus variegatus plenus*, *princeps*, *maximus* (true), *lobularis*; a novelty to be named (*Pseudo-Narcissus*); and another *Pseudo-Narcissus*, which was named *Spurius coronatus* by the committee. A small collection of *Daffodils* was shown by Mrs. Lloyd Williams, of Coed Coch; three *Clivia* *superbum*, from the Royal Horticultural Society's Gardens, Chiswick; Captain C. J. Nelson, R.N., a collection of *Daffodils*, neatly arranged with *Isolepis* and *Lycopodium*. Miss Jekyll, of Munstead Place, Godalming, had a group (arranged in moss that would have had a by no means bad effect had greener moss been chosen).

The plan was that of an undulating bank of moss, highest at one end, backed up by drooping sprays

of *Solomon's Seal*, and of *Alexandrian Laurel* (*Ruscus*). In the moss were studded at intervals groups of *Daffodils* of various kinds, of *Primula rosea*, *P. denticulata*, *Heuchera*, *Iris stylosa*, *Oxlips*, &c. The whole group furnished a valuable lesson to flower-show exhibitors, for it was evident that such an arrangement as this might frequently be adopted with great advantage even when, as in *Rose* shows, it is desirable to have the competing kinds side by side for comparison. So far as beauty and general interest is concerned, the advantages of this plan are beyond question, though, of course, it is not always practicable. A Bronze Medal was awarded for the group—none too high a commendation. Mr. J. Tyerman, Penlee, Tregony, had a small collection of *Daffodils*, also seedling *Triteleias* and *Hellebores*. Messrs. J. Dickson & Sons, Chester, showed a few varieties of *Daffodils*. A splendid group of most of the known kinds of *Daffodils* was exhibited by Mr. J. Walker, Whittom, Middlesex, which contained many most beautiful specimens, excellently grown and well set up, a Silver-gilt Banksian Medal being well bestowed.

The collection staged by Messrs. Barr & Son contained, along with a large and varied collection of *Daffodils*, examples of *Muscari*, *Scillas*, several of the curious terrestrial *Ophryses*, *Clivia nobile*, *Fritillarias*, the rare *Placea arze*, *Orchis Robertsoniana*, *Anemones*, *Amaryllis* *hybrida*, dark velvety-crimson; and *Corydalis bracteata*. Messrs. J. Green & Nephew, 107, Queen Victoria Street, St. Paul's, E.C., exhibited Munstead flower glasses, made of fine quality glass, and varied in size and shape, admirably adapted for floral devices.

#### FIRST-CLASS CERTIFICATES.

To Mr. J. Douglas, for *Auricula* Mrs. Moore.  
To Messrs. J. Veitch & Sons, for *Amaryllis* *Lady Howard de Walden*.

To MM. Krelage & Sons, for *Narcissus spurius coronatus*.

To Mr. M. Heinrichs, for *Epiphyllum Gaertneri*.  
To Mr. Chas. Turner, for *Carnation* *F. W. Girdlestone*.

To Mr. Ballantyne, for *Lælia Bella* x.  
To Mr. Jas. O'Brien, for *Odontoglossum Andersonianum pictum*.

To Mr. Ballantyne, for *Dendrobium macrophyllum Burkei*.

#### VOTES OF THANKS.

To the New Plant and Bulb Company, for a collection of *Daffodils*.

To Mr. Denny, for *Anthurium* flowers.  
To Messrs. James Green & Nephew, for Munstead flower glasses.

To Mr. T. S. Ware, for *Ornithogalum lacteum*.  
To Mr. Owen Thomas, for cut blooms of *Camellia reticulata*.

#### Fruit Committee.

Present:—Harry J. Veitch, Esq., in the chair; and Messrs. John Lee, W. Paul, S. Lyon, J. E. Lane, G. Bunyard, C. Ross, J. Willard, G. Goldsmith, J. Woodbridge, W. Denning, H. Weir, J. B. Haywood, R. D. Blackmore.

A collection of *Rhubarb* came from the Royal Horticultural Society's Gardens, Chiswick, and consisted of the following:—*Buck's Early Red*, *Hawke's Champagne*, *Dancer's Early Red* (good), *Crimson Perfection*, *Baldrey's Scarlet Defiance*, *Albert or Early Red*, and *Linnaeus*. Mr. C. Ross, Welford Park, Newbury, showed a collection of thirty-two dishes of Apples, the major part of them being in a capital state of preservation; the finest were *Cox's Orange Pippin*, *Northern Spy*, *Northern Greening*, *Brabant Bellefleur*, *Annie Elizabeth*, *Cox's Pomona*, *Baldwin*, *Blenheim Orange*, *Cornish Aromatic*, *Stamford Pippin*, *Sturmer Pippin*, *Lord Raglan*, *Tower of Glamis*, *Mère de Ménage*, *Lane's Prince Albert*, *Loddington Seedling*, *Lord Burleigh*, and others.

#### EDINBURGH BOTANICAL: April 9.

THE Society met this evening at 5, St. Andrew's Square, Professor Dickson, President, in the chair, when the following papers were read:—

I. "An Obituary Notice of the late Professor T. C. Archer, Director of the Edinburgh Museum of Science and Art." By Alexander Galleley.

II. "A Note on *Sansevieria longiflora*," plants of which have been raised from seeds sent to the Edinburgh Botanic Garden by Mr. John Buchanan, of Blantyre, East Africa. By Andrew Taylor.

III. "Exhibition of Photographs of Botanical Interest taken during the voyage of H.M.S. exploring ship *Challenger*." By Hugh Cleghorn, M.D., LL.D.

IV. "Report on the Progress of Vegetation at the Royal Botanic Garden, Edinburgh." By Robert Lindsay, Curator.

V. "Report on Temperature, Vegetation, &c., in the Gardens of the Royal Botanic Institution of Glasgow." By Robert Bullen, Curator.

The following flowering plants in pots were exhibited from the Royal Botanic Garden:—

<i>Primula viscosa</i>	<i>Saxifraga diapensioides</i>
" <i>marginata</i>	<i>Narcissus rupicola</i>
" <i>ciliata</i> (seedling)	<i>Corbularia bulbocodium sul-</i>
" <i>acaulis</i> (purple seed-	phureum
ling)	" <i>Graellsii</i>
" <i>integrifolia</i>	<i>Chionodoxa Lucilliae</i>
<i>Saxifraga retusa bryoides</i>	" <i>sardensis</i>

"Report on the progress of vegetation at the Royal Botanic Garden, Edinburgh, for March, 1885."—During the past month the weather has been excessively cold and dry, vegetation generally has in consequence made



very little progress and is still about three weeks behind. The thermometer fell below freezing point on nineteen nights; collectively, 82° of frost were registered for the month as against 26° for the corresponding month last year. The lowest readings occurred on the 9th, 23°, 14th, 25°, 22d, 25°, 23d, 21°, 28th, 26°. The highest morning readings were, on the 8th, 40°; 11th, 40°; 17th, 45°; 26th, 45°; 29th, 44°. The lowest day temperature was 39°, which occurred on the 9th; and the highest, 55°, on the 28th. Flowers of *Rhododendron Nobilaeum* were injured by frost on the 23d. Deciduous trees and shrubs are late in developing their leaves; Thorns, Poplar, and Lilac, which usually have their leaves more or less expanded by the end of March, had not a single leaf fully developed at that date this year. Willows and Elms are flowering most abundantly, and on walls, *Pyrus japonica*, *Ribes sanguineum* (single and double flowering), and *Forsythia viridissima* have not been so finely flowered for some years back. Magnolias, double-flowering Peach, and other plants on walls are well set with flower-buds. Spring flowering bulbs are vigorous, and flowering well, notwithstanding their lateness in opening; cold east winds are shortening their period of flowering considerably, which a few genial showers of rain would do much to prevent. The season has been most favourable for seed sowing, the ground being in splendid condition for that purpose. The extremely dry state of the ground causing a scarcity of worms is probably the reason why the various birds which abound in the Botanic Garden are so assiduously stripping the flowers of Crocuses and Primroses as soon as they expand in some portions of the garden. Formerly their depredations were mainly confined to newly sown seeds, Holly berries, and the like; as there are abundance both of seeds and berries, their preference for a floral diet seems all the more remarkable.

On the rock garden a large number of plants is now in flower. Sixty-five species came into bloom during March, exclusive of those which opened in the previous month, many of which are still flowering. Among the most interesting which opened in March were the following:—

<i>Chionodoxa Lucillie</i>	<i>Narcissus pumilus</i>
„ <i>sardensis</i>	<i>Puschkinia scilloides</i>
<i>Crocus nevadensis</i>	<i>Primula marginata</i>
<i>Corbularia ovalis</i>	„ <i>ciliata purpurata</i>
<i>Helleborus colchicus</i>	„ <i>Wulfeniana</i>
<i>Iris reticulata</i>	<i>Rhododendron præcox</i> , &c.
<i>Korolkowia Sewerzowii</i>	

Of the forty spring-flowering plants whose dates of flowering are annually recorded to the Society, the following seventeen came into flower, viz.:—

	1885.	1884.
<i>Scilla sibirica</i> .. .. .	March 1	Jan. 30
<i>Nordmannia cordifolia</i> .. .. .	„ 1	Feb. 15
<i>Rhododendron Nobilaeum</i> .. .. .	„ 5	„ 2
<i>Iris reticulata</i> .. .. .	„ 6	„ 18
<i>Mandragora officinalis</i> .. .. .	„ 7	„ 9
<i>Sisyrinchium grandiflorum album</i> .. .. .	„ 7	„ 12
<i>Aubrietia grandiflora</i> .. .. .	„ 8	„ 10
<i>Sisyrinchium grandiflorum</i> .. .. .	„ 9	„ 14
<i>Scilla bifolia</i> .. .. .	„ 10	„ 14
„ <i>alba</i> .. .. .	„ 12	„ 21
„ <i>taurica</i> .. .. .	„ 14	„ 24
<i>Narcissus pumilus</i> .. .. .	„ 15	„ 28
<i>Orobis verus</i> .. .. .	„ 15	„ 9
<i>Erythronium Dens-canis</i> .. .. .	„ 22	March 12
<i>Ribes sanguineum</i> .. .. .	„ 28	Feb. 20
<i>Draba aizoides</i> .. .. .	„ 30	„ 12
<i>Omphalodes verna</i> .. .. .	„ 31	„ 14

“Report on temperature, vegetation, &c., in the garden of the Royal Botanic Institution of Glasgow, for March, 1885.”—The thermometer has been at, or below, the freezing point twenty-one times during the month; the remaining night readings also being low. The lowest was 22° during the night of the 22d. The mean day temperature has also been low for the month, with cold and variable winds. The weather has been mostly dry, and favourable for working heavy soils; but the frequent frosts have prevented seed sowing to any great extent. Most trees and shrubs have a backward look. The leaf-buds of Lilacs are ready to burst, but the only shrub in actual leaf and bloom is the common *Ribes sanguineum*. Some forms of *Salix* and *Ulmus* are in bloom. Several herbaceous plants, which may frequently be seen in bloom here in February, such as *Pulmonaria officinalis* and *azurea*, *Helleborus viridis*, and some of the early *Scillas*, are not yet developed. Owing partly to the absence of severe frosts, and partly to the drier weather that has prevailed during the dormant season, the latter class of plants have suffered much less than is usual here.

#### MASSACHUSETTS HORTICULTURAL.

Boston: *March 19 and 20.*—The annual Azalea and Rose show, the first exhibition for the current season, was held in the Society's upper hall, and was, considering the state of the weather, remarkably successful, it being very cold for this time of the year, and plants could be brought only with the greatest trouble and care in packing; but, notwithstanding, it was the best exhibition the Society has ever made. The Orchids occupied one end of the large hall, and were backed by groups of Palms and Ferns, and the display is said to have surpassed anything ever shown in this city or any other one in this country.

F. L. Ames was the largest contributor, and he showed some very curious and interesting plants, among which we noticed *Phalaenopsis Brymeriana* (one of the only two plants in this country), *P. Stuartiana*, *P. Schilleriana*, *Laelia anceps*, *Masdevallia triangularis*, *Coelogyne cristata*, *Cymbidium eburneum*, *Cattleya amethystoglossa*, *Dendrochilum glumaceum*, *Ada aurantiaca*, *Schomburgkia crispata*, *Cypripedium Harrisianum*, *Dendrobium Ainsworthii*, *Odontoglossum Pescatorei*, &c.; and Mr. H. H. Hunnewell exhibited a large collection, including *Phalaenopsis grandiflora*, *P. Schilleriana*, *Lycaste Skinneri*, *Odontoglossum Rossii*, *O. Insleyi*, *Coelogyne cristata*, *Dendrobium nobile*, *D. Ainsworthii*, *rosea*, *Cymbidium Lowianum*, and *Calanthe nivalis*. Mr. E. W. Gilmore showed *Masdevallia tovarensis*, *Dendrobium chrysotoxinum*, *Laelia harpophylla*, *Odontoglossum Rossii majus* and *O. Roezlii*. Mr. David Allan, gr. to Mr. R. M. Pratt, filled a large table with Orchids and other flowers.

President Moore took the 1st prize for twenty-four cut blooms H.P. Roses, seven named varieties. He was also awarded 1st prize in the class for six cut blooms; also 1st prize for a single cut bloom H.P. Mr. Jackson Dawson, of the Arnold Arboretum, showed H.P. Roses on the Japanese stock, and took the 1st prize for three plants; also 1st prize for single plant. He also exhibited *Kalmia latifolia*, and a large collection of hybrid *Primulas* (English). Mr. James Cromley, gr. to Mrs. F. B. Hayes, filled a stand with fine Roses and greenhouse plants, among which we noticed *Rhododendron Veitchianum levigatum*, which formed the centre of the group. In the classes of tender Roses, twelve Bon Silene, Mr. S. Niel took the 1st prize. Twelve of Catherine Mermet—the 1st prize went to Mr. C. M. Hovey. Twelve *Cornelia Cook*—Messrs. Dclay & Meade took the 1st prize, and also the 1st prize for twelve *Souvenir de la Malmaison*, and twelve *Niphetos*. Hon. M. P. Wilder and Mr. A. W. Blake were the principal exhibitors of Azaleas, Mr. Wilder filling a platform with fine large old specimens. Mr. Blake contributed a collection of young plants of the newest varieties, among which we noticed *Duchesse de Jernan Nunez*, *La Flambeau*, and *Amœna Caldwellii*. Mrs. F. B. Hayes filled a table with *Camellias* of many varieties. Mr. W. A. Manda, gr., Harvard Botanic Gardens, contributed a collection of plants, including *Lilium tenuifolium*, *L. pulchellum*, *Trillium grandiflorum*, *Aquilegia glandulosa*, *Primula Sieboldii*, *Vertheimia glauca*, *Doronicum caucasicum*, and *Mesembryanthemum acinaciforme*, also *Dendrobium Pierardi*. In the centre of the hall there was a platform running the length of the hall, with an elevated centre devoted mainly to spring flowering bulbs. All the newest varieties of *Hyacinths*, *Tulips*, *Narcissus*, *Jonquils*, *Crocuses*, *Anemone coronaria*, and *Lilies of the Valley*, were shown in large numbers. Among the *Narcissus*, Sir Watkin is a new variety, shown here for the first time. The Tenby *Daffodil* is also quite new here, and the *Narcissus Pocius ornatus* attracted its share of attention. Mr. J. L. Gardner took the 1st prize for specimen greenhouse plant with *Imantophyllum miniatum*. There were also large collections of *Cyclamens* and *Cinerarias* from different contributors.

Mrs. P. D. Richards, West Medford, Mass., contributed a collection of Mosses, all carefully named, which were to many the most interesting collection in the hall.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, APRIL 15, 1885.

MONTH AND DAY.	BAROMETR.		TEMPERATURE OF THE AIR.				HYGROMETRICAL DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 48 Years.	Highest.	Lowest.	Range.	Mean for Day.	Departure from Average of 48 Years.	Dew Point.	Degree of Humidity.	
April	In.	In.	°	°	°	°	°	°		In.
9	29.41	-0.33	43.5	38.9	4.6	40.9	-4.7	34.2	88	N.N.W. 0.03
10	29.38	-0.36	44.0	37.3	6.7	40.2	-5.5	38.0	92	S.S.W. 0.03
11	29.51	-0.23	52.1	35.0	17.1	41.6	-4.2	38.2	89	N.E. 0.00
12	29.65	-0.14	55.0	37.6	17.4	44.6	-1.3	37.6	76	N.E. 0.00
13	29.74	-0.05	54.9	37.0	17.9	43.0	-3.1	38.4	83	E.N.E. 0.00
14	29.71	-0.03	51.7	35.0	16.7	42.5	-3.8	35.8	77	E.N.E. 0.00
15	29.65	-0.10	54.0	36.0	18.0	43.0	-2.0	33.5	67	E. 1.00
Mean	29.57	-0.17	50.8	36.7	14.1	42.3	-3.6	36.5	82	E.N.E. 0.05

- April 9.—Dull day and night.  
10.—Slight rain in early morning. Dull day and night.  
11.—Dull day and night.  
12.—Dull day. Fine night.  
13.—Dull day and night.  
14.—Dull morning; fine afternoon.  
15.—Dull day and night.

LONDON: *Atmospheric Pressure.*—During the week ending April 11, the reading of the barometer

at the level of the sea decreased from 29.91 inches at the beginning of the week to 29.25 inches by 5 P.M. on the 6th, increased to 29.59 inches by 5 P.M. on the 8th, decreased to 29.56 inches by 9 A.M. on the 9th, increased to 29.63 inches by 5 P.M. on the same day, decreased to 29.55 inches by 9 A.M., and increased to 29.57 inches by 1 P.M. on the 10th, and was 29.73 inches by the end of the week.

The mean reading of the barometer for the week was 29.55 inches, being 0.52 inch lower than last week, and 0.37 inch below the average of the week.

*Temperature.*—The highest temperature in the shade in the week was 55°.2, on the 7th; the highest on the 9th was 43°.5. The mean of the seven high day temperatures was 50°.1.

The lowest temperature was 30°.2, on the 5th; on the 9th the lowest temperature was 38°.9. The mean of the seven low night temperatures was 45°.7.

The greatest range of temperature in one day was 23°.3, on the 5th; the smallest was 4°.6, on the 9th. The mean of the seven daily ranges was 14°.4.

The mean temperatures were—on the 5th, 40°.9; on the 6th, 44°.7; on the 7th, 41°.9; on the 8th, 40°.4; on the 9th, 40°.9; on the 10th, 40°.2; on the 11th, 41°.6; and these were all below by 4°, 0°.3, 3°.3, 5°, 4°.7, 5°.5, and 4°.2 respectively.

The mean temperature of the week was 41°.5, being 1°.3 lower than last week, and 3°.9 below the average of the week.

The reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 114°, on the 5th. The mean of the seven readings was 84°.7.

*Rain.*—Rain fell on two days to the amount of 0.17 inch.

ENGLAND: *Temperature.*—During the week ending April 11, the highest temperatures were 55°.2, at Blackheath, 54°.7 at Cambridge, 53° at Brighton; the highest at Sunderland and Newcastle was 40°, at Hull 47°. The general mean was 50°.2.

The lowest temperatures were 23° at Cambridge, 25° at Wolverhampton and Hull; the lowest at Liverpool was 36°.1, at Sunderland 32°, at Plymouth, Preston and Newcastle 31°. The general mean was 29°.

The greatest ranges were 31°.7 at Cambridge, 26°.5 at Bristol and Wolverhampton; the smallest ranges were 12°.9 at Liverpool, 14° at Sunderland, 15° at Newcastle. The general mean was 21°.2.

The mean of the seven high day temperatures was highest at Blackheath, 50°.1, at Truro 50°, at Plymouth 49°.1; and was lowest at Sunderland, 44°.2, at Newcastle 44°.5, at Hull 44°.7. The general mean was 47°.1.

The mean of the seven low night temperatures was highest at Liverpool, 38°.5, at Sunderland 37°.8, at Leeds 37°.4; and was lowest at Wolverhampton, 33°.3, at Bolton 34°.1, at Cambridge 34°.6. The general mean was 33°.9.

The mean daily range was greatest at Blackheath, 14°.4, at Cambridge 14°.2, at Truro 14°; and was least at Sunderland, 6°.4, at Bradford 8°.6, at Leeds 8°.7. The general mean was 11°.2.

The mean temperature was highest at Truro, 41°.6, at Blackheath 41°.5, at Plymouth 41°.2; and was lowest at Hull, 38°.6, at Bolton and Newcastle 38°.7. The general mean was 41°.2.

*Rain.*—The largest falls were 1.06 inch at Bradford, 0.96 inch at Sheffield, 0.82 inch at Sunderland; the smallest falls were 0.17 inch at Blackheath, 0.28 inch at Nottingham and Preston. The general mean fall was 0.55 inch.

SCOTLAND: *Temperature.*—During the week ending April 11, the highest temperature was 54°.4, at Edinburgh; at Aberdeen and Leith the highest was 49°. The general mean was 51°.1.

The lowest temperature in the week was 27°, at Glasgow; at Leith the lowest temperature was 33°. The general mean was 31°.5.

The mean temperature was highest at Paisley, 42°.5; and lowest at Leith, 40°.6. The general mean was 41°.4.

*Rain.*—The largest fall was 1.08 inch, at Edinburgh; the smallest fall was 0.20 inch, at Greenock. The general mean fall was 0.57 inch.

JAMES GLAISHER, F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United



Kingdom, for agricultural and sanitary purposes, for the week ending Monday, April 13, 1885; issued by the Meteorological Office, 116, Victoria Street, London, S.W.:—The weather has been generally fair or fine in the extreme west and north-west, but unusually dull and gloomy for the season in most other parts of the kingdom, with occasional falls of cold rain.

The temperature has continued below the mean in all districts, the deficit varying from 1° to 3° in Scotland, and between 4° and 5° over England and Ireland. The maxima, which were recorded on the 12th or 13th, ranged from 48° in "England, N.E.," and 49° in "Scotland, E.," to 55° in "England, S.," and "England, S.W." The minima, which were registered on different dates in the various districts, ranged from 26° in "Ireland, N.," to 33° in "England, N.W.," and 39° in the "Channel Islands."

The rainfall has been more than the mean in "Scotland, E.," "England, N.E.," and "England, E.," but considerably less elsewhere.

Bright sunshine shows an increase in "Scotland, N.," but a decrease in all other districts. In "England, N.E.," only 2 per cent. of the possible amount of duration was recorded; in the "Midland Counties," 67, and in most other parts of England between 10 per cent. and 16 per cent.; in "Scotland, W.," however, 33 per cent. was registered; in "Ireland, S.," and the Channel Islands, 35 per cent., and in "Scotland, N.," as much as 53 per cent.

Depressions observed.—As the period commenced, the barometer was highest over Scandinavia, while a depression lay over the Bay of Biscay, the winds in our islands consequently being moderate or fresh from the eastward. On the following day this disturbance had disappeared, but another was approaching the North Sea from the Netherlands. This depression, after reaching the southern part of the North Sea, and remaining almost stationary, finally developed into a large trough of relatively low readings stretching from the South of England to North Germany and Russia. As this disturbance appeared the winds over the United Kingdom backed to the northward, and on our east coasts, and blew strongly, but subsequently became light or moderate, and generally north-easterly or easterly.

NOTICE TO QUIT SERVICE: X. In England, when the service was entered into without any particular agreement, the law construes the hiring to be for a year; and in Scotland the yearly hirings fix the term. A quarter's notice must be given in the first-named country prior to the expiration of the term.

POPLAR: B. The Canada Poplar is *Populus monilifera*; the Black Poplar *P. nigra*. Neither is native to this country.

RHODODENDRON COUNTESS OF DERBY: G. L. This beautiful variety, and many others of the same type, are the offspring of a cross between R. Edgeworthii and R. multiflorum, which latter variety sprung from intercrossing R. virgatum, Hook., with R. ciliatum, Hook.

SELECT FRUITS: L. G.—Six kitchen Apples: Hawthorned, Keswick Codlin, Worcester Pearmain, Gravenstein, Warner's King, Lane's Prince Albert. Six dessert Apples: Early Harvest, Red Astrachan, Golden Reinette, Cox's Orange Pippin, Adam's Pearmain. Claygate Pearmain. Six early Pears: Citron des Carmes, Jargonelle, Clapp's Favourite, Bon Chrétien (Williams), Beurré Superfin, Beurré d'Amanlis. Six late Pears: Marie Louise, Van Mons, Glou Morcean, Beurré d'Arenberg, Marie Benoist, Easter Beurré. Three Pine-apples: The Queen, Charlotte Rothschild, Smooth Cayenne. Six black Grapes: Black Hamburg, Espérance, Alnwick Seedling, Alicante, Lady Downe's, Madresfield Court. Six white Grapes: White Muscat of Alexandria, Chasselas Musqué or St. Albans, White Frontignan, Buckland Sweetwater, Foster's White Seedling, Royal Muscadine. Four Strawberries: Amy Robsart, Keens' Seedling, Pioneer, Loxford Hall Seedling. Four Gooseberries: Champagne Red, Early Green Hairy, Bright Venus, Warrington Red. Two red Currants: Red Dutch and Houghton Castle. Two white Currants: White Dutch and Blanc de Versailles. Four Plums: Green Gage, Reine Claude de Bay, Jefferson, Denyer's Victoria. Two Apricots: Rivers' New Large Early and Moor Park. Six Peaches and Nectarines: Royal George, Barrington, Dymon. Peaches: Balgowan, Elruge, Pine-apple. Four Cherries: May Duke, Late Duke, Black Tartarian, Monstreuse de Metz.

COMMUNICATIONS RECEIVED.—W. M.—Ely (next week)—C. M. Owen, J. H. Jamaica, E. H. Krelage, Fredrick Fitch, W. J. P., R. J., Leo Grindon, J. T. B.—M. M.—J. M. L.—H. W.—J. S.—F. W. B.—J. Veitch & Sons.—T. O'E.—T. Sander.—R. M.—T. T. W.—A. T.—De B. C.—W. Smythe.—J. R.—J. F.—R. B. W.—J. L.—W. H.—L. G.—W. J. P.—Sir George Macleay.—M. O.

## Markets.

COVENT GARDEN, April 16.

OUR market is very dull, and business in an unsettled state. James Webber, Wholesale Apple Market.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Apples, ½-sieve	1	6-5	Lemons, per case	12	0-18
— Nova Scotia and			Pine-apples, Eog. lb.	1	0-2
Canadian, barrel	10	0-21	— St. Michael, each	4	0-8
Cobs, per 100 lb.	50	0-55	Strawberries, per lb.	4	0-6
Grapes, per lb.	5	0-10			

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Globe,			Lettuces, Cab., doz.	1	6-—
per doz.	4	0-6	— French Cos, each	0	6-—
Asparagus, English,			Mint, green, bunch.	0	9-1
per bundle	3	6-10	Mushrooms, p. basket.	1	0-1
— French, bundle	4	0-8	Oignons, per bushel.	4	0-—
— Peripignan, nat.,			— Spring, per bun.	0	6-—
per bundle	2	0-—	Parsley, per bunch.	0	6-—
Beans, Eog., per 100	2	0-—	Pears, per lb.	1	0-—
Beet, per doz.	1	0-2	Potatoes, oew, per lb.	0	6-—
Cabbages, per doz.	1	6-0	Radishes, per doz.	1	0-2
Carrots, per bun.	0	6-—	Rhubarb, bundle	0	6-—
Cauliflowers, Eog.			Salsify, per bunch.	1	0-—
— lish, dozen.	2	0-4	Seakale, per punnet	2	0-2
Celeriac, per root	0	4-—	Small salading, per		
Celery, per bundle	1	6-2	punnet	0	4-—
Cucumbers, each	0	9-1	Spinach, per bushel	3	6-—
Eodive, per dozen	2	0-—	Tomatoes, per lb.	2	0-2
Garlic, per lb.	0	6-—	Turnips, bun.	0	5-—
Herbs, per bunch	0	2-4	— new, per bunch	1	3-—
Horse Radish, bun.	3	0-4			

POTATOS.—All markets 5s. to 10s. per ton lower, with a bad trade.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Abutilon, 12 bunches	2	0-4	Marguerites, 12 bun.	3	0-6
Anemone, 12 bunch.	1	6-4	Mignoelette, 12 bun.	3	0-9
Arum Lilies, 12 blms.	3	0-6	Narcissus, Paper-		
Azalea, 12 sprays	0	6-1	white, 12 sprays	0	9-1
Bouvardias, per bun.	1	0-1	— French, 12 bun.	6	0-10
Camellias, per doz.	1	0-4	Pelargoniums, per 12		
Carnations, 12 blms.	1	0-3	— sprays	0	9-1
Cinerarias, per bun.	0	6-1	— scarlet, 12 sprays	0	6-9
Cyclamen, 12 blooms	3	0-6	Primroses, 12 bunch.	4	0-9
Eucharis, per doz.	4	0-6	— double, 12 bun.	1	0-2
Euphorbia jacquini-			Primula, double, bun.	0	9-1
flora, 12 sprays	3	0-6	Roses (indoor), doz.	1	0-4
Gardenias, 12 blms.	2	0-4	— coloured, doz.	2	0-6
Heliotropes, 12 sp.	0	6-1	— French, per doz.	0	6-9
Hyacinths, Roman,			Spiraea, 12 bunches.	6	0-12
12 large bunches	12	0-24	Stephanotis, 12 spr.	4	0-6
— mixed, per box.	1	6-3	Tropaeolum, 12 bun.	1	0-2
Jonquills, 12 bunches	2	0-6	Tulips, 12 blooms	0	6-9
Lapageria, white, 12			Violets, 12 bun.	0	4-9
blooms	2	0-3	— Parne, French,		
— red, 12			per bunch	3	0-5
blooms	1	0-2	Wallflower, 12 bun.	2	0-4
Lily-of-Val., 12 sprays	0	9-1	White Jasmine, bun.	0	6-1

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d.	s. d.		s. d.	s. d.
Aralia Sieboldi, doz.	6	0-24	Ferns, 10 variety, per		
Arbor-vitæ (golden),			dozen	4	0-18
per dozen	6	0-18	Ficus elastica, each	1	6-7
— (common), dozen	6	0-12	Foliage Plants, vari-		
Arum Lilies, dozen	0	15-0	ous, each	2	0-10
Azaleas, per dozen	18	0-42	Genista, 12 pots	9	0-18
— Gent., per doz	18	0-24	Hyacinths, per doz.	6	0-9
Begonias, per doz.	6	0-12	Lily-of-the-Valley, 12		
Bouvardia, dozen	9	0-18	pots	12	0-18
Ciclerarias, per doz.	9	0-12	Marguerite Daisy,		
Cyclamens, per doz.	9	0-24	per dozen	8	0-15
Cyperus, per dozen	4	0-12	Myrtles, per doz.	6	0-12
Dracaena terminalis,			Narcissus, 12 pots	12	0-18
per dozen	30	0-60	Palm in variety,		
— viridis, per doz.	12	0-24	each	2	6-21
Erica, various, doz.	9	0-18	Pelargoniums, per		
— Cavendishii, per			dozen	15	0-24
dozen	30	0-48	Primula sinensis, per		
— ventricosa, doz.	36	0-60	dozen	4	0-6
Kuonyin, 10 var., doz.	6	0-18	Spiraea, per dozen	9	0-18
Evergreens, in var.,			Tulips, dozen pots	6	0-9
per dozen	6	0-24			

## SEEDS.

LONDON: April 15.—Messrs. John Shaw & Sons, of 37, Mark Lane, report that a fairly active demand for Clover and other seeds still continues. As regards values there is no important change to be noted. Prices all round remain extremely moderate, and holders appear quite indifferent whether they clear out what little stock they have still on hand or keep some over. More money is asked for blue Peas. Haricot Beans are also in better demand. There is no variation in the prices of spring Tares; sowing orders come in freely. Mustard and Rape seed are steady. In feeding Linseed the tendency is upwards. Canary, Hemp seed, and Millet are firm.

## CORN.

At Mark Lane on Monday the market was slightly dearer than on Friday's close, and on the week quoted 4s. dearer for both English and foreign Wheat, and 3s. per sack on flour. Barley was quoted 1s. 6d. to 2s. above Wednesday last; Maize showed a rise of 1s. 6d.; Oats were 3d. to 6d. dearer than quoted on Friday last, making the rise 2s. Since this day fortnight Beans and Peas show a rise of 1s. to 2s., and Lentils 1s.—On Wednesday a somewhat calmer feeling with regard to political affairs checked the excitement in the grain trade. Business opened with a very quiet tone, and the market became weaker during the day. At Monday's advance there were no buyers of Wheat or flour, and to have made sales at least 6d. less must have been accepted for Wheat. In the absence of business in Barley, Beans, and Peas, off stands rates nominally unaltered, but the tendency was against the seller. For Oats the market closed without improvement upon Monday's prices. Maize was steady in value, without activity.—Average prices of corn for the week ending April 11:—Wheat, 33s. 3d.; Barley, 31s. 2d.; Oats, 20s. 11d. For the corresponding period last year:—Wheat, 37s. 9d.; Barley, 31s. 4d.; Oats, 19s. 11d.

## CATTLE.

At Copenhagen Fields on Monday the cattle trade opened about steady and finished slowly, prices where any change was apparent, being rather in favour of the buyers. A heavy supply of sheep and lambs met a dull market. Prices opened easier, and finished worse for the former; but for the latter rates were fairly steady. There was a bad trade for calves, and the pig trade nominal from absence of supply. Quotations:—Beasts, 3s. 8d. to 4s. 6d., and 4s. 8d. to 5s. 4d.; calves, 3s. 8d. to 5s. 8d.; sheep, 4s. 8d. to 5s. 2d., and 5s. 2d. to 5s. 8d.; lambs, 7s. 6d. to 8s.; pigs, 4s. to 4s. 6d.—On Thursday trade was quiet, the unfavourable weather telling against the demand. Both beasts and sheep sold slowly, and were weak in value. Lambs were neglected, and calves were lower to sell.

## HAY.

Tuesday's Whitechapel market report states that supplies were very short, with an advance in the top prices for Clover and hay. Quotations:—Clover, prime, 85s. to 110s.; prime second cut, 85s. to 110s.; inferior, 46s. to 75s.; hay, prime, 76s. to 100s.; inferior, 46s. to 75s.; and straw, 22s. to 35s. per load.—Cumber and Market quotations:—Clover, best, 90s. to 105s.; inferior, 60s. to 84s.; hay, best, 84s. to 95s.; inferior, 45s. to 75s. and straw, 30s. to 34s. per load.

## POTATOS.

The Borough Market report informs us that supplies are fully adequate to demand, which is dull. Quotations:—Scotch Regents, 80s. to 95s.; Kent ditto, 70s. to 90s.; Champions, 40s. to 50s.; Magnum Bonums, 50s. to 80s.; and Victorias, 60s. to 90s. per ton. The imports into London last week consisted of 573 bags from Hamburg, 439 Bremen, and 43 boxes from Lisbon.

Government Stock.—Consols closed on Monday at 95 to 95½ for both delivery and the account. Tuesday's figures were 94½ to 95 for both transactions. The final figures recorded on Wednesday were 95½ to 95½ for both delivery and the account. Consols closed on Thursday at 95½ to 95½ for both transactions.

## Answers to Correspondents.

BOILER CRACKING, &c.: G. H. The metal at the points mentioned may have been very thin, and thus has corroded through in four years. You will find your boilers remain in better condition full of water than empty during the time they are out of use; and for ordinary use cast-iron is far to be preferred to wrought. For the office a flow and return pipe of 4-inch size will be ample, if it run along the two longer sides of the room.

BOOK, "MUSHROOMS FOR THE MILLION": Mushroom. This useful work, by Mr. J. Wright, is published at the office of the *Journal of Horticulture*, 171, Fleet Street, E.C., price 6d.

CORRIGENDA: ROYAL CALEDONIAN HORTICULTURAL SHOW.—In the report of this show, forwarded to us, an error has crept in, with reference to the awards made to Messrs. Ireland & Thomson and Messrs. R. B. Laird & Sons, the first-named firm not gaining all the first prizes in the six classes in which it exhibited, but, namely, five firsts and one second, the latter for new and rare plants, the first prize in this class falling to R. B. Laird & Sons.

CURIOUS FORM OF CATTLEYA TRIANÆ: R. B. W. Thanks for specimen, which was forwarded to Prof. Reichenbach as requested.

DISEASED CAMELLIA LEAVES: Waterside. We can find no fungus on the leaves.

DISEASED PALM: K. W. The spots may be due to a fungus, but it is in too immature a condition to be determined.

FIXTURES: RIGHT OF LEASEHOLD TENANT TO REMOVE: C. Taylor. No, if they stand on brick walls, and are attached by bolts or nails to these; or if they are of brick, and standing in the ground. Utensils used in trade, fixed in such buildings, may be removed. In cases of this kind it is always the best policy to consult a solicitor.

MASDEVALLIAS: P. W. We are not able to point out the difference between the alleged varieties. All seem to be forms of *M. chimæra*.

NAMES OF PLANTS: L. C. We cannot undertake to name detached leaves only.—*A. Subscriber*. Juniperus communis.—*F. W. B.* *Eria ferruginea*, probably.—*S. Young*. *Allium neapolitanum*.—*H. B.* Both varieties of *Lycaste Harrisoniae*.—*W. B. C.* *Dendrobium crepidatum*.—*A. J. Hemmerle*. *Oncidium O'Brienianum*.—*Hon. Mrs. E. V. Boyle*. 1 and 2, *Narcissus Telemonius plenius*; 3, *N. moschatius*; 4, *Spurius*.



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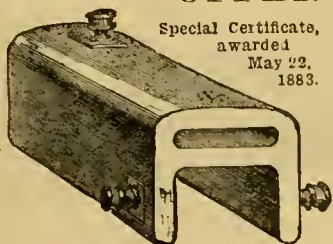
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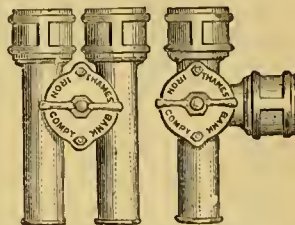
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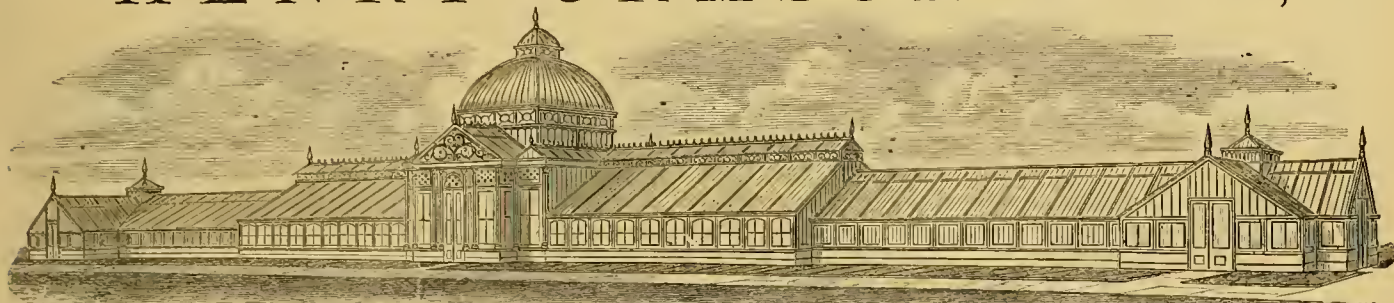
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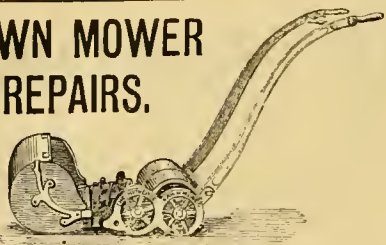
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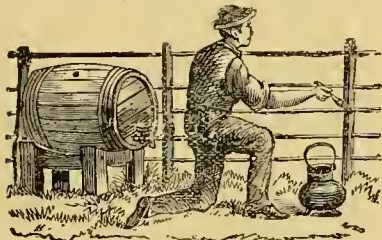
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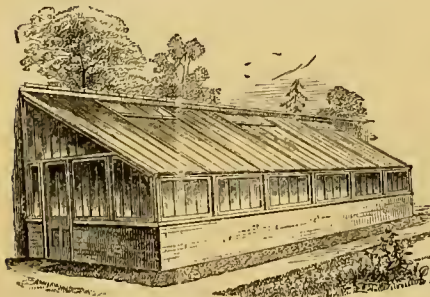
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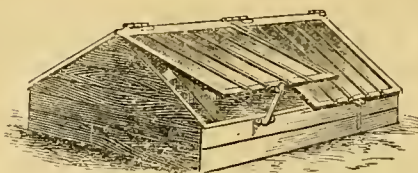
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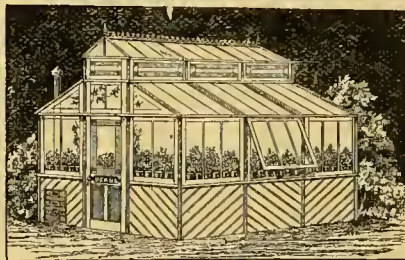
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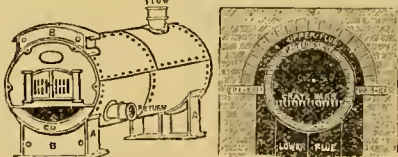
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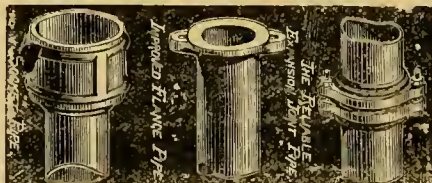
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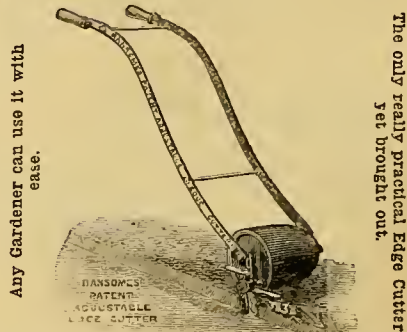


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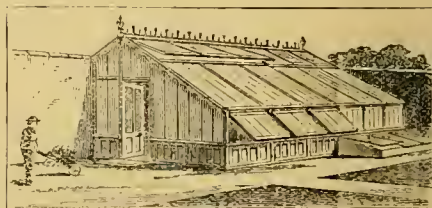
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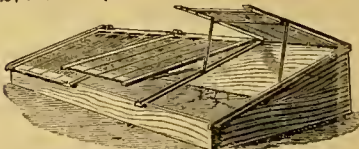
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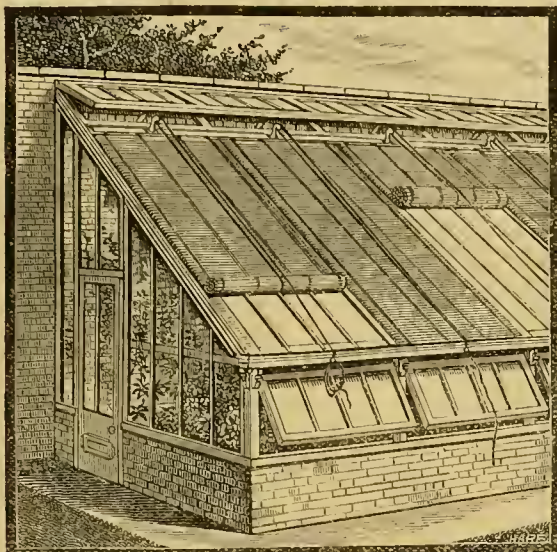
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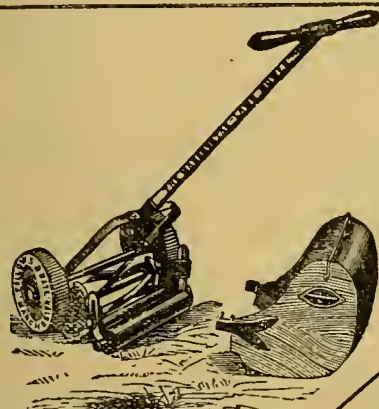
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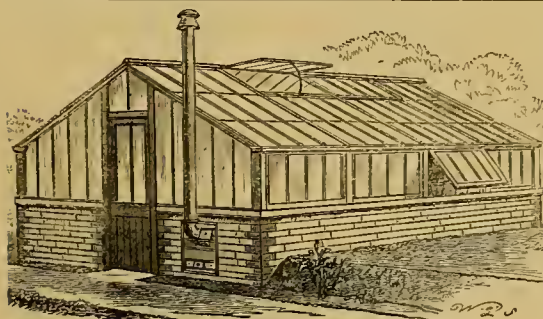
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**B. S. WILLIAMS** begs to intimate that he has at present in the Nursery and upon his Register some excellent Men, competent either to fill the situation of HEAD GARDENER, BAILIFF, FOREMAN, or JOURNEYMAN. Ladies and Gentlemen requiring any of the above will please send full particulars, when the best selections for the different capacities will be made.—Holloway, N.

**RICHARD SMITH and CO.** beg to announce that they are constantly receiving applications from Gardeners seeking situation, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nurseries, Worcester.

**SCOTCH GARDENERS.**—JOHN DOWNIE, Seedsman, 144, Princes Street, Edinburgh, has at present on his list a number of SCOTCH GARDENERS, waiting re-engagements, at wages ranging from £50 to £100 per annum, and he will be pleased to supply full particulars to any Nobleman or Gentleman requiring a trustworthy and competent Gardener.

**Journeyman and Foreman, Scotch.** JOHN DOWNIE, SEEDSMAN, 144, Princes Street, Edinburgh, has at present on his Books a number of first-rate Young Men who wish to go to England.—Particulars on application.

**TO LANDED PROPRIETORS, &c.—A.** MCINTYRE (late of Victoria Park) is now at liberty to undertake Formation and Planting of New Garden and Park Grounds, and Remodelling existing Gardens. Plans prepared. 115, Listria Park, Stamford Hill, N.

**GARDENER (HEAD).**—Age 37, married; thoroughly practical. Over twenty years' experience. First-class references.—HORTUS, 4, Norman Villas, Elm Road, Kingstoo-oo-Thames.

**GARDENER (HEAD).**—Understands Early and Late Forcing of Flowers, Fruits, and Vegetables. Fourteen years' character from late employer.—L. L'ANSON, Foxley, Hereford.

**GARDENER (HEAD).**—Age 35, single; thoroughly practical, active, and industrious. Character will bear the strictest investigation.—GARDENER, Coleridge Cottage, Clevedon, Somerset.

**GARDENER (HEAD).**—Age 26; ten years' experience in good places. Has lived nearly three years as Foreman in present place. Good personal character. House preferred.—A., 6, Goodyear Place, Addington Square, Camberwell, S.E.

**GARDENER (HEAD); age 31.**—The HEAD GARDENER, Avington Park, Winchester, can with confidence recommend his Foreman, who has been with him eight years, to any Lady or Gentleman requiring a thorough practical, energetic, and trustworthy Gardener.—Address as above.

**GARDENER (HEAD); age 29.**—A ALDERMAN, Head Gardener, Elm Court, Mitcham, can highly recommend his Foreman, James Wadham, to any Lady or Gentleman requiring the services of a competent, trustworthy man to General Routine of Gardening. Four years in present situation.

**GARDENER (HEAD).**—The advertiser begs to offer his services to any Lady, Nobleman, or Gentleman, requiring a man as above. Has had sound practical experience in all branches of Gardening. Particularly good references as to character and abilities.—FOREMAN, The Gardens, Wadhurst Park, Sussex.

**GARDENER (HEAD); age 37, married, one child (age 5).**—Mr. TILLYARD, Gardener to the Earl of Yarborough, Brocklesby Park, Ulceby, Lincolnshire, can with the utmost confidence recommend a thoroughly practical man, a high-class Fruit Grower, &c., and one fully competent to manage a large place. In last situation eight years as Head Gardener. Highest references from present employer.

**GARDENER (HEAD)** to any Lady, Nobleman, or Gentleman, requiring the services of a thoroughly efficient Gardener. Has had the entire Management of a Large Place, which he has conducted in a satisfactory manner for fifteen years, now leaving through the place being let. Character will bear the strictest investigation.—W. WASLEY, Radburn Hall, Derby.

**GARDENER (HEAD).**—Age 49, married; thoroughly practical in the General Routine of Gardening; experienced in the Cultivation of Stove and Greenhouse Plants, also Early and Late Forcing, and Flower and Kitchen Gardening. Six years' good character. Abstainer.—JAMES CHESHIRE, Francis James, Esq., Edgeworth Manor, Cirencester, Gloucestershire.

**GARDENER (HEAD).**—A. F. SKINNER is open for an engagement to any Lady, Nobleman, or Gentleman requiring a skillful Gardener. He has acquired practical experience in some of the first gardens in England, viz., at Sir J. Kenneway, Bart., M.P., Bloxholm Hall, and with his present employer, C. F. H. Boleck, Esq., for the last six years as General Foreman.—For practical information apply to the HEAD GARDENER, Marston Hall, Middleborough.

**GARDENER (HEAD); married.**—W. SWAN, for the past twelve years Gardener to W. Leech, Esq., is open to engage with any Nobleman or Gentleman requiring a thoroughly practical man. Thorough knowledge of the culture of Orchids, Stove and Greenhouse Plants, Flower and Kitchen Gardening, Laying out of Grounds, and Erection of Horticultural Buildings. Total abstainer. First-class references and character.—W. SWAN, Oakley, Fallowfield, Manchester.



**GARDENER (HEAD).**—Mr. P. C. HARDWICKE wishes to highly recommend his late Head Gardener, who lived fifteen years at Hollands, Tonbridge, to any one requiring a thoroughly practical man.—P. C. HARDWICKE, Esq., 2, Hereford Gardens, Park Lane, W.

**GARDENER (HEAD);** age 26, married, one child.—C. WILLIAMS, Gardener to J. Pulley, Esq., M.P., Lower Eaton, near Hereford, can with every confidence, recommend to any Lady or Gentleman a thoroughly practical Working Gardener, whose character will bear the strictest investigation.

**GARDENER (HEAD WORKING).**—Age 40, three children (youngest, five years old). Twenty years' experience.—WM. CLARKE, (late) P. Cazenove, Esq., Clapham Common, S.W.

**GARDENER (HEAD WORKING).**—Age 29, married when suited; thoroughly practical in all branches. Can be well recommended from present and previous employers.—J. MOSS, The Gardens, Eywood, Tutley, Herefordshire.

**GARDENER (HEAD WORKING);** single; Scotch.—E. M. BROWELL, Esq., highly recommends the Advertiser as a practical trustworthy man in all branches of the profession. Two years' highest reference.—J. CAMPBELL, Feltham, Middlesex.

**GARDENER (HEAD WORKING).**—Age 36, married; twenty-four years' experience in all branches. Well up in Orchids and Stove Plants. Two and a half years' good character, personal if required.—GARDENER, Woodlands, Nightingale Lane, Balham, S.W.

**GARDENER (HEAD WORKING);** age 36.—G. F. LUTTRELL, Esq., Dunster Castle, wishes to recommend his Head Gardener to any Gentleman requiring a thorough good Gardener.—HEAD GARDENER, Dunster Castle Gardens, Dunster, Somerset.

**GARDENER (HEAD WORKING).**—Age 41, married, no family; practical experience in growing Fruit and Flowers under Glass, Kitchen and Flower Garden. Abstainer. Fourteen months' present, five and a half, seven, and nine years' previous situations.—E. CAUSH, The Lodge, Penarroz, Croydon.

**GARDENER (HEAD WORKING).**—Age 29, married; thoroughly experienced in Orchids, Stove and Greenhouse Plants, Fruit Growing, Indoors and Out; also Management of Pleasure Grounds and Kitchen Garden.—W. WATKINS, The Gardens, Shrubland Park, Needham Market, Suffolk.

**GARDENER (HEAD WORKING),** where more are kept.—Married, no encumbrance. Twenty years' practical experience in Forcing Grapes, Peaches, Strawberries, Melons, Cucumbers, Stove and Greenhouse Plants. Thorough Flower and Kitchen Gardener. Excellent character.—D. N., 17, Sutton Road, Watford.

**GARDENER (HEAD WORKING).**—Age 33, married, one child; total abstainer twenty years. Thoroughly understands Vines, Melons, Cucumbers, and General Forcing, together with Stove, Greenhouse, and Conservatory; great experience in Bedding and Forcing Spring Flowers, and a thorough Kitchen Gardener. Leaving through estate changes. Ten years' excellent character and testimonials from previous employers.—A. GERARD, Dyrham Park, near Chippenham, Wilts.

**GARDENER (HEAD),** or **GENERAL MANAGER.**—Thoroughly efficient; upwards of twenty-five years' good character. Highest references.—J. S., 10, Hudson's Road, Kingston-on-Thames.

**GARDENER (HEAD, or good SINGLE-HANDED).**—Age 30, married, one child; good practical experience in all branches; good references.—J. D., 9, South Terrace, Ditherington, Shrewsbury.

**GARDENER (HEAD, or good SINGLE-HANDED).**—Age 25, single; twelve years' experience in all branches. Highest references.—HEAD GARDENER, Elmwood, Bickley, Kent.

**GARDENER (HEAD, or SECOND),** in a good establishment.—Married; thoroughly practical in all branches of the profession. Can have a thorough recommendation.—W. MASKELL, 35, Barrowell Road, Brixton, S.W.

**GARDENER (HEAD),** or good **FOREMAN.**—Age 27; thirteen years' practical experience in the general routine of Gardening. First-class certificates from present and previous places.—C. BREEZE, The Gardens, Caversham Park, Reading.

**GARDENER (HEAD),** or good **FOREMAN.**—Age 26; eleven years' practical experience, three years' previous as Foreman. Highest testimonials as to character and abilities.—H. GILBERT, Gardens, Chalfont Park, Slough.

To Noblemen and Gentlemen.

**GARDENER and BAILIFF, or GARDENER (HEAD WORKING).**—Age 44, married, no small family; thoroughly practical in all branches, Forcing of all kinds of Fruits, Flowers and Vegetables (Early and Late), Management of Land and Stock, Laying-out Grounds, &c. Eleven and a half years' good character.—E. A. H., 8, Violet Cottages, Gladstone Road, Maidstone, Kent.

**GARDENER.**—Thoroughly experienced; highly recommended.—A. B., Ranelagh Nursery, Leamington.

**GARDENER.**—Age 25, single; understands Vines and Kitchen Gardening; good experience with Vines and Glass Work. Good character.—E. KING, Purbrook, near Cosham, Hants.

**GARDENER.**—Married, small family; Vines, Cucumbers, Melons, Stove and Greenhouse Plants, Flower and Kitchen Garden, Home Farm (if required). Wife Dairy or Laundry. Twelve years' good character from last place.—C., 17, Ashburnham Terrace, Gipsy Hill, S.E.

**GARDENER (OUTDOOR or SINGLE-HANDED).**—Age 26, single; two and a half years' good character. Understands Cattle.—F. BATCHELOR, Hoxington, Shipston-on-Stour.

**GARDENER (SINGLE-HANDED),** or where help is given.—A. SELLS, Mereworth Castle Gardens, Maidstone (age 27), can be highly recommended to any Lady or Gentleman requiring the services of a steady hard-working man as above.

**GARDENER (SECOND, or SINGLE-HANDED).**—Age 23; nine years' experience; four and a half years in last place, and ten months in present; leaving through family going away.—B. BRACEY, Herringfleet Hall, Lowestoft.

**GARDENER (SINGLE-HANDED or Otherwise).**—Age 25, married; excellent character from present and previous situations.—E. F., 1, Rosslyn Villa, Granville Road, Tunbridge Wells.

**GARDENER (SINGLE-HANDED, or SECOND).**—Age 27; good practical experience. Three years' good character. Abstainer.—A. EMPSON, Greenford Green, near Harrow, Middlesex.

**GARDENER (SECOND).**—Three years' good character from present situation.—Please apply, stating full particulars, to S. LARGE, The Gardens, Lullington Hall, near Burton-on-Trent, Derbyshire.

**GARDENER (UNDER)** partly under Glass preferred.—Age 19; five years' good experience.—E. POTTER, The Gardens, Priory House, New Southgate.

**GARDENER (UNDER).**—Age 22; four years' experience Indoors and Out.—A. BIRCH, 150, Wellfield Road, Streatham, S.W.

**GARDENER (UNDER)** where three or four are kept.—Age 29; understands Vines, Peaches, Ferns, &c. Five years' character.—J. YOUNG, Bodicote House, near Banbury, Oxon.

**GARDENER (UNDER).**—Age 21; understands both Flower and Kitchen Gardening, with a knowledge of the Houses.—J. H. COLEMAN, Poulton Priory, Fairford, Gloucestershire.

**GARDENER (UNDER).**—Age 24; single; thoroughly understands both Flower and Kitchen Gardening, with a Knowledge of the Houses. Six and a half years' experience. Excellent character.—D. A., 1, Trelawn Road, Leyton, Essex.

**GARDENER (UNDER)** in a situation where he would have experience in Conservatory, Stove, &c., as well as in Outside Work; age nearly 18.—A GENTLEMAN wishes to recommend an intelligent and thoroughly steady young man as above.—JAMES WARDSON, A. H. Heywood, Esq., Ellerray, Windermere.

**ORCHID GROWER, or FOREMAN** in a good establishment (where Orchids are grown preferred).—Age 24; ten years' experience in good establishments. Highly recommended by present and previous employers. Abstainer. W. M., W. Pyman, Florist, Maldon, Essex.

**FOREMAN.**—Age 25; nine years' experience. Two years in present situation. Can be highly recommended.—W. HARDING, Ford's Farm, Bolney, Hayward's Heath, Sussex.

**FOREMAN.**—Age 25; thorough hard-working, where produce clears expenses. Thoroughly recommended from present and previous employers.—G. L., Houghton House, High Road, Tottenham, London.

**FOREMAN, where three or more are kept.**—Age 23; two years' good character from present employer. Abstainer.—C. B., 10, Mansfield Road, George Lane, Wanstead, Essex.

**FOREMAN, where three or four are kept;** age 23.—A GARDENER wishes to recommend his young man, with confidence, as above. Can give two years' good character. Abstainer.—Mr. STANDING, The Gardens, Snarebrook House, Wanstead, Essex.

**FOREMAN; age 27.**—Mr. STAGG, Gardener to P. Rawson, Esq., Woodhurst, Crawley, Sussex, would be pleased to recommend his Foreman, who has lived with him six years, to any one requiring a thorough trustworthy, energetic man. Eleven years' experience.

**FOREMAN, in a Gentleman's establishment.**—Age 25, single; twelve years' good experience in all branches of the profession. Seven years' good character from last situation.—D. J., W. Cole, Grove Vineyard, Feltham, Middlesex.

**FOREMAN, in the Houses.**—HENRY PARR, The Gardens, Givon's Grove, Leatherhead, would be pleased to recommend James Sheppard to any Gardener: a thoroughly trustworthy man. Has been Journeyman in the gardens here three years.—Address as above.

To Nurserymen.

**FOREMAN (GENERAL),** under Glass.—Age 42; thoroughly practical man; twenty years' extensive practice as above with leading London and Country firms.—W. E., 7, Mill Street, Altrincham, Cheshire.

To the Trade.

**FOREMAN and GROWER.**—Nineteen years' practical experience in Growing first-class Plants, Cut Flowers, &c.; well up in Bouquets, Wreaths, &c.; good Salesman. Disengaged end of April.—GEORGE PESTRIDGE, Hertingfordbury Road, Hertford, Herts.

**FOREMAN, in the Houses, or good SINGLE-HANDED.**—Age 25; highly recommended by present and previous employers.—J. ODELL, Witley, Godalming, Surrey.

**FOREMAN, or SECOND, in a Gentleman's garden.**—Age 27; good experience.—B. W., Elmwood, Saffron Walden, Essex.

**FOREMAN, or SECOND, in a good establishment.**—Age 24; good practical experience in all branches. Good character.—W. R., The Gardens, Hookfield Park, Epsom, Surrey.

**FOREMAN (or good SECOND)** in a large establishment.—Age 25; nine years' experience in Indoor and Outdoor Work. First-class character.—T. VAGG, The Gardens, Balls Park, Hertford.

**FOREMAN, or good SECOND, in a Gentleman's establishment.**—Age 23; nine years' experience in Fruit, Plants, and Gardening generally. Good references.—C. SNOW, Caversham Park, Reading.

To Florists, Nurserymen, &c.

**PROPAGATOR and GROWER** of all kinds of Plants for Market, Choice Cut Flowers, Grapes, Cucumbers, Tomatoes, &c.—Age 30, married; fifteen years' practical experience. Good references.—R. T., 1, Rose Cottage, Banstead Road, Caterham, Surrey.

**JOURNEYMAN (FIRST), in the Houses.**—Good testimonials from previous and present situations. Bothy preferred.—J. LUNN, Dorrington Manor, Lincoln.

**JOURNEYMAN.**—Age 20; seven years' experience Inside and Out. Nineteen months' good character.—B. DOWSON, The Gardens, Wood End, Chichester.

**JOURNEYMAN, in a Nursery or good Garden.**—Age 18; two years' experience under Glass.—C. J. R., 6, Laidler's Cottages, New Street, Hampton.

**JOURNEYMAN, in the Houses, in a good establishment.**—Age 21; bothy preferred. Five years' experience. Good character.—J. DEAN, Lower Eaton, Hereford.

**JOURNEYMAN, in Houses, in good establishment, or where Fruit and Flowers are grown for Market.**—Age 21; good experience. Good character. Abstainer.—J. FLETCHER, Harleyford Garden, Great Marlow, Bucks.

**JOURNEYMAN, or IMPROVER in the Houses.**—Age 20; three-and-a-half years' experience. Bothy preferred.—C. WILKINSON, Woolthorpe, Belvoir.

**IMPROVER in a Gentleman's Garden.**—Three years under Glass. Bothy preferred. Premium if required.—J. A., Bingham & Co., Broad Street, Bristol.

**IMPROVER, in a Gentleman's Garden;** age 17.—A. BROOKS, Gardener to W. S. Shorthridge, Esq., Albury Hall, Ware, Herts, will be pleased to recommend a youth as above. Five years' good character. Apply as above.

**TO SEEDSMEN and FLORISTS.**—Young man (age 27), well up in Plants, Ferns, and General Nursery Stuff. Been in the trade since leaving school. Unimpeachable references.—LOWDEN, 6 Duke Street, Blackfriars, S.E.

**TO HEAD GARDENERS.**—Wanted, by a Gentleman, a situation in some large private establishment where instruction could be gained in Gardening (both theoretical and practical) in all its branches, including Fruit Growing (Indoors and Out). Moderate Premium would be paid.—F., 10, Spring Gardens, Ventnor, Isle of Wight, Hants.

**TO NURSERYMEN or MARKET GROWERS.**—A young man (age 26) seeks employment under Glass. Well up in growing Cucumbers and Tomatoes. Two years' good character.—J. ELLIS, 50 Raymouth Road, Bermondsey, S.E.

**TO MARKET GARDENERS and NURSERYMEN.**—Youth (age 16) wants situation as Helper and to learn the Trade.—K. C. P., 31, Upper Bedford Place, London, W.C.

**TO NURSERYMEN and GENTLEMEN'S GARDENERS.**—A lad (age 17) seeks a situation in a Nursery or Gentlemen's Garden. Three years in Garden and Greenhouse.—W. STRONG, Littlehampton, Sussex.

**TO HEAD GARDENERS.**—W. B., Tout-mell Parva, Blandford, wishes to put a boy of 17 under a good Gardener as Improver. State terms.

**MANAGER.**—A person with some years' experience as Florist seeks an engagement to take Management of Business. Speaks German.—M. F., 36, Hart Street, Bloomsbury, W.C.

**CLERK, WAREHOUSEMAN, or SHOPMAN.**—Considerable experience. First-class reference.—A. B., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

**SHOPMAN, or SECOND.**—Age 24; nearly eleven years' experience in all branches. Good knowledge of Plants, also Book-keeping. Good references.—B. W., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

GRATEFUL-COMFORTING.

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"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame." *Civil Service Gazette*.

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JAMES EPPS & CO., Homoeopathic Chemists,

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**HOLLOWAY'S OINTMENT and PILLS.**—Diseases of Advanced Years.—The grand climacteric being passed, mankind passes to old age. Then the digestion becomes impaired, the nervous system grows feeble, and the physical powers become enervated. Now arise congestion of the liver, lungs, or head, followed by dropsy, asthma, or apoplexy, which frequently afflict and often destroy the aged. As the liver usually becomes torpid, its activity may speedily be revived by rubbing Holloway's Ointment thoroughly over the pit of the stomach and right side, at least twice a day, and taking the Pills at the same time. This treatment also disperses all other congestions by varying the parts rubbed, according to the situation of the mischief.



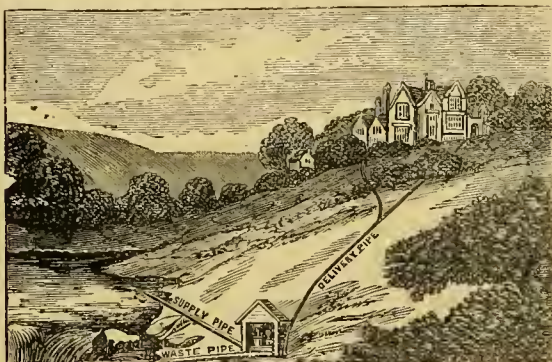
SEND FOR A PRICE LIST OF

JOHN BLAKE'S PATENT SELF-ACTING HYDRAULIC RAMS,For Raising Water for the Supply of Towns, Villages, Irrigation, Railway Stations,  
Mansions, Fountains, and Farms.*No Cost for Motive-Power, which is obtained from a Stream of Water passing through the Rams.*

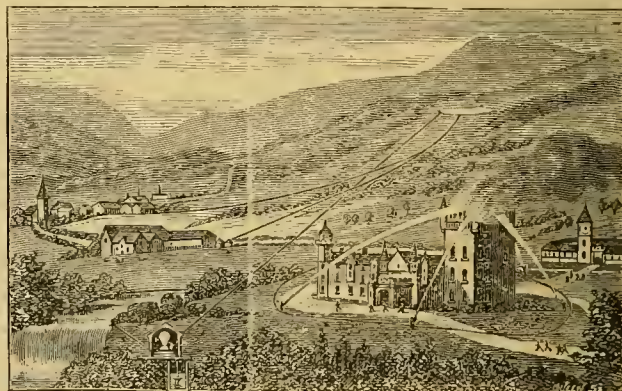
NO OILING OR PACKING REQUIRED.

Made in Sizes to Raise from 300 to 500,000 Gallons per day. Will Force to a Height of 1500 feet.

**\*\* ESTIMATES WILL BE GIVEN ON RECEIPT OF THE FOLLOWING PARTICULARS:**—First, the fall (in feet or inches), which can be obtained from the stream, spring, cistern, or other source of supply; Second, the height and distance to which the water has to be forced; Third, the approximate quantity falling per minute, and the number of gallons required to be raised in a day of 24 hours. Gun-metal is liberally used in the construction of these Rams, and the prices include gun-metal foot and stop delivery valve, &c. They are fitted up in a most substantial and workmanlike manner, the first cost being only a secondary consideration.



This view represents Fig. A. Ram forcing up a part of the same water that works it, which is supplied from a spring. Special Rams of A. make can be supplied to force to a height of 600 feet.



This View represents a Ram worked by impure river water, whilst pumping pure water from a well or spring, and forcing it to a reservoir on the hill, at an elevation of 295 feet, and a distance of one mile, from which reservoir the water is gravitated for fire extinguishing and general requirements of mansion, stables, farm, and village. Will force to a height of 1500 feet.

## TESTIMONIALS.

From Mr. J. A. RUTHERFORD, Agent to C. F. H. Bolckow, Esq., Estate Office, Marton Hall, Middlesborough September 26, 1883. "Dear Sir,—I am glad to say that the Rams you put down on the Hambleton Estate for Mr. C. F. H. Bolckow, are working very well. You undertook, with 16 gallons per minute, to send up 1500 gallons a day, and with enough water to work the Rams at full power, 2000 gallons a day. With a supply of 11½ gallons per minute they are lifting 2200 gallons, and when working full power, 3105 gallons per day are sent up to a height of nearly 400 feet. They made a clear start, and have gone well since." The Delivery Pipe, in the above case, is 900 feet in length.

From Mr. HENRY ROBINSON, Engineer to the Stockport District Waterworks Company, September 8, 1883. "Dear Sir,—I can now report well of the two Hydraulic Rams we have fixed to your structure for the supply of Disley Village. 40,000 gallons per day was the quantity you promised they would force to a height of 68 feet, but on testing them I am convinced that 53,000 gallons is not the limit of their power, whilst the quantity of waste water used in driving them is not equivalent to half the capacity of the 6-inch pipe by which they are fed, and I am inclined to the belief that a more simple and efficient pump cannot be found."

From J. SPENDER CLAV, Esq., Ford Manor, Lingfield, Surrey, August 9, 1880.—"In reply to your letter of enquiry, I am glad to be able to say that the two Hydraulic Rams which you fixed here are working satisfactorily, and that out of 13 gallons 3 quarts per minute, the maximum yield of the spring, they deliver to the top of my house, distant a full mile from the spring, 4 gallons 1 quart per minute, or 6120 gallons per 24 hours, being 120 gallons above the quantity you guaranteed."

From J. R. SHAW, Esq., Arrowe Park, Cheshire, August 31, 1883.—"I have much pleasure in testifying to the excellence of the two Rams you fixed here. One forces 7000 gallons per day of turbid water, and the other 4000 gallons per day of spring water, through more than 1000 yards of delivery pipe, to an elevation of 110 feet, and the working of the Rams is as satisfactory as the workmanship is creditable."

From Sir ROBERT MENZIES, Bart., of Menzies, Rannoch Lodge, Rannoch, August 20, 1880.—"The Hydraulic Ram which you fixed for me to supply water to Rannoch Lodge and Camesurich, two houses three-quarters of a mile apart, is a complete success. The extreme distance the water is carried is a mile and a quarter, and it is raised fully 100 feet, and though the elevations of the two houses are different, there is a regular supply of 7 quarts per minute to each house, which has never ceased since the Ram was set going about three months ago. Your Ram took the place of one previously tried on the same spot, and which did not succeed, and was in fact a complete failure."

From T. H. SIDEBOTTOM, Esq., Etherow House, Hadfield, February 22, 1882.—"Induced by the good report of my cousin, Mr. J. A. Sidebottom, as to the working of the Hydraulic Ram he had from you, I ordered the one you fixed here a year ago, which I am pleased to say has since worked well night and day. Yet the two Rams you fixed at Snow's Hill Manor Gloucestershire, for my brothers and myself, &c., I think, a still more remarkable example of your success. We had a Ram fixed by a well-known firm, which proved a miserable failure, and which your Rams displaced. They are forcing the water through three-quarters of a mile of delivery pipe, a little in excess of the quantity you guaranteed, to an elevation of 340 feet, and without the slightest hitch to the time of the last report from our tenant."

From the Right Honourable the EARL of GRANARD, Castle Forbes, March 1, 1880.—"The Hydraulic Ram erected for me at Castle Forbes has answered perfectly. Considering the very small fall obtainable by the nature of the ground, it is a great success, and throws up water to a cistern on the top of a tower 80 feet high. When Mr. Blake first proposed to put it up I doubted the possibility of its succeeding, owing to the nature of the ground, but I have been most agreeably undeceived.—GRANARD."

From the Right Hon. the EARL of ROMNEY, 56, Eaton Place, S.W., June 12, 1880.—"Sir,—In reply to your inquiry, I have pleasure in stating that the Hydraulic Ram which you erected for me at Gayton does its work remarkably well, and is a great success. I think the work is especially creditable to you on account of the very small fall of but 3 feet with which you had to deal, and I shall always be glad to recommend you.—Yours faithfully, ROMNEY."

From Captain GANDY, Castle Bank, Appleby, February 11, 1883.—"The self-acting Hydraulic Ram you erected for me is an excellent example of strength and good workmanship. Whilst working with 3 feet 4 inches fall it forces water 73 feet high, and so far gives me every satisfaction. It will do more work in one day than the old Ram of another make could do in a week."

From Mr. WILLIAM LAIT, Architect and County Surveyor, Compton Verney, Warwick, January 16, 1882.—"I have very much pleasure in stating that the Patent Hydraulic Ram I had from you for the Rev. J. Cardwell Gardener, of the Vicarage, Butler's Morstan, and which you fixed there is, I consider, remarkably successful as indicated below:—4200 gallons of water per day are passing through the Ram with a descent of 13 feet 8 inches. Out of this small quantity 1080 gallons are sent up to a height of 44 feet, showing 78 per cent. of useful effect, and the noise of it working is so slight as to be almost inaudible."

From V. F. BENNETT-STANFORD, Esq., M.P., Pyrl House, Tisbury, Wilts. August 20, 1880.—"I have no hesitation in saying your Self-acting Hydraulic Ram and apparatus for extinguishing fire, which you laid down here, including about one mile of pipes, are very satisfactory. The Ram forces upwards of 2000 gallons per day to a service-reservoir holding 25,000 gallons, at an elevation of 20 feet, being 70 feet above the roof of the house, from which reservoir the water is distributed to the house, stables, home farm, and several cottages; and in case of fire four jets can be thrown on the house from different sides at a great force and large volume. I consider your work has been done well and efficiently, and does you credit."

From JOHN ROWE BENNION, Esq., Nursted House, Petersfield, August 25, 1883.—"I have much pleasure in saying that the two Hydraulic Rams you put down for me, and which are supplied from a spring, now yielding in this dry season only three gallons per minute, are sending up an ample supply of water to my house and the home farm, distributing the supply through more than 2000 feet of pipes, and to an elevation of 137 feet. Of this result I think you have as much reason to be proud as I have to be satisfied."

From Captain TOWNSHEND, Wincham February 10, 1877.—"In answer to your inquiry, I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 930 yards long at the rate of 83,000 gallons per day, although you only promised 57,000."

JOHN BLAKE, ENGINEER, ACCRINGTON, LANCASHIRE.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & CO., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, April 18, 1885.

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# THE GARDENERS' CHRONICLE.

Established 1841.

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{ SERIES. }

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## CLAY CROSS HORTICULTURAL SOCIETY.

TWENTY-EIGHTH ANNUAL SHOW, AUGUST 11.  
Amount offered in Prizes, £290. Schedules ready shortly.

J. STOLLARD, Secretary,

Clay Cross, near Chesterfield.

## ABERDARE HORTICULTURAL SOCIETY AND COTTAGERS' SHOW.

The ANNUAL FLOWER, FRUIT, and VEGETABLE  
SHOW will be held on THURSDAY, August 13 next.  
President: Right Hon. Lord ASHBROOK. For Schedule of  
Prizes and full particulars, apply, on or after May 9, to

D. DAVIES, } Hon. Secs.  
C. KENSHOLE, }

Aberdare, April 2, 1885.

## SHROPSHIRE HORTICULTURAL SOCIETY.

The GREAT SUMMER SHOW will be held at Shrews-  
bury, WEDNESDAY and THURSDAY, August 19 and 20.  
TWENTY PLANTS, in variety, £25, £20, & 15s.

Schedules free on application to

ADNITT AND NAUNTON, Hon. Secs., Shrewsbury.

## WEST KENT CHRYSANTHEMUM SOCIETY, 1885.

The EIGHTH ANNUAL SHOW will be held at the  
Public Hall, Bexley Heath, on NOVEMBER 10 and 11. A  
45 s. Cup or Cash is offered for Forty-eight Blooms. For  
Schedule and further particulars apply to

SAML. C. WILSON, Hon. Sec.,

Coverdale House, Bexley Heath.

## EIGHTY THOUSAND CLEMATIS in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.

RICHARD SMITH AND CO., Nurserymen and Seed  
Merchants, Worcester.

## FIVE THOUSAND PELARGONIUMS.

Must be sold. Clean, large bushy stuff, to flower early.  
Established in 48-pots, including all the best named varieties,  
as Dr. Masters, Duchess of Bedford, Bridal Bouquet, Kingston  
Beauty, &c., 7s. 6d. per dozen for cash. Also ditto in 60's, ready  
for 48-pots, at 4s. per dozen for cash.

Address, MANAGER, The Hill Nurseries, Sandiacre, Notts.

## SPRING CLEARANCE SALE, to avoid plaiting.

LILUM AURATUM, SINGLE DAHLIAS, IRIS,  
GLADIOLI, BEGONIAS, and many other Bulbs, with  
some choice Seeds, at greatly reduced rates. Send for our  
Special Clearance LIST, No. 73.

NEW PLANT AND BULB COMPANY,

Llao Walk, Colchester.

## EUCHARIS AMAZONICA,

EUCHARIS SANDERII.  
EUCHARIS CANDIDA.

All the above are most useful for supplying Cut Flowers.  
Price per dozen or hundred on application to  
Mr. WILLIAM BULL, Establishment for New and Rare  
Plants, 539, King's Road, Chelsea, London, S.W.

## Hyacinthus candicans.

BUDDENBORG BROS., BULB GROWERS,  
Hillegom, near Haarlem, Holland,  
offer the above, splendid white flowering bulb, at 50s. per 1000.

CARNATIONS.—Strong Seedlings, from a  
splendid Collection of Choice Named Flowers. All to  
bloom this year. Per dozen, 2s. 6d.; per 100, 15s.

DANIELS BROS., Town Close Nurseries, Norwich.

## HERBACEOUS and ALPINE PLANTS.—

Now is the season to plant and insure success. Write  
for R. H. VERTEGANS' Pocket CATALOGUE, and make  
your choice from his unrivalled Collection.

Chad Valley Nurseries, Edgastoo, Birmingham.

## DAFFODILS.—To Amateurs, Collectors,

Bulb Merchants, Gardeners, and Others.—Several  
thousand Bulbs of *Pallidus præcox*, the beautiful Sulphur-  
coloured Trumpet Daffodil, for Sale. Also Hybrids from the  
Pyrenees. For terms, &c., apply to  
Madame M. ROCK, Maison Ecart, Rue Bon-Air, Biarritz,  
France.

CREEPERS for Walls, Trellises, &c., in  
great variety. By planting what is suitable, an unsightly  
object may easily be made beautiful. Descriptive LIST and  
advice on application.

RICHARD SMITH AND CO., Nurserymen and Seed  
Merchants, Worcester.

## LAING'S BEGONIA SEED.—GOLD

MEDAL STRAIN, from our Prize Plants. Sealed packets,  
CHOICE MIXED, from single varieties, 1s. and 2s. 6d. per  
packet; 5s. extra large packets. We regret to say we are sold  
out of Seed of Double varieties. COLLECTIONS, 12 named  
varieties, separate, 7s. 6d.; ditto, 6 named varieties, separate,  
4s.

LAING AND CO., Seedsmen, Forest Hill, S.E.

## Now Ready.

TEA and NOISETTE ROSES, of best sorts  
only, in great quantity, and of best possible quality.  
Prices on application. Priced CATALOGUES shortly.

EWING AND CO., Sea View Nurseries, Havant, Hants  
(late of Eaton, near Norwich).

## COCOS WEDDELLIANA, store pots,

20s. per 100.

PANDANUS UTILIS, store pots, 8s. per 100.

This healthy stuff may be had from

J. VANDER SWAELMEN, Lily Nursery, Ghent, Belgium.

## GARDENIA INTERMEDIA (true), small

established Plants, some well-set with flower-buds, twelve  
for 6s. Parcel Post free.

GARDENER, Holly Lodge, Stamford Hill, N.

## GERANIUMS and FUCHSIAS, Surplus

Stock (best sorts), strong, well-rooted Plants, 2s. per  
dozen. Package and Parcel Post free.

GARDENER, Holly Lodge, Stamford Hill, N.

## GLADIOLI, PYRETHRUMS, and

DAHLIAS, the largest collections in Europe. CAT-  
ALOGUES gratis.—KELWAY AND SON, Laogport, Somerset.

## To the Trade.

MANGEL WURZEL and TURNIP SEEDS.

H AND F. SHARPE'S Wholesale Priced

LIST of the above-named Seeds is now ready, and  
may be had on application. It comprises all the very finest  
varieties of 1884 growth.

Seed Growing Establishment, Wisbech.

## SHALLOTS for Sale, English. A reasonable

offer not refused.

R. TURNER, Earlswood Road, Redhill, Surrey.

## ASPARAGUS.—A large quantity to offer, of

very fine transplanted stuff, 2-yrs. and 3-yrs., 2s. 6d. and  
3s. per 100, 20s. and 25s. per 1000. Also 2-yrs. from drills, 10s.  
per 1000. All packages free on rail.

S. BIDE, Alma Nursery, Farnham, Surrey.

## ASPARAGUS.—True Giant, 2, 3, and 4-yrs.

Five sample 100 or 1000, with price, on application.

JAMES BIRD, Nurseryman, Dowham.

## SQUELCH AND BARNHAM,

Long Market, Covent Garden, London, W.C., REQUIRE  
a quantity of fine Muscats, for which they can offer good prices,  
also fine Black Grapes, Tomatoes, Cucumbers, choice Flowers, &c.

## SQUELCH AND BARNHAM,

giving personal attention to all consignments, they are  
thus enabled to obtain the HIGHEST MARKET PRICE.

## SQUELCH AND BARNHAM.

ACCOUNT SALES sent daily, and

CHEQUES forwarded weekly.

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BASKETS and LABELS supplied.

## WISE AND RIDES, Covent Garden, W.C.,

are open to RECEIVE CONSIGNMENTS of  
Choice CUT FLOWERS, CUCUMBERS, TOMATOS,  
FRENCH BEANS, Gros Colmar and Alicante GRAPES.

## SUTTON'S PRIZE LAWN GRASS

SEEDS. DIPLOME D'HONNEUR, AMSTERDAM, 1883.

## SUTTON'S PRIZE LAWN GRASS

SEEDS. Special Gold Medal, Melbourne, 1880.

## SUTTON'S PRIZE LAWN GRASS

SEEDS. Prize Medal, Paris, 1878.

## SUTTON'S GRASS SEEDS for GARDEN

LAWNS. Per bushel, 25s.; per gallon, 3s. 3d.

## SUTTON'S GRASS SEEDS for TENNIS

LAWNS. Per bushel, 22s. 6d.; per gallon, 3s.

## SUTTON'S GRASS SEEDS for CRICKET

GROUNDS. Per bushel, 22s. 6d.; per gallon, 3s.

## SUTTON'S PAMPHLET ON LAWNS,

their Formation and Improvement, gratis and post-free.

## SUTTON AND SONS, SEEDSMEN, by Royal

Warrant, to H.M. the Queen, and H.R.H. the Prince

of Wales, Reading.

## PELARGONIUMS.—10,000 fine, healthy,

bushy plants, in 5-inch pots, leading market varieties,  
50s. and 75s. per 100; in bloom, 45s. per 100. Cash with order  
or reference from unknown correspondents.

Messrs. TURNER BROS., Nurserymen and Florists, Green  
Hill Nursery, Allerton, Liverpool.

## Gardenias.—Gardenias.

JOHN STANDISH AND CO. have to offer

a splendid lot of GARDENIA PLANTS, clean, bushy,  
and well set, at the undermentioned prices for Cash with  
order:—In 5-inch pots, 18s. per dozen; in 6-inch pots, 27s. per  
dozen; in 8-inch pots, 40s. per dozen.

Royal Nurseries, Ascot.

## Plants for the Season.

CHARLES TURNER'S Descriptive  
CATALOGUE, containing some fine novelties as well as  
the choicest selections of established kinds, is now ready. The  
present is the best time to procure plants of Carnations, Picotees,  
Cloves, &c., to ensure a good bloom. Plants are unusually fine  
this season. The Royal Nurseries, Slough.

## BARR'S THAMES EMBANKMENT

GRASS SEED, as supplied by us to the London  
Embankments and Parks. 21s. per bushel.

## BARR'S LAWN GRASS MIXTURE, for

Improving Old Lawns, Laying Down New ones, Croquet  
Grounds and Bowling Greens. Per lb. 1s. 4d., 25s. per bushel

## BARR'S NEW MIXTURE OF DWARF

GROWING GRASSES for very fine Lawns. 1s. 8d. lb.

## BARR'S GRASS MIXTURES contain

NO CLOVER.

## BARR AND SON

King Street, Covent Garden, W.C.

## Grape Vines for Sale.

S. BIDE can offer some really good Plant-  
ing Canes of Gros Colmar, Lady Downe's, and Foster's  
Seedling, at 2s. 6d. each. Packages free for cash.

S. BIDE, Alma Nursery, Farnham, Surrey.

## SURPLUS STOCK.—Beautiful Specimens

of ORNAMENTAL and EVERGREEN TREES, in  
perfect condition for removal, at extraordinarily low prices.

Special LIST, just published, on application.

RICHARD SMITH AND CO., Nurserymen and Seed

Merchants, Worcester.

## JOHN LAING AND CO.

BEGONIA ROOTS.

Collections, unnamed, our selection.—Singles: G, 21s.; H,

18s.; J, 15s.; K, 12s.; L, 9s. per dozen. Doubles: W, 30s.;

X, 24s.; Z, 18s. per dozen. Singles, for Bedding, 4s. and 6s. per  
dozen—all free by Parcel Post. The immense demand has  
much reduced our valuable roots of named varieties for the  
present. Forest Hill, S.E.

## PALMS.—Specially hardy grown, for Cool

Greenhouses and Dwelling-houses. Latania borbonica and

Seafarhia elegans, splendidly foliaged, 20 inches high, 12s. per  
dozen; sample plants, 1s. 3d. Same kinds, 12 inches high, 25s.  
per 100; sample twelve for 4s. All packages and parcels post-  
free. Postal Orders to

GARDENER, Holly Lodge, Stamford Hill London, N'

## GARDENIAS (Intermedia).—About 16 doz.

Must be sold at once, as the room is wanted. Price,  
Six Guineas, cash. Five dozen in 24 size pots, two dozen in 32's,  
seven dozen in 48's, and two dozen in 60's.

F. E. MEYERS, Windmill Road Nursery, Brentford,  
Middlesex.

## LOVEL'S STRAWBERRY

PLANTS.

Price 2s. 6d. per 100, 10s. per 500, 17s. 6d. per 1000.

Sample and Pamphlet, post-free, 4d.

W. LOVEL AND SON, Strawberry Growers, Driffield.

## Seed Potatoes.

H AND F. SHARPE have still in stock all

the leading kinds of SEED POTATOS, and are now

offering them at reduced prices to clear out.

Seed Growing Establishment, Wisbech.



## SALES BY AUCTION.

Tuesday Next.

SPECIAL SALE OF ORCHIDS IN FLOWER.

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, April 28, at half-past 12 o'clock precisely, 300 Lots of ORCHIDS in Flower, from some of the principal collections to the country; amongst them may be mentioned—

Vanda striata, Rehb. f.	Odontoglossum Wilckeanum
Dendrobium nobile pendulum (true)	" fine hybrid (triumphans form)
Cattleya Mendeli in variety	" Alexandrae fine varieties
Masdevallia conchiflora	" Pescatorei
Angulosa uniflora, very rare	" odoratum album

On view morning of Sale and Catalogues had.

Wednesday Next.—Established Orchids.

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY**, April 29, at half-past 12 o'clock precisely, a fine Collection of ESTABLISHED ORCHIDS, including many rare and choice kinds, amongst them the following:—

Cattleya labiata, the true autumn flowering variety	Leelia anceps Dawsoni
Aerides Emerei	Lycaste Skinneri alba
Vanda Cathartii	Ep dendrum rhizophorum
Cattleya Trianae alba	Dendrobium Berkeleyi
Calanthe Domini	Laeliopsis demingensis
Masdevallia Harryana acanthifolia	Aerides Houlettii
" " conchiflora	Vanilla aromatica
" " regalis	Vanda Parishii Marriotiana
Vanda Denisoniana	Oncidium sessile
Ep dendrum prismaticum	Odontoglossum navium
Cattleya nobilis	Masdevallia torta
Dendrobium Kingianum	Cypripedium Druryi
Cirrhoptatum picturatum	Calanthe pleiophroma
Dendrobium Schroderi	Cattleya Regnellii
	Cynochilus chlorochilon
	Cymbidium devonianum

Also an importation of ORCHIDS from Burnham, such as Aerides Lobbi, Saccolabium curvifolium, Dendrobium infundibulum, D. Fytcheanum, and some hundreds of Calanthes (useful for winter blooming), probably a new one among them, as Collector writes they are in three varieties.

On view the morning of Sale, and Catalogues had.

Thursday Next.

CARNATIONS, PICOTEES, and PLANTS.

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **THURSDAY NEXT**, April 30, at half-past 12 o'clock precisely, 100 lots of choice named CARNATIONS and PICOTEES from the celebrated collection of Mr. Charles Turner, Slough; an assortment of GREENHOUSE FERNS and PALMS, FICUS, AZALEAS, &c.; PINKS, CLOVES, a box of SEEDS and BULBS from the Cape; and a variety of HARDY PLANTS and BULBS for the Garden; and 3000 tuberous-rooted BEGONIAS from Belgium.

On view morning of Sale, and Catalogues had.

Friday Next.

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, May 1, at half-past 12 o'clock precisely, by order of Mr. F. Sander, very fine importation of CATTLEYA TRIANA, CYPRIPEIDIUM ARGUS, C. HAYNALDIANUM, and many other popular ORCHIDS. Also from an amateur a small but fine importation of the true ONCIDIUM SARCOES, similar to those sold by Messrs. Protheroe & Morris on December 19 last; and a few ESTABLISHED ORCHIDS, together with a collection of new and rare DISAS in fine condition, SATYRIUMS, &c., from South-east Africa.

On view morning of Sale, and Catalogues had.

Fulham, S.W.

Adjoining the Fulham Union Grounds, and close to the Hammersmith Station.

VALUABLE BUILDING ESTATE.

In the High Court of Justice, Chancery Division.—*Re* the General Horticultural Company (John Wills) Limited.

**MR. GEORGE FIELD MORRIS** (of the firm of Protheroe & Morris), the person appointed by the Hon. Mr. Justice Chitty, the Judge, whose Court the matter is attached, will sell by AUCTION, at the Mart, Tokenhouse Yard, E.C., on **THURSDAY**, May 7, at 2 o'clock precisely, in one lot, the valuable LONG LEASEHOLD ESTATE, known as Wills' Nursery, Fulham Palace Road, S.W., which possesses the important frontage of 138 feet, and contains an area of 1 acre 2 rods 22 perches, together with the TWO LEASEHOLD DWELLINGS, Brick-built STABLES, GREENHOUSES, &c.; the whole forming a very attractive site for the erection of a School, Institution, Public Building, or first-class Residence, or for development into Plots. Held for a long term at a low ground-rent.

Particulars and Plan may be had at the Mart; of Messrs. BATTY AND WHITEHOUSE, Solicitors, 26, Charles Street, St. James' Square, S.W.; Mr. A. TOOVEY, Solicitor, 18, Orchard Street, W.; and by the Auctioneers and Surveyors, 67 and 68, Cheapside, E.C.

Feltham, Middlesex, adjoining the Station.  
GREAT UNRESERVED CLEARANCE SALE.

Important to the Trade and Market Growers

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION, on the Premises, The Royal Nursery, Feltham, on **WEDNESDAY** and **THURSDAY**, May 13 and 14, the whole of the valuable Stock in Trade, comprising 3000 PELARGONIUMS, 7000 ZONAL GERANIUMS, 7000 MARGUERITES, 10,000 FUCHSIAS, 5000 DAHLIAS, 2000 CYLAMEN, 10,000 Bedding GERANIUMS: the well-known and unique collection of White, Red, and Yellow CHRYSANTHEMUMS, comprising about 80,000 plants; large White AZALEAS, &c.; 200 casts FLOWER POTS; two HORSES, VAN, Vertical Steam BOILER, and PULSOMETER PUMP, raising 6000 gallons daily, and other Effects.

Further particulars will appear next week.

Orchid Conference Week.

SPECIAL SALE OF ORCHIDS IN FLOWER.

**MESSRS. PROTHEROE AND MORRIS** beg to announce that they purpose holding a special SALE OF ORCHIDS in flower at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on **THURSDAY**, May 14, the day following the Show.

Messrs. P. & M. will be glad to receive from intending Exhibitors an early intimation of their desire to include any Lots they may wish to dispose of.

Wednesday Next.—(Sale No. 6899.)

STOVE AND GREENHOUSE PLANTS.

**MR. J. C. STEVENS** will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT**, April 29, about 70 Lots of FERNS, PALMS, CROTONS, CAMELLIAS, and other STOVE and GREENHOUSE PLANTS in variety.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6899.)

Fifteen Cases of ORCHIDS, just received direct from Brazil, in splendid condition.

**MR. J. C. STEVENS** will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT**, April 29, at half-past 12 o'clock precisely, an importation of fifteen cases of ORCHIDS, just received from Brazil, in splendid condition, comprising some splendid masses of *Laelia purpurata*, and *Cattleya* species; also a consignment of *DENDROBIUM WARDIANUM*, *D. THYSIFLORUM*, *D. DEVONIANUM*, *PLEIONE* SPECIES, &c.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6899.)

5000 LILUM AURATUM from Japan, in fine condition; Tree FERNS in variety, from New Zealand; 40 lb. of CEDRUS DEODARA and other CONIFER SEEDS; 250 Hybrid CLEMATIS, Show CARNATIONS and PICOTEES, &c.

**MR. J. C. STEVENS** will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT**, April 29.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6900.)

ESTABLISHED ORCHIDS from a Celebrated Collection.

**MR. J. C. STEVENS** will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, April 30, a few choice ESTABLISHED ORCHIDS, from a celebrated Collection, comprising amongst other fine things, *Cypripedium Spicerianum*, with 8 breaks; *C. seligerium*, with 16 breaks; *C. barbatum grandiflorum* album, with 42 breaks; a splendid specimen of *Cattleya Trianae* alba, with 50 bulbs, two strong plants of *Cypripedium Leeanum*, with four leads, one of the best and newest of *Cypripedium* hybrids, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6900.)

VALUABLE IMPORTED ORCHIDS.

**MR. J. C. STEVENS** will sell by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on **THURSDAY NEXT**, April 30, at half-past 12 o'clock precisely, a fine importation of CATTLEYA MOSSII, also of DENDROBIUM HETEROCARPUM, and DENDROCHILUM SPECIES, and a fine lot of various MEXICAN ORCHIDS.

On view morning of Sale, and Catalogues had.

Caversham Park, Reading.

**MR. J. C. STEVENS** has received instructions from the Executors of the late Mrs. Crawshaw to sell by AUCTION, on the Premises, as above, on **MONDAY** and **TUESDAY**, May 4 and 5, at half-past 12 o'clock precisely each day, without reserve, the COLLECTION of STOVE and GREENHOUSE PLANTS, consisting of Crotons, Dracaenas, Marantas, Palms, Alocasias, Camellias, and Azaleas, Ferns, &c.; also 12,000 BEDDING PLANTS of all the best varieties; a small collection of ORCHIDS, including several nice plants of *Dendrobium nobile*, *Cypripedium insignis*, *C. venustum*, *C. barbatum*, *Cattleyas* of sorts, *Anthurium Scherzerianum*, and other species. A quantity of IMPLEMENTS, comprising three Rollers, Water-barrows, Cans, Tanks, Mowing Machines, Farm and Spring CARTS, together with a CARP HORSE, COB, &c.

On view the Saturday prior and mornings of Sale, and Catalogues had on the Premises, or of Mr. J. C. STEVENS, Horticultural Auctioneer, 38, King Street, Covent Garden, W.C.

The Collection of Orchids formed by A. D. Berrington, Esq., of Pant-y-Goitre, Abergavenny.

**MR. J. C. STEVENS** will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., **EARLY** in MAY, without the least reserve, the ENTIRE COLLECTION of ORCHIDS formed by A. D. Berrington, Esq., of Pant-y-Goitre, Abergavenny, including amongst others, *Angraecum sesquipedale*, with forty leaves; *Angulosa Ruckeri*, fine plant, with ten bulbs; *Cologyne tomentosa*, two plants; *Viscaria*, *Cattleya crispata*, very fine variety; five plants of the autumn-flowering *C. labiata*, two plants of *C. Lemoniana*, *Laelia anceps Dawsoni*, two good plants; *Odontoglossum Bluntii*, fine spotted form; *O. pulchellum*, &c.

Date of Sale will shortly be announced.

Flowering Orchids.

**MR. J. C. STEVENS** begs to announce that his NEXT SALE of FLOWERING ORCHIDS will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY**, May 14 (the day following the Orchid Conference at South Kensington). Gentlemen desirous of ENTERING PLANTS for this SALE will please send particulars of same not later than **THURSDAY**, May 7.

Thursday Next.

**MESSRS. P. BURN, SON, AND DOUGLAS** are favoured with instructions to sell by AUCTION at the Sale Rooms, 97, Bath Street, Glasgow, on **THURSDAY NEXT**, April 30, at 12 o'clock, a COLLECTION of ESTABLISHED ORCHIDS, STOVE and GREENHOUSE PLANTS, comprising about 350 lots, including about twenty *Ericas*, specimen and half do.; about thirty *Crotons*, specimen and half do.; one *Cycas revoluta* in 16-inch pot, 2 feet stem, sixty fronds, fine plant; a fine *Lagerflora* alba, in 18-inch pot; seven fine specimen *Gleichenia* Ferns, from 3 to 5 feet through.

See Catalogue for particulars, which will be sent post-free, and is now ready. Apply to the Auctioneer, 97, Bath Street, Glasgow.

**WANTED**, by a Gardener, with Small Capital, a FLORIST'S and JOBBING BUSINESS, in a good neighbourhood. Address, with particulars, J. HUGHES, Cookham Grove, Berks.

To Florists, Market Gardeners, and Others.

**TO LET**, at Fulham, 1½ Acre of GARDEN GROUND, with nine Glass Houses. Suitable for the business of a Florist or Seedsman.—For particulars apply to Messrs. ROSE and JOHNSON, Solicitors, 26, Great George Street Westminster, S.W.

**TO LET, a FLORIST and JOBBING BUSINESS**, 14 years' unexpired Lease; can have 21 years more on Lease if required. Leaving through sickness. Is situated in the County of Middlesex. Good opening for any one requiring a Florist's Business. Capital required, about £300. Apply, by letter, to G. T. Mr. Jacklio, Alma Villas, Twickenham.

**PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS**, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

To Landed Proprietors, &amp;c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELING existing GARDENS. Plans prepared. 115, Listria Park, Stamford Hill, N.

**A LARGE GERMAN FIRM**, producers of ALKALI MANURE, are desirous of establishing AGENCIES in the Agricultural Districts of England. For particulars apply to J. J. SAVILLE and CO., Sheffield.

**T. HARPAM, PRACTICAL ROCK BUILDER** and GENERAL HORTICULTURAL DECORATOR for Caves, Waterfalls, Fountains, &c., 107, Church Street, Edgware Road, London, W.

**JOHN KENNARD'S HORTICULTURAL SUPPLIES**, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

BEDFORDSHIRE CHAMPION ONION.

—A few pounds left, at 3s. 6d. per pound. Splendid Stock. To clear. Cash. JOHN ETHERINGTON DIXON, Seedsman, Gainsborough.

**CARNATIONS, PICOTEES, CLOVES, PINKS, PANSIES**, in the very best varieties, strong, vigorous plants. Special Trade Quotations. **SAMUEL HARTLEY**, Headingley Nursery, Leeds.

FOR SALE, Double White PRIMULA.

Large store pots, from eight to ten crowns in a pot, from 24s. to 30s. per dozen. Apply. W. MILES, West Brighton Nurseries, Hove, Sussex.

**VERBENAS**, in fine variety—White, Scarlet, Blue, Pink, Mauve, Crimson, &c.—healthy, well rooted cuttings, 1s. per dozen, 6s. per 100, 50s. per 1000, free for cash. **KIRK ALLEN**, The Nursery, Fen Drayton, St. Ives, Hunts.

**CAMELLIAS**—A Choice Private Collection for Sale. Fine healthy Plants, 3 to 7 feet high, in tubs. GARDEN, 97, South Street, Exeter.

**ROBERTSON MUNRO**, Abercorn Nursery, Mid-Lothian, begs to intimate that he has opened that shop, 4, South St. Andrew Street (two doors off Princes Street), Edinburgh, for the SALE of TABLE PLANTS, CUT FLOWERS, &c. As his own nursery is unable to supply the demand for Cut Flowers, &c., he will be pleased to hear from parties who have a surplus.

Verbenas.—Verbenas.

**JOHN SOLOMON** offers good, strong, well-rooted Plants, perfectly free from disease. White, Scarlet, Purple, and Pink, 6s. per 100, 50s. per 1000. **LOBELIA PUMILA MAGNIFICA**, 2s. 6d. per 100, 20s. per 1000. Package included. Terms cash. Queen's Road Nursery, Walthamstow, Essex.

**CHEAP PLANTS**, all strong, and well-rooted.—GERANIUMS, Henry Jacoby, Bonfire, Mdme. Thibaut, &c., 8s. per 100; Variegated ditto, May Queen, Crystal Palace Gem, Little Trot, &c., 10s. per 100. **HELIOTROPES**, President Garfield and White Lady, the two best, 8s. per 100. Single DAHLIAS, White Queen and Paragon, 12s. per 100. Zonal GERANIUMS, 100 best kinds to name, 10s. per 100. FUCHSIAS, 40 best market sorts, to name, 10s. per 100. **W. JACKSON**, Blakedown, Kidderminster.

**TEA-SCENTED, NOISETTE, AND OTHER ROSES.**

The large "ROSERY" is full of Flowers and Buds, and will continue in its beauty for some time. Open to all Visitors from 6 A.M. to 6 P.M.

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

**SEED POTATOS AT REDUCED PRICES.**

**JOHN WATKINS** now offers, to clear, the following sorts at very low prices:—

**WORMLEIGHTON SEEDLING** (the Improved Magnum Bonum), **MAGNUM BONUM**, **VICTORIA**, **READING HERO**, **FIFTYFOLD**, **PRIDE OF AMERICA**, **CHAMPIONS**, **WASHINGTON**, **MR. BRESEE**, **ADIRONDACK**, or **TROPHY**.

Can allow 15 per Cent. discount off List Prices for sorts uncared in Catalogue, which contains descriptions of 70 varieties.

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**NEW ZONAL PELARGONIUMS,**  
to be sent out on and after May 1:—  
Mr. A. HEAYER, bright deep scarlet, very large, fine form,  
free habit, distinct. Two First-class Certificates.  
ROBERT CROOK, light scarlet, large overlapping pip and  
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compact and free. One First-class Certificate.  
LADY ROSE: this is, without doubt, one of the finest rose  
ever sent out; good for all purposes.  
OSBORNE BEDDER: we have in this one of the finest  
bedders ever sent out, very dwarf and branching, stands  
sun and rain well, deep crimson. *The set of 51st, 10s. 6d.*  
Carriage paid. Cash with Order. P.O. payable Upper Tooting.  
T. TODMAN AND SON,  
Rose Park Nursery, Upper Tooting, London, S.W.

**NEW ROSES of 1885.**  
The whole of those raised in England, including:—  
Mrs. CAROLINE SWALES (H.P.),  
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And all the best of those raised abroad, including:—  
GLOIRE LYONNAISE (the yellow H.P.),  
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can now be supplied in very fine plants, fit for immediate  
working or for summer budding.  
CATALOGUES, giving Raisers' descriptions of each variety,  
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**GERANIUMS.**—Mrs. Pollock, Golden  
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„ newer varieties, including Masterpiece, &c., 5s. per dozen,  
40s. per 100.  
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3s. 6d. per dozen, 25s. per 100.  
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FUCHSIAS, good, 12 vars., 2s. Named Double PETUNIAS,  
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dozen. ALTERNANTHERAS, in sorts, 2s. per doz.  
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LOBELIA, Brighton Blue, strong bushy plants from cuttings,  
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The above are good plants in single pots, 2s. per 100 will be  
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IRESINES, AGERATUMS, ECHEVERIA SECUNDA  
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Also CINCHONA, CARDAMOM, RUBBER, COFFEE,  
TEA, and various other SEEDS, &c. Price LIST gratis.  
Numerous unsolicited testimonials.  
Messrs. DAMMAN & Co., Portici, near Naples, write, dating  
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arrived quite well and in good condition." Catalogues solicited.  
Always fresh seeds supplied. All orders should accompany  
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Growers, Seedsmen, &c., "Wilhelm's Rhine," Heneratoda,  
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**New Royal Pelargoniums.**  
**DUCHESS OF ALBANY.**—We are prepared  
to distribute this new Pelargonium on May 1, which has  
been pronounced by most competent judges to be a grand acquisition  
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producing in abundance fine trusses of beautifully fringed  
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lars on application to  
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Offers the following varieties of SEED POTATOS:—  
Rivers' Royal Ashleaf. Fortyfold.  
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#### DIXON'S SUPERB GIANT.

This splendid strain is unsurpassed for form, size, and colour.  
The plants are very dwarf and compact. The flowers are rich  
in colour and produced in massive heads. The dimensions of  
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1s., 2s. 6d., and 5s. per packet.

### CALCEOLARIA.

Extra choice strain, of dwarf, robust habit, producing im-  
mense trusses of beautifully-shaped flowers, large, and colours  
rich and well varied.

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Splendid mixed varieties.

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Superb strain, the plants being dwarf, compact, and vigorous  
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Splendid strain of single varieties, very large, distinctly  
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**EDMUND PHILIP DIXON,**  
THE YORKSHIRE SEED ESTABLISHMENT,  
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## CARTERS' INVICTA LAWN SEEDS.

	Per Pound.	Per Bushel.
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Sow 4 Bushels of Seed per Acre.		

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*As we are carrying a large  
Stock, all of our own contract  
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Special Prices and send Samples on  
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**HOWCROFT & WATKINS,**  
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CATALOGUE containing a splendid collec-  
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FRUITING and PLANTING CANES perfectly  
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JAMES DICKSON AND SONS, "Newton" Nurseries, Chester.

**CABBAGE PLANTS!—CABBAGE**  
PLANTS!—Fine autumn sown plants, Early Battersea,  
Enfield Market, Rainham, and Nonpareil, 3s. per 1000; Red  
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BROCCOLI of sorts, BRUSSELS SPROUTS and SAVOYS,  
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at 12s. per dozen, two dozen for 12s.; 50 for 30s.; sample half-  
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Their stock, upwards of 200 varieties, includes all the best  
Covent Garden and Show varieties. Send for samples.  
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store pots, all healthy, well-rooted, and fit for present  
potting:—  
TRICOLORS.—Mrs. Pollock, one of the best, 2s. per dozen,  
15s. per 100; Lady Tulim, S. Dumaresque, Sir R. Napier,  
2s. 6d. per dozen, 18s. per 100. Twelve choice varieties  
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SILVER—May Queen (Turner's), Flower of Spring, Prince  
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100; Happy Thought, 2s. 6d. per dozen.  
BRONZE—McMahon, Black Douglas, Czar (best bedders), 2s.  
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10s. per 100.  
WHITE—Madame Vaucher and Virgo Marie, 1s. 6d. per dozen,  
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CRIMSON—Henry Jacoby, 2s. per dozen, 15s. per 100;  
Walham Seedling, 1s. 6d. per dozen, 8s. per 100.  
LOBELIA—Brighton, Blue Stone, Pumila magnifica, 3s. per  
100, 20s. per 1000.  
HELIOTROPE—Jean d'Amour, Miss Nightingale and Light,  
6s. per 100.  
AGERATUM—Imperial Dwarf Blue, 5s. per 100, 40s. per 1000.  
CALCEOLARIA—Golden Gem and Dark Camden Hero, 5s.  
per 100, 40s. per 1000.  
COLEUS Verschaffeltii and IRESINE Lindenii, 5s. per 100.  
TROPICOLIM—Vestuvius, dwarf, good bedder, 3s. per 100.  
PELAGONIUMS—Show and Fancy, in single pots, 3s. per  
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Packing included. Terms Cash.  
Cemetery Nursery, Gravesend.

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CATALOGUE of the above is now ready and will be sent  
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Pansies, Violas, Penstemons, Phloxes, Antirrhinums, Dahlias,  
double and single, &c.  
As I am now in business solely on my own account, and from  
a long and varied experience in the cultivation of Florists'  
Flowers, purchasers may rely on nothing being sent them but  
what is really first-rate. Selection and not collection is my  
style of doing business.  
Beechhill Nursery, Murrayfield, Edinburgh.

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varieties, guaranteed true to name. One of the largest  
and cheapest Collections in the Trade. Plants, purchaser's  
selection, 2s. 6d. per dozen, 16s. per 100; cuttings, 1s. 6d. per  
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English and Continental varieties see CATALOGUE, with  
Essay on Cultivation, one stamp.

W. ETHERINGTON, The Manor House, Swanscombe,  
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### Surplus Stock.

**N. LAWRENCE AND SON** have to offer  
several thousands of the following at the under-  
mentioned low prices, free by post, or free on rail, including  
packages:—PETUNIAS, very fine, single, in variety, at 6s.  
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Blue, 4s. per 100. Cheaper by the 1000. All orders must be  
accompanied with cash.

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### SPECIAL CULTURE OF

## FRUIT TREES and ROSES.

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Of the newest and finest varieties of all classes of Plants for Greenhouses, Stoves, &c., may now be had for two stamps. It includes only the best varieties of their respective classes. Every season new sorts are added. Comparisons of the varieties when in bloom carefully made, and the inferior kinds discarded. Intending purchasers may rely, when selections are ordered as under, on being supplied with varieties of merit only.

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| 100 " 18s.                                                                                     |                                                                                            |

W. CLIBRAN AND SON'S NEW CATALOGUE (free for two stamps) of Hardy Plants and Florists' Flowers for outdoors, is a list of the finest Collections in the Country of Low Priced Plants, and includes only varieties which are annually tested and compared to ensure the weeding out of all inferior plants. The following cheap Collections are of our selection only, all named sorts for Garden or Exhibition:—

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| 12 DAHLIAS of any class, Show, Fancy, Bedding, Bouquet, or Single, 3s.; 50 varieties, 12s.; 100 varieties, 25s.    |
| 12 lovely IRIS, 3s.; 12 beautiful MIMULUS, 3s.                                                                     |
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40 Acres fine NURSERY STOCK.  
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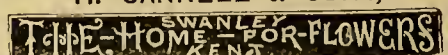


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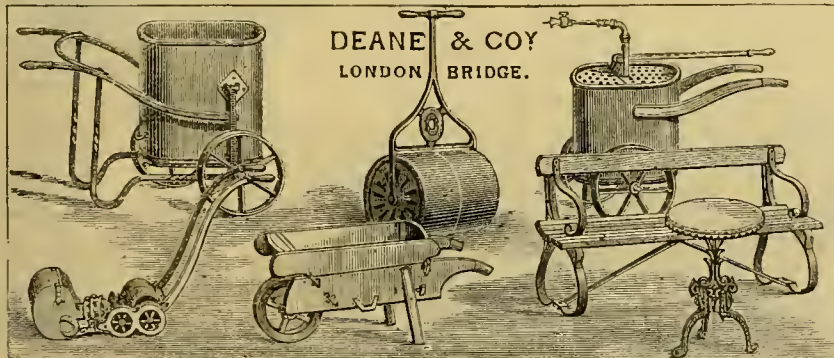
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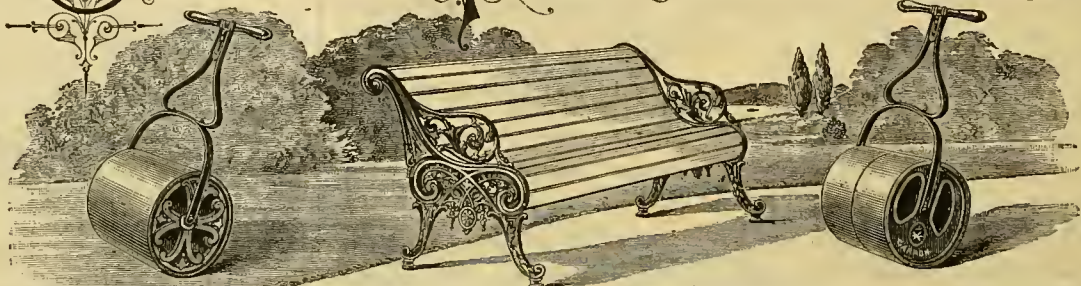
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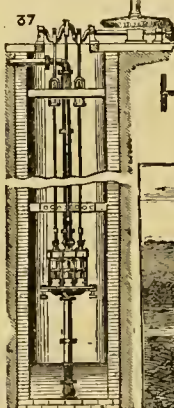
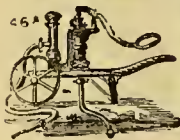
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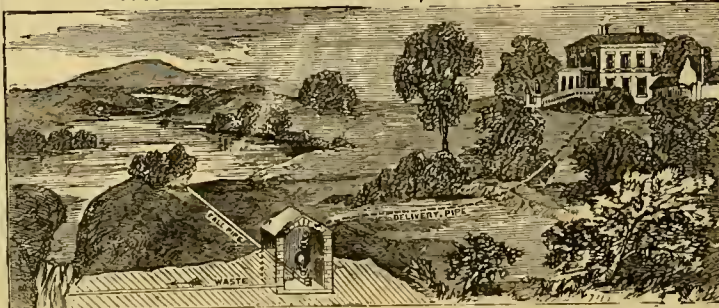


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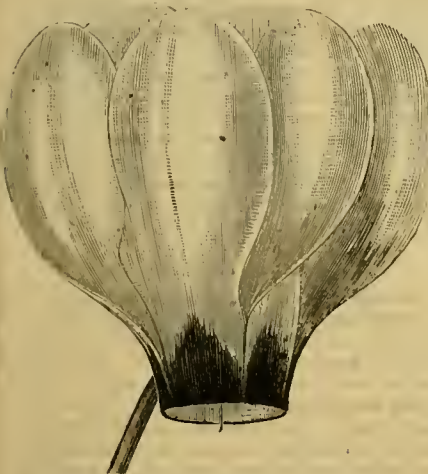
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THE

# Gardeners' Chronicle.

SATURDAY, APRIL 25, 1885.

## PRIMROSES.

WE are growing at the present time in the Garden of Acclimatisation at Geneva sixty-four distinct species of *Primula*, of which forty are of alpine origin; it is of these last alone that I propose to speak here.

The flowers in the genus *Primula* are particularly rich in bright and pleasing colours. Nothing is more beautiful than to see the crannies of the rocks in the high Alps adorned with these flowers, of rose, yellow, or lilac colour, the delicate form and charming grace of which captivate the traveller. Attempts have often been made to transplant them into gardens, but most people have been disappointed, and only those persons who are acquainted with the proper method of culture of alpine plants have succeeded well with them. When it is wished to transplant a *Primula* from the mountains it is necessary to secure the uppermost roots—those which are nearest to the surface—entire, or as nearly so as possible. Generally rock-growing *Primroses* have a stock or underground stem, which supports the plant, and from which all the roots diverge. The older the plants the more numerous, the longer and more developed are the upper roots; the inferior ones dwindle away little by little, and form in time humus in the soil, while new roots are produced above the others. Moreover, the plant has a tendency to force its way out of the ground. Observe *Primula* discolour, or any other species of the same section, and it will be seen that when it arrives at a certain stage of development the strongest roots are level with the surface of the soil, and some even come off from the stem above the ground, and grow down into the earth like adventitious roots.

Further, there are certain species, such as *Primula crenata* and *P. marginata*, whose stem raises itself above the soil, and branches out so as ultimately to resemble a little tree. These are true arborescent *Primroses*, and we have just now on our rockwork *Primula marginata*, which forms a veritable shrub covered with its pretty lilac flowers. When from some reason or other the branches lie upon the surface of the ground they produce roots which penetrate the earth and form new centres; thus they may be multiplied by division of the aerial stems. The species which form this section rarely form offsets, raise themselves out of the soil, but do not spread upon the surface and form tufts.

Another section is formed of terrestrial species purely, such as *P. glutinosa*, *P. minima*, *P. Wulfeniana*, *P. longiflora*, *P. farinosa*, &c., and possessing roots all coming from the same point, and spreading in every direction; the stock ultimately divides above, each portion being provided with a few roots, so that each may form an independent plant. In the autumn a certain quantity of plants may thus be procured from an old stock which in spring was undivided. It follows of necessity that as the plants grow they get larger and increase in width, forming tufts which may,



easily be divided. These may be multiplied by dividing the stock in autumn before the other roots separate naturally. The same thing occurs in the Dodecatheon of North America. The same plan may be employed with certain Himalayan Primroses, among others *P. rosea* and *P. denticulata*.

Another group comprises species which are partly rock-growing and partly terrestrial, and which are met with in the gravelly soil of high regions, or in stony and gravelly pasturages. These are the most difficult species to cultivate and multiply; such are, for example *P. Balbisii*, *P. pubescens*, *P. alpina*, *P. ciliata*, *P. hirsuta*, &c.

Finally, there is a fourth section comprising the species which live in the less elevated regions, which grow in the roughest soil, and in which the roots spring from an underground stock, which never comes above-ground, and constitutes a rhizome. These are *P. cortusa*, *P. cortusoides*, *P. acutis*, &c. They are multiplied by division of the underground stem, which is much branched, and forms so many different plants.

In the first section we find—

*P. Auricula*, Linnæus.—This plant is met with on the calcareous rocks of the Alps, at from 3000 to 6500 feet in elevation, and in the greater part of the calcareous mountains of Eastern Europe. It is not of shrubby habit, but has the same tendency as the arborescent species, and according to the conditions under which it grows it forms an erect stock and gives off adventitious roots which penetrate into the ground. This species, the type of Auriculas of the gardens, is of easy cultivation; but if it is desired to procure the full golden colour in the flower, the mealy appearance of the leaf, and the sweet perfume of the flower, care must be taken to place the plant in the sun, in a soil rich in humus mixed with limestone well drained with pieces of limestone or coke. It flowers from April to June.

*P. Balbisii*, Lehmann, is a superb species like *P. Auricula*, but is distinguished from it by a glossy foliage without any mealy powder on the leaves. It has no perfume, but the flower has some hairs in its throat. It is a rare plant of the Baldo, Vallarsa, and of the Alps of Southern Tyrol. May.

*P. venusta*, Host., of Southern Tyrol, is a magnificent plant, with large clear rose-coloured flowers; it requires a sloping and partially shaded position in the chinks of rocks, and flowers from March to June.

*P. discolor*, Leybold, of the Western and Southern Tyrolean Alps, is a very beautiful species, with flowers of a purple-lilac tint, growing above 6500 feet in elevation, in fissures of granite rocks. Under cultivation it flourishes best when on a slope in rocks, and in a light soil rich in humus. April.

*P. crenata*, Jacquin, of the Eastern Alps, is a species with cut foliage, crenate on the margins, and looks as if bordered with silver. March to April.

*P. marginata*, Curtis, of the Alps of Dauphiné, is a fine species with large, clear lilac flowers, and foliage similarly bordered by a band of silver. February to April.

These two species are closely allied, but have the foliage distinct. They are absolutely arborescent in habit, and form little shrubs which are covered with lilac flowers in the months of March and April.

*P. graveolens*, Kerner, of Tyrol, has fine rose-purple flowers. An arborescent plant, liking a cool situation on granite. March to April.

*P. integrifolia*, Linnæus.—Native of the Swiss Alps at 7000 feet, and of the Pyrenees. A dwarf plant, covered with purple-lilac flowers in June and July. It is cultivated like Muretiana, but rots more easily, and requires a well drained soil.

## SECTION II.

In the second section we find—

*P. farinosa*, Linnæus.—Common in all the mountainous bogs of Central Europe, and is so also in Asia. It is so well known that it is not necessary to describe it. It is a plant that is met with under two absolutely different forms, according as it is found in the marshes in the low grounds, or in the alpine pasturages. In the first case it has a flower of a lilac colour, borne on a long and slender stem, with narrow petals. In the Alps,

on the contrary, it shines with a bright tint, and is of a rose colour, supported on a short stem, and bearing extremely broad and bright petals. This difference refers evidently to the fertilisation of the flowers by insects, as referred to by Dr. H. Müller (*Alpen Blumen und ihre Befruchtung*, p. 364). That naturalist cultivated at Geysenheim some specimens of *P. farinosa* from Pomerania side by side with specimens from the Bavarian Alps. This pretty species succeeds in the open ground in a slightly moist soil rich in humus. It produces seeds readily, and forms tufts, by division of the stalk, as previously indicated. It flowers from March to June, and again in autumn. There is a fine variety with white flowers.

*P. longiflora*, Linnæus.—A superb species, belonging to the grassy regions of the high Alps, between 4900 and 6500 feet. It is larger in all particulars than *P. farinosa*; the limb of the corolla is brilliant and broad, borne on the top of a tube which is four times longer than that of *P. farinosa*. It belongs exclusively to the granitic regions of the high Alps, and prefers a light soil, composed of one-third peat, one-third leaf-mould, one-sixth granite-sand, and one-sixth loam. It likes an eastern or western aspect, and a shallow, well drained pit to the rock. As in *Soldanella alpina* it is necessary to give it plenty of water as soon as the plant flowers, and to do it so that the water runs off rapidly. Under cultivation it flowers from May to the end of June.

*P. Warei*, Stein.—Eastern Alps. A charming little species, approaching *P. farinosa*, with an eye of a brighter yellow, bordered with shaded lilac.

*P. glutinosa*, Linnæus, of the Austrian granitic Alps, belongs to the glacial region, and grows as high as an elevation of 9800 feet. The flowers are of deep lilac, larger than those of *P. farinosa*, and of the dimensions of *P. longiflora*. A glutinous and sticky plant, very difficult to flower. There are now clumps in the Garden of Acclimatisation in bud. It was placed in a niche which received the sun in the morning and which is well drained with pieces of coke. I have made a soil composed of one-third of sphagnum, one-third peat, and one-third leaf-mould, to which I have added granite-sand. It seems to be doing very well, and those which we have in pots seem to me to be equally good. It flowers from April to May.

*P. Flörkeana*, Schrader, of the Swiss and Tyrolean granitic Alps. This species appears to be a hybrid between *P. minima*, of which it possesses the graceful foliage, and *P. glutinosa*, of which it has the flowers. It is cultivated like the last, but seems to be more easily raised.

*P. minima*, Linnæus, of the calcareous Alps of East Switzerland and Tyrol, is one of the most distinct and prettiest of the Primroses. It is met with at an elevation of 4900 to 8200 feet; it is a completely dwarf, tufted plant. Its dentate and crenate foliage forms tufts from which proceed the flowers. It prefers a calcareous soil and an eastern or western aspect; the soil should not be deep but well drained. May to June.

*P. Facchinii*, Schott.—A species of South Tyrol, belonging to the granite region. Leaves extremely graceful, and flowers rose. Culture like that of *P. minima*. May to June.

*P. Wulfeniana*, Schott.—Southern Alps. Altitude 4900 feet. A rare and very pretty plant, flowering profusely under cultivation. It prefers an eastern or western aspect, and a light and calcareous soil. May to June.

*P. spectabilis*, Trattinick.—South Tyrol and Austria, 4900 to 6500 feet. Has large deep lilac flowers, leaves shiny and glabrous. It succeeds well in a light soil. May to June.

*P. Tyrolensis*, Schott.—Tyrol. April to May. A charming dwarf species with large flowers. Culture as for *P. glutinosa*, but it must be kept dryer. *Henry Correvon, Geneva.*

(To be continued.)

GUMMING OF FRUIT TREES.—The formation of gum in wood has been examined by B. Frank in a number of Leguminous and Rosaceous trees. He finds that it is the universal product of special conditions, and can always be induced by the production of these conditions, as, for instance, by wounding any part of the stem. After four or five weeks the cells of the medullary rays are nearly filled with gum, its formation commencing in the cavities of the vessels and wood-cells, which assume a more or less yellow or red colour, due to small granules resulting partly from metamorphosis of starch grains. The purpose of the internal formation of gum appears to be to form air-tight plugs to the vessels, this object being aided by the formation of thylæ or cells inside the vessels. *Journal of Microscopical Society.*

## New Garden Plants.

ZYGOPETALUM PENTACHROMUM, nov. hybr. Angl.

A ZYGOPETALUM seedling raised from Zygopetalum Mackayi, fertilised with Zygopetalum maxillare. Thus the parents are the same as those of Zygopetalum Sedeni, but reversed. The bulb growth has the same strength as in Zygopetalum Mackayi; the habit resembles more nearly that of Zygopetalum maxillare. Longest leaf, 16 inches. The seeds were sown in 1876, and are now flowering for the first time, according to Mr. Harry Veitch, who sends a four-flowered raceme and a leaf. The sepals and petals are scarcely undulate, green, with a dark brown marbling. They remind one of Zygopetalum maxillare. The lip is cuneate obovate, nearly retuse, white, with numerous mauve blotches and lines, which are thicker here and there. The callus is like that of Zygopetalum Mackayi, with adhering acute falcate side laciniae, like those in Sir Trevor's great rarity, Zygopetalum obtusatum, Rehb. f. The upper and anterior part of the column under the fovea is of the darkest purple, base whitish. *H. G. Rehb. f.*

ERIA MONOSTACHYA, Lindl.

This species has at length appeared alive in the Botanic Garden of Leyden, grown by Mr. Witte, the enthusiastic Curator. It was imported from the Fenger Mountains, in Java, by Mr. F. Otolander.

The plant ranks very near *Eria paniculata*, Wall.; and though polymorphous has much narrower leaves, compound inflorescences, and a very distinct lip. Our plant has leaves exceeding an inch in breadth. The inflorescences are simple. The tomentum consists of stellate hairs. The bracts are far more inconspicuous. The whole tomentum is far less developed and shorter than in *Eria paniculata*. The inflorescences themselves might be compared to those of *Eria æroidostachya*. They stand in pairs in the fine garden specimen at hand, and in threes in one of my wild specimens. The sepals and petals are of the lightest greenish-yellow. The lip has nearly the general shape of that of *Eria paniculata*, though the anterior lacinia is usually (not always) very small. The anterior callus is very small when compared to that of the above-named species, and there is a profusion of mealy substance in the midlobe, resulting from broken hairs. The chief character consists in the two angular calli near the sinuses between the lateral laciniae and anterior lacinia. The white column is bordered with purple-brown. *H. G. Rehb. f.*

PLEUROTHALLIS LIPARANGES, n. sp.\*

A delicate small thing, a few inches high. The petiolate oblong blunt acute leaf is of a fine green. The upper surface is embellished with a number of scattered purple-mauve small spots, and the lower surface is nearly all mauve, with a few green blotches, chiefly near the apex. The one-sided raceme is very few flowered. The flowers are remarkably thin, pellucid, of a light reddish-ochre. The sepals are linear; the petals nearly so, but broader at the base. Lip oblong, blunt, acute, rounded at the base, light ochre with an orange margin at the apex. Column semiterete, green, with semi-elliptical, angulate wings near the fovea, as long as the column. Pollinia two, markedly pedicellate. This little curiosity was sent by the excellent Curator of the Leyden Botanic Garden, Mr. Witte. It was obtained from Mons. G. M. Binot, from Brazil. *H. G. Rehb. f.*

LIPARIS LATIFOLIA, Lindl., Gen. et Sp. Orch. 30.

This plant was published as *Malaxis latifolia* by the late Blume, in 1825. After nearly sixty years it appears at last in Europe as a rather stately species amidst its congeners. The strong light green bulb is compressed pyriform, and with a few furrows on it. The inferior sheaths are exceedingly thin, and

\* *Pleurothallis liparanges*, n. sp.—Aff. *Pleurothallis ephemeræ*, Lindl. *Cespitosa*; caule secundario breviteretisculo; folio petiolato cucuato oblongo acutiusculo violaceo maculato seu suffuso; racemo paucifloro secundifloro; floribus tenuibus membranaceis longis; sepalis tepalique conniventibus, apice dissisiis, linearilanceis; tepalis basi bene dilatatis, labello a basi subcordata ligulato obtuse acuto; columna labello æquilongâ, juxta foveam angulatâ alata. E. Brasilia, ioid. cl. Witte, Lugduci Batavorum. *H. G. Rehb. f.*



whitish-ochre. The solitary leaf is cuneate, oblong-ligulate acute, protected by a well-developed acute sheath, as in a *Cattleya*, and exceeding 1 inch in length. The peduncle at hand is nearly a span in length, and is light ochre coloured, like the bracts, stalked ovaries, sepals, and petals. The long raceme is rather shorter than the sheath, and is very lax. Bracts lanceolate, nearly half the length of the stalked ovaries. Sepals oblong ligulate, the lateral ones bent down so as to touch one another by their backs. Tepals linear, reflexed. Lip cuneate dilatate, emarginate, two-lobed, with toothletted anterior margins dark ochre coloured, reddish-brown in the disc. As is the rule in *Liparids* there are two small angulate keels in front of the cordate base of the lip. Column white, green at the top. I had lately the pleasure of seeing my old acquaintance alive, it having been kindly sent from the garden of Leyden by its able Curator, Mynheer Witte. *H. G. Rehb. f.*

*ÆRIDES MARGINATUM*, n. sp.

A lovely *Ærides*, with rather broad bilobed

Trevor Lawrence's collection. The flower is ivory-white in colour, and the lip is as in the one first described, narrow and acutely pointed. It is a native of Madagascar.

### HISTORY OF THE INTRODUCTION OF PALMS, AND OF THE KEW COLLECTION.

PALMS were termed by Humboldt the "Princes of the Vegetable Kingdom." About a thousand species are known to botanists, the greater number being widely spread throughout the tropical regions of both hemispheres, a few only extending into the temperate zone. They vary considerably in their places of growth, some, as the dwarf Palm of North Africa, and the Palmetto of the Southern United States, occupy large tracts of desert country. Others grow in marshy ground, while some form forests on mountain slopes. They vary in height from a few feet to 100 feet or even, it is said, to 200 feet. Their tall cylindrical stems, bearing a crown of pinnate or

"Guava, 13 feet high, 7 inches round, spreading 9 feet.

"Female Papaw, 17 feet high, 2 feet 3 inches round the stem, and bears plenty of fruit every year.

"Anotta (*Bixa orellana*), 14 feet high, 11 inches round.

"Plantain or *Musa*, 24 feet high, the leaves 12 feet long and 3½ feet broad, 3 feet 2 inches round the stem, and has abundance of fruit.

"A large Palm, 14 feet high, 4 feet round.

"*Cereus* (Cactus), 24 feet high, 1 foot 4 inches round.

"Male Papaw, 20 feet high, 3 feet 9 inches round, with several branches 7½ feet long.

"*A. rosa sinensis* or *Ketmia* (*Hibiscus*), 25 feet high, 1 foot 4 inches round.

"One Sago Palm (*Toddapanna*), 8 feet high, 2 feet round the stem—a fine plant, with a great number of very large plants, whose names would be too long to mention here.

"The backs of these stoves had trellises, against which were placed, in beds of earth, all the sorts of



FIG. 96.—*ANGRÆCUM FASTUOSUM*: FLOWERS IVORY-WHITE.

leaves, keeled underneath the midrib. The flowers may be compared to those of *Ærides quinquevulnerum*, but their colours and the shape of the lip are totally distinct. They have lightest yellowish sepals and petals, with an anterior purple border. The rounded side-lacinia of the lip are toothletted in front, and deep orange. The mid-lacinia is ligulate, toothletted, porrect, yellow, ultimately deep sepia-brown. The spur is conical, light green. It has a linear transverse callus in front side at the orifice, and a similar narrower one at the back. It is very unusually coloured, and was introduced by Mr. Sander. *H. G. Rehb. f.*

### ANGRÆCUM FASTUOSUM.

THIS plant was first described by Professor Reichenbach in our columns, December 10, 1881, and again December 31, 1881. Our illustration (fig. 96) was taken from a specimen that flowered lately in Sir

an-shaped leaves, impart to them an aspect very different to that of the forest trees of Europe, and thus caused them to become early objects of interest and curiosity to the botanists and horticulturists of this country. The introduction of these and other tropical plants, led to the erection of hothouses for their cultivation, the first and most important being those of Robert James, Lord Petre, at his seat, Thorndon Hall, in Essex, of whom Peter Collinson in a letter to Linnæus, dated January 18, 1743, says, "The death of the worthiest of men, the Right Hon. Lord Petre, has been the greatest loss that botany or gardening ever felt in this island. He spared no pains nor expense to procure seeds and plants from all parts of the world, and then was as ambitious to preserve them. Such stoves the world never saw, and may never again. His greatest stove was 30 feet high, and in proportion long and broad. In it were beds of earth, in which these plants, as under, were planted, and flourished wonderfully:—

"The *Hernandia* was 10 feet high, 5 inches round the stem.

Passion-flowers, Clematides of all kinds that could be procured, and creeping *Cereus*."

I have been favoured by Lord Petre with a copy of a manuscript list of Palms grown at Thorndon Hall in 1736, the original having been written by the then Lord Petre's gardener, of which the following is a copy, and being anti-Linnean, it may be considered as a curiosity. The Linnean names in brackets are what I suppose them to be:—

"1. *Palma dactylifera* major, C. B. P.; Date Tree. (*Phoenix dactylifera*.)

"2. *P. braziliensis* prunifera folio plicateli sen flabelliformi radicesquamato Raii, Palmetto. (*Chamærops palmetto*?)

"3. *P. humilis* sen. *chamæraphis*, J. B.; dwarf Palm. (*Chamærops humilis*.)

"4. *P. americana* acaulis fructu clavato, Houst. (*Chamærops serrulata*.)

"5. *P. foliorum* pediculis spinosis fructu pruniformi luteo oleoso, Sloane Cat. (*Elaeis guineensis*.)

"6. *P. altissima* non spinosa fructu pruniformi minori racemoso sparso, Sloane Cat.; Cabbage Tree. (*Areca oleracea*.)

"7. *P. americana* humilis flabelliformis fructu ro-

\* *Ærides marginatum*, n. sp.—Aff. *Æridi quinquevulnere*, Lindl.; folio lato emarginato bilobo lorato inferne carinato; labelli lacinia lateralibus semiblobo lorato inferne denticulatis, lacinia mediana oblongoligulata denticulata porrecta, calcar

conico sub labelli lamina aotrorso callo lineari transverso in pariete calcaris antico, callo simili breviori inferius in pariete postico. *H. G. Rehb. f.*



tundo minore; dwarf Carolina Palm. (*Chamærops llystrix*?)

"8. *P. yucca foliis fructu cerasiformi*, Rand.; the Dragon Tree. (*Dracena Draco*.)

"9. *P. prunifera japonensis*, H. L. B.; Coddapanna, Hort. Mal." (*Corypha umbraculifera*.)

This may be considered as the first collection of Palms cultivated in this country.

With regard to the origin of the Kew collection, we find in Hill's *Hortus Kewensis*, published in 1768, eight years after the establishment of the gardens, six species of Palms are enumerated, namely, *Phoenix dactylifera*, *Chamærops humilis*, *Cocos nucifera*, *Calamus Rotang*, *Corypha umbraculifera*, and *Borassus flabelliformis*.

In Aiton's *Hortus Kewensis* (1787) the number was increased to ten species, and in the second edition of the same work, published in 1813, twenty species are recorded, of which the following is a list:—*Areca Catechu*, *A. oleracea*, *Cocos aculeata*, *C. fusiformis*, *C. nucifera*, *Corypha umbraculifera*, *Chamærops humilis*, *C. palmetto*, *C. serrulata*, *Caryota urens*, *Elaeis guineensis*, *Elate sylvestris*, *Borassus flabelliformis*, *Phoenix dactylifera*, *P. farinifera*, *P. reclinata*, *Rhapis acaulis*, *R. arundinacea*, *R. flabelliformis*, *Thrinax parviflora*, *Bactris minor*. In 1823 the Palm collection came under my charge, and, with the exception of *Corypha umbraculifera*, *Borassus flabelliformis*, and *Rhapis arundinacea*, I found all the above. In addition to these there were about half a dozen species, which, judging by their size, had evidently been introduced before the publication of *Hortus Kewensis*, but they are not recorded in that work, the principal of these being two plants of *Sabal umbraculifera*, *Corypha australis*, and two plants of *Thrinax excelsa*. They then occupied a lean-to house, called the Palm-house, which stood about 100 feet north of the west end of the present Fern-house: it was 60 feet long, 16 feet wide, and 15 feet high at the back; it also contained a large plant of *Pandanus odoratissimus*, which, with the *Sabals*, *Corypha australis*, and *Strelitzia Augusta* were continually pushing their leaves through the glass; consequently in 1828 pity was taken on them, and the house was raised 4 feet, and in order to secure their safe removal at some future period, I deemed it expedient to have the roots of each of these four enclosed in brickwork.

In 1830 the collection had increased to forty species, which necessitated placing some of them in other houses. During the latter years of the reign of George III. and George IV. a new Palm-house was contemplated, and a plot of ground set apart for its erection; but nothing was done until the accession of William IV., who took much interest in improving the gardens, and a plan for a spacious Palm-house was prepared by the celebrated architect, Sir Jeffery Wyattville, and on October 17, 1834, a spot was selected, and the length of the house marked out in the presence of the King, half-way between the Orangery and pond. It was to be a wooden structure, 200 feet in length, 50 feet in width with the side wings, and 40 feet in height to the lantern roof; but in the meantime it had been decided to remove two of the conservatories attached to Buckingham Palace, and that one of them should be erected at Kew, which was done in 1836. It is 80 feet in length, 40 feet in width, and 26 feet high (span-roof). The original consisted only of the upright framework of wood and glazed roof, which on being set up at Kew was encased in stonework, and is now known as No. 1, or King William's conservatory (the Aroid-house). It may be worthy of record that the six pillars at each end may be considered historic, having originally formed the colonnade in front of Carlton House, in Pall Mall. The death of King William in the following year (1837) led to the abandonment of his Palm-house.

Shortly after the appointment of Sir William Hooker as Director, in 1841, the subject of the new Palm-house was again brought forward, and in 1844 the architect, Mr. Decimus Burton, received instructions from the Commissioners of the Board of Works to furnish a design and estimate, which, being approved, led to the erection of the present Palm-house, which was completed in August, 1848, and the whole of the Palm collection and tropical woody plants were placed in it, but their future progress, unfortunate end of many, and history of the house must be left for another occasion. It may, however, be mentioned that at the time of my retirement in 1864 the collection amounted to 143 species. *John Smith, ex-Curator, Royal Gardens, Kew.*

## POTATOS.

ALTHOUGH I consider that the use of complete artificial manures involves too great a cost for their employment in the growth of ordinary farm crops, perhaps an exception may be made in regard to Potatos, a crop which requires a large supply both of potash and nitrogen.

At Rothamsted we have grown nine crops of Potatos in succession upon land which for fifteen years previously had received no yard manure, and the average yield of the last three crops has been 400 bushels per acre, calculating the bushel to weigh 50 lb. The manure used each year has been 300 lb. of sulphate of potash, 350 lb. of superphosphate of lime, and 400 lb. of salts of ammonia; while in another experiment, instead of the salts of ammonia, 540 lb. of nitrate of soda were applied. The produce from both manures has been almost identical.

The sulphate of potash supplies about 130 lb. of potash—and we find very nearly the same amount in the crop. The phosphoric acid, on the other hand, is much in excess of the requirements of the crop, and it might be reduced one-half. The salts of ammonia and the nitrate each supply about the same amount of nitrogen—87 lb.: and of this the crop does not take up more than 50 lb.; there is, apparently, therefore, a considerable loss of this substance: but at the same time, any reduction in the amount of these manures would be followed by a reduction in the crop. The loss of this costly manure ingredient is a most serious matter, as unfortunately there is but little prospect of recovering, in succeeding crops, any appreciable amount of the 37 lb. not taken up by the first. By means of the same mineral manures alone we have grown—over the same period—one-half the crop we obtained by the application of minerals with nitrogen, the soil having supplied a sufficient amount of that substance to give a product of 200 bushels; but one-half of the minerals applied remained inactive in the soil; these, however, might be made available to the crop by an application of nitrogen.

The quantity of potash removed in Potatos is very large. In the 400 bushels it amounts to about 130 lb. Compare this with the amount removed by animals. An ox, weighing 1400 lb., which was killed for the purpose of analysis, contained only 2½ lb. in the whole carcase and offal. Hay is another crop which takes a good deal of potash from the soil, and farmers in England rarely grow either hay or Potatos for sale unless there are facilities for the purchase of town dung. Artificial manures are certainly not used alone by practical farmers in the growth of their crops.

In our experimental field, the character of the manure is represented in the stem and leaves of the plant. Ammonia and nitrate without minerals give a low stem and greenish-brown leaves, which in the evening appear almost black. Minerals without nitrogen give a thin, low stem and yellowish-green leaves; while mineral and nitrogen together give a luxuriant, and sometimes an over-luxuriant, stem, with leaves of a bright green. There is no difficulty in accounting for these peculiarities. A plant takes up whatever food is most abundant in the soil, with the hope, as I sometimes put it, that sooner or later it may find the food which suits it best. In the dark-green leaves the nitrogen is in excess; but starch cannot be formed without potash, and the supplies of potash are not sufficient to use up the nitrogen. It is far more easy to change the yellowish-green of the mineral-manured Potatos into a dark green than it is to lighten the colour of Potatos which receive nitrogen: a solution of nitrate of soda will effect the one in a very few days, but as both potash and phosphoric acid form the insoluble compounds with the soil, they are much more slowly taken up by plants.

We always, however, obtain a larger crop of Potatos where we apply the mineral manures alone, than where we apply the nitrogen without the minerals, though in the next field, salts of ammonia applied without minerals for thirty-nine years in succession, have grown larger crops of Wheat over the whole period than mineral manures without ammonia. To explain this apparent inconsistency we must consider the great difference in the character of the two crops.

Wheat in England is sown in the autumn, and being a deep-rooted plant, it has a greater range of soil to obtain a supply of mineral food than the spring-sown Potato. The relation between the potash and the phosphoric acid and nitrogen in the two crops is also very different. In the Wheat crops grown by salts

of ammonia alone, mixed samples, taken over a period of ten years, give the products per acre of the total crop—straw and grain—as follows: nitrogen, 36 lb.; potash, 23 lb.; phosphoric acid, 13 lb. The relation, therefore, between these two important minerals and nitrogen is as one to one.

In the Potato crop, on the other hand, the proportion of nitrogen to the minerals is nearer one of nitrogen to three of minerals, the demand upon the soil for potash being much greater in the case of Potatos than where Wheat or Barley is grown. It must be a very large Wheat crop indeed which removes 50 lb. of nitrogen from the soil; but in some of our Potato crops we carry off more than 100 lb. of that substance per acre.

As very few soils could furnish so large an amount as this from their own resources, when Potatos are continuously grown, it becomes necessary to furnish a supply of potash either in dung or chemical salts. The following table gives the products of the crop grown in 1883, being the ninth in succession without any change in the manures.

	Potatos per Acre in Long Tons.	Cwts.
1. 14 tons of dung .. ..	6	..
2. Minerals without nitrogen ..	5	..
3. Nitrogen without minerals ..	3	3
4. Minerals and ammonia .. ..	8	19
5. Minerals and nitrates .. ..	8	2

Amount of mineral matter and nitrogen per cent. in dry tubers:—

	Mineral Matter.	Nitrogen.
1. .. .. .	3.5	1.9
2. .. .. .	3.85	0.73
3. .. .. .	2.61	1.47
4. .. .. .	3.67	1.08
5. .. .. .	3.86	1.37

The character of the manure is most clearly shown in the composition of the crop. In No. 2, manured with minerals, the minerals are five times as high as the nitrogen; while in No. 3, where ammonia or nitrates are used, the minerals are considerably less than double the amount of nitrogen. In both cases there is a waste of power, shown by small crops, and unused manures. The loss, however, is not equal in both cases, as the minerals remain in the soil to be taken up at some future time, while the nitrogen is probably lost. *Sir John Lawes, in "Rural New Yorker."*

## NOTES ON THE CULTIVATED ASTERS.—XII.

(Continued from p. 502.)

SUBGENUS XIV. — *MACLERANTHERA*. — Stems mostly annual or biennial. Involucre multiserial; bracts rigid in texture, furnished with large spreading leafy tips. Leaves many-toothed or pinnatifid. Entirely Western American.

62. *A. Bigelovii*, A. Gray. A. Townshendi, Hook. fil., in Bot. Mag., t. 6430. — Stems annual or biennial, 1–2 feet long, branched from low down. Root-leaves oblanceolate, obtuse, entire, ½ foot long, narrowed gradually into a winged petiole; stem-leaves few, sessile, ovate-lanceolate. Heads few, large, arranged in a lax corymbose panicle; peduncles glandular hispid. Involucre campanulate, ¾ inch diameter; bracts linear, foliaceous, glandular-hispid, very squarrose. Ligules very numerous, linear, bright lilac, ¾ inch long. Achene flat, closely ribbed, ¾ inch long; pappus soft, flexuose, whitish, as long as the achene.

Colorado and New Mexico. A very fine plant, still rare in cultivation.

63. *A. canescens*, Pursh. A. biennis, Nutt. *Maccleranthra canescens*, A. Gray. *Diplopappus incanus*, Bot. Mag., t. 3382. *Dieteria canescens*, pulverulenta, divaricata, viscosa, and sessiliflora, Nutt. — Biennial, or sometimes perennial. Stems 2–3 feet long, much and loosely branched, canescent or glabrous. Stem-leaves sessile, linear or lanceolate, rigid, incise-dentate, the lower 2–3 inches long. Heads many, arranged in a lax corymbose panicle. Involucre campanulate, ¾–1 inch in diameter; bracts multiserial, lanceolate, with squarrose green tips. Rays very numerous, linear, bright



lilac,  $\frac{1}{2}$  inch long. Achene densely pubescent; pappus flexuose, moderately firm in texture,  $\frac{1}{2}$  inch long.

Western side of the North American continent, from the Saskatchewan and British Columbia, southward along the Rocky Mountains, and through California to Mexico. Very variable.

64. *A. tanacetifolius*, H. B. K. *Machraeranthra tanacetifolia*, Nees; Bot. Mag., t. 4624.—Stems erect, hairy, branched from the base,  $\frac{1}{2}$ —1 $\frac{1}{2}$  foot long. Leaves sessile, oblong, 1—2 inches long, deeply pinnatifid with distant, simple, or compound lanceolate segments. Heads few, laxly corymbose. Involucre campanulate,  $\frac{1}{2}$  inch in diameter, multiseriate, with very distinct spreading green tips. Ligules numerous, bright lilac,  $\frac{1}{4}$ — $\frac{1}{2}$  inch long. Achene very pubescent; pappus flexuose,  $\frac{1}{2}$  inch long.

Arizona and Nebraska, southward through California to Mexico. Well marked by its annual duration and compound leaves.

This concludes the enumeration of the cultivated types. We have only about one in three of the known kinds in cultivation, but all the subgenera that are worthy of the attention of the cultivator are represented in the series. The greater number of the non-cultivated species are Euasters, from the Rocky Mountains, and Orthomeris types from Asia and various parts of the United States. J. G. Baker.

## PRIMROSES AND POLYANTHUSES.

IN alluding to these beautiful spring flowers let it not be imagined that I am referring to those favoured children of the few florists who grow them—gold-laced Polyanthuses—but rather to those varied and large flowered forms which we better know under the designation of fancy Polyanthuses. The season has so far been backward that the undue precocity so often seen in these flowers here in the South is not this spring apparent. The fine group of these early spring flowers shown at both the South Kensington and Botanic Shows the other day, told of the exceeding beauty to be found in such hardy border plants, although these were seen under the disadvantage, that having been for a time under glass, the habits of blooming were not quite so correct as is seen in plants naturally cultured. Very many of Mr. Waterer's forms are of that uncertain strain known as hybrid Primroses, by which term is meant that the plants have in combination features incidental to both the Primroses and Polyanthuses, but are neither positively. I cannot say that I am a great admirer of this strain, and heartily wish that with my own plants they would not crop up. There is no reason to assume that any intercrossing of flowers of the two common sections tended to this variation or rather intermingling form of blooming. Primroses and Polyanthuses are very much alike in all respects, except that, when true to name, the one has no visible scape of flowers, but produces them on separate single stems, whilst the other has a prominent scape of flowers produced on one prominent stout stem. Constant seeding and renewed culture or reproduction through seed suffices to develop in many of the seedling Primrose plants certain latent powers to produce scape stems, whilst in the Polyanthuses the common habit of the Primrose section to produce its flowers singly on single stems is developed. Hence from both sections we get in seedling plants very many that are neither Primroses nor Polyanthuses proper, but have more or less the habits of both, the Primrose stems and flowers coming first. The Primrose is always the most precocious of the two, the Polyanthus stems and flowers following. One result—and it is an unsatisfactory one—is that in the first case we never get that charming cluster of flowers which always marks the Primrose proper, and in the second case the heads of bloom always lack that solidity, density, and compactness which marks the flower heads of a true Polyanthus. Whilst the Primrose and Polyanthus competitions on the 21st did not bring better, or, say, more showy flowers than were seen on the Bagsbot plants the other day, yet without doubt there was better form and greater substance—that is, such form and substance in flowers as the florists desire to find.

There is a certain perversity in these garden spring flowers in their exceeding tendency to produce pinched flowers, even though only thrum flowers be parents. Still it is but right that due weight should be given to all flowers possessing the essential and

always refined thrum, for it needs but half an eye to observe that the thrum flower is always the most pleasing, and in the florist's sight the most perfect. However unimportant may be a feature of this kind when masses of flowers in beds or borders are concerned, it is not possible to ignore its value when dealing with pot plants or individual blooms, for a good thrum is the very apple of the eye of a flower. A number of plants that have been growing for several weeks under glass fail to give a very correct notion of their real habit and characteristics when grown in the open air. The confined situation and closer atmosphere of a house or frame causes elongated leafage and stems that give often a loose, ragged appearance. Thus it is best to see plants either in the open ground or just as lifted from the open, that a correct estimate may be formed of their value for garden decoration. Two or three year old plants, well grown, then form chubby and wondrously floriferous clusters of bloom, and where there is considerable variety of colouring the charm they give is much enhanced. It is true that for massing, white, yellow, red, crimson, and purple hues are best, but there is an infinitude of diverse shades and markings which cannot be described or classified. It is a capital time to sow seed now, and best in a frame, to ensure ample germination. If the plants can be dibbled out into a square patch in the kitchen garden in June for the summer a good quantity of strong ones will be available for autumn planting, and will give rich heads of bloom next spring. A. D.



## EFFECT OF MANURES ON THE GROWTH AND QUALITY OF FRUIT.

PRACTICE and science have for years worked hand in hand to study the influence of physical and chemical agencies on the production of vegetable growth, and the recently introduced practice of supplying our markets with special fertilisers for particular plants or soils, if carried beyond a limited generalisation deserves attention on account of the purposes of dealers to meet the desire of gardeners rather than on account of either good economy or of a superior knowledge in regard to the special wants of a particular kind of crop raised under all conditions.

This remark applies with extra force to the use of such manures in horticulture, because the composition of most garden products, including fruits, is far less known than that of the majority of our farm crops.

The presence of mineral constituents in an available form in the soil is not only essential for the reproduction of any plant from its seed but is indispensable for the complete development of a plant through all the various stages of its life. Further, when the ash ingredients of a plant—potash, phosphoric acid, and lime—are waiting in the soil, the plant may perhaps come to blooming, yet cannot produce a perfect and well formed seed; hence the time-honoured practice of using wood-ashes, bones, lime, chalk, and marl for manuring purposes.

Some years ago Dr. C. A. Goessmann instituted a series of experiments in the grounds of the Massachusetts State Agricultural College at Amherst, U.S., for the purpose of testing the action of chemical manures on the production and composition of certain fruits, and on their aid in the prevention of plant diseases, the results of which are briefly summarised below.

### EXPERIMENTS WITH GRAPE VINES.

Manurial substances supplying soluble phosphate, potash, and nitrogen when applied as a dressing to Grape Vines imparted a much more vigorous growth, and the leaves as a rule retained their vitality longer in autumn than in the case of unmanured Vines; they escaped repeatedly a serious attack of mildew when the remainder of the vineyard suffered more or less from the disease.

On an analysis of the juice of the ripened berries it was found that the sugar in the juice had somewhat increased in the fruit from the manured Vines, and this increase of sugar was accompanied by a marked rise of potash, and at the same time a remarkably reduced percentage of lime in the inorganic portion of the fruit.

Of course, as Dr. Goessmann remarks, sugar alone does not control the quality of fruits, yet the fact that its amount can be altered by manurial ingredients applied to the soil shows the existence of still untried modes of treatment to promote the interests of horticulture.

### EXPERIMENTS WITH STRAWBERRIES.

The varieties used for this experiment were the President Wilder and the Charles Downing. The fruit of the common wild Strawberry contains usually one part acid to two of sugar, whilst it changes in the cultivated varieties from one of acid to four and more of sugar. The experiments with the Charles Downing variety were carried out for the purpose of studying the effect of five different kinds of special chemical manures on the ash constituents of the fruit. And, as on analysis, the mineral matters of the ripened berries showed similar changes in relative proportion as those with Grapes, it is assumed by Dr. Goessmann that there would be corresponding changes in the organic substances and in the quality of the fruit.

### EXPERIMENTS WITH PEACH TREES.

The trees under special treatment were planted in the year 1870; for five years after the planting the trees received but little care, and not much manuring. No special manures were applied until 1876. The land has been kept light and mellow by means of a large cultivator, and by shallow ploughing once or twice. The trees had been planted 12 feet apart in every direction. Chemical fertilisers were applied in 1876, in a radius of 8 feet around the trees, taking care to keep off about 1 foot from their trunks. The results obtained showed that those Peach trees which received guano, potash, and dissolved bone, as manure, produced more and better fruit than any tree adjoining. In the case of some Pear trees which were manured in the same way, and at the same time, the best results in growth and in fruit were obtained by similar treatment, and these far surpassed the unfertilised trees.

### DISEASES IN FRUIT TREES.

From careful observations and study of the facts obtained by the application of different manures to Grape Vines, Currant and Peach trees in particular, Dr. Goessmann reports that they have greatly tended to strengthen his view that many of the troubles of horticulturists in regard to parasitic growth and diseases in plants are due to a general exhaustion in the soil of the mineral elements of plant food. He has repeatedly noticed that plants suffered seriously from mildew and blight, upon unmanured and exhausted lands, when upon adjoining richly manured soils no signs of disease could be discovered. J. W.

## MESSRS. B. S. WILLIAMS' NURSERY, HOLLOWAY.

ALTHOUGH the spring exhibition of flowers annually held at these nurseries is now over, there is still an interesting show of bloom in Orchids, Cliveas, Amaryllis, and varieties of greenhouse Rhododendrons so-called, but the plants not being concentrated, as they were at the period of the shows, the display is not to the casual observer so good. Our own opinion, however, is that when interspersed with nice healthy green foliage, as the Orchids and other plants here are, they show off to better advantage than when large quantities of bloom are brought together—the very best argument that can be given in its favour is that for the purpose of comparison it is the only satisfactory way.

A charming feature is the collection of Filmy Ferns, which is both extensive and in the very pink of health and vigour. The following summary of the principal Orchids in bloom will convey an idea of the grand spectacle the houses devoted to them present. Amongst Dendrobiums the following were the most conspicuous:—*D. devoniense*, *D. Wardianum*, *D. crassinode*, *D. fimbriatum oculatum*, *D. Jamesianum*, *D. pulchellum*, *D. aggregatum*, *D. draconis*, *D. Pierardi latifolium*, very fine; *D. chrysotoxum*, *D. macrophyllum giganteum*, and *D. anosmum*. Various forms of Lycaste are still in bloom, including *L. plana*, a curious, sweet, dull-coloured, rare flower; *L. virginalis*, pure white. Several fine varieties and forms of Cattleya were carrying their beautiful blooms in profusion, including *C. Mendelii*, *C. Warszewiczii*, *C. intermedia*, very choice; *C. Trianae*, *C. citrina*, and *C. Mossii* Hardy.



ana, heavily spotted variety, carrying nine blooms on two spikes, a fine vigorous plant; a fine form of *Lælia elegans* with a vivid purple lip, and stripe of same colour running right up into the throat. Some good *Epidendrums* were in flower, *E. radicans*, a smart little flower, *E. evectum*. A fine selection of *Odontoglossums* is in bloom, *O. vexillarium* splendens, of deep magenta, also a magnificent plant of *O. vexillarium*, with twenty-four spikes, *O. maculatum*, *O. Andersonianum*, various charming forms of *O. Pescatorei*, *O. triumphans*, *O. Cerdii*, *O. roseum*, *O. Halli*, *O. Rossii*, *O. niveum majus*, fine plant with twelve or fourteen spikes showing; *O. hebraicum*, *O. luteo-purpureum*, *O. cuspidatum*, *O. xanthoglossum*, *O. hystrix*, large pieces of *O. citrosum* showing strong spikes, and a new natural hybrid, evidently between *Pescatorei* and *triumphans* or *tripudians*, of fine form and very striking—having white petals deeply bordered with primrose and dark chocolate spots; *Coelogyne ocellata* and *C. new species*, something in the way of *ocellata*. A very fine plant of *Maxillaria lutea alba* was well bloomed. The pretty little *Ionopsis paniculata* and various *Oncidium* enliven the collection. *O. Weltoni*, *O. sarcodes*, *O. Marshallianum*, with 150 buds on three spikes—a fine piece; *O. cucullatum*, *Trichopilia coccinea*, *Phalænopsis Stuartiana*, *P. amabilis*, *P. Schilleriana*, &c.; *Vanda coerulescens*, *V. suavis*, *V. tricolor formosa*, *V. t. superba*, *V. t. insignis*, and *V. Patersoni* very fine; *V. teres* showing bloom profusely, *Lepidotes bicolor*, and *Cymbidium eburneum*. There was a grand show of *Cypripediums*, *Sophranites grandiflora*, *Masdevallias* in great variety—*M. Veitchii* had seventeen spikes, *Calanthe Sanderiana*, deep purple, and other of the genus. The stock of hard-wooded stuff, greenhouse *Rhododendrons*, *Azaleas*, &c., is looking very well, and it is needless to say much of the *Amaryllis* and *Cliveas*, as their quality has been witnessed in London and elsewhere on many occasions during the last few seasons.

## The Rosery.

### TEA ROSES IN APRIL AND MAY.

(Continued from p. 505.)

WHERE the soil is very heavy or wet the plan which Mr. Geo. Paul has recommended in *The Rosarians' Year Book* for 1884, of growing Tea Roses on raised beds, is an admirable one; they are very similar to what are called in Ireland "lazy beds" for Potatoes, but it is not laziness but sheer necessity. When Paddy has to make a continual fight with the elements, experience has taught him that if he plants in the ordinary way, in ridges, the moisture produced by the constant rains will rot his Potatoes, and so he tries to raise them up above it and to let what rain falls drain quickly off, and the raised beds for Tea Roses will answer the same purpose; it is, however, a comfort to know that the use of the seedling Brier as a stock and the introduction of a hardier race have materially diminished these difficulties.

Those who desire to grow Tea Roses can indulge their fancy even now, for all the Rose merchants keep a large supply of them in pots, and these if carefully planted out and treated judiciously will bloom well this summer. I have already, in writing on Tea Roses, named the choicest varieties, and will therefore merely say now that the following, being good growers, may be depended upon for out-of-door culture. *Anna Ollivier*, rosy-flesh shaded with buff; *Belle Lyonnaise*, deep lemon; *Bouquet d'Or*, dark yellow; these two are very vigorous and are perhaps better adapted for a wall than a bed; *Catherine Mermet*, light rosy-flesh; *Comtesse Riza du Parc*, bronzy-rose, the blooms, however, very often come quartered; *Francesca Kruger*, coppery-yellow shaded with peach, an improvement on *Adrienne Christophle*, which was always ragged looking; *Innocenta Pirola*, white, with a slight shading—at one time this was thought to be an improvement on *Niphetos*, but time has dispelled that illusion; *Jean Ducher*, salmon-yellow shaded with peach—one of the hardiest and best of the pure Teas; *Madame Angèle Jacquier*, light pink with shade of yellow—a hardy Rose; *Madame Charles*, bright apricot—a strong growing Rose, in colour like *Safrano*; *Madame Lambard*, salmon shaded rose, but most cameleon-like in the variation of its colouring—I have cut from the same

branch a light red and a pure yellow bloom—towards autumn it becomes deeper in colour; *Madame Willermoz*, creamy-white, centre tinted—an old but very favourite and durable Rose; *Marie Van Houtte*, a very vigorous yellowish-white Rose—at times the edge of the petals are distinctly margined with rose—it is one of the most dependable of Tea Roses; *Niphetos*, although not so vigorous as the others named, can hardly be left out, as it is certainly the best of the white Teas, and a universal favourite; *Perle des Jardins*, bright straw colour—the best of all the dwarf yellow Teas; the new American Rose, *Sunset*, is said to be an orange-coloured sport of this Rose; *Souvenir de Madame Pernet*, a roundish loose flower—the plant is vigorous, but I cannot say that I greatly admire the flower, as it lacks the exquisite form of the Tea class; *Souvenir de Paul Neron*, creamy-white with rosy tint—a very vigorous and pretty Rose; *Souvenir d'un Ami*, an old but very favourite rose-coloured Tea. I have omitted many very beautiful Roses, such as *Comtesse de Nadaillac* and *Souvenir d'Elise Vardon*, because, although very beautiful, they are more delicate in habit, and might disappoint the grower, whereas with those I have named success is pretty well assured. *Wild Rose*.

### A NEW TYPE OF CYCLAMEN.

MR. CLARKE, of Twickenham, has had the good luck to have developed a new type of *Cyclamen*,

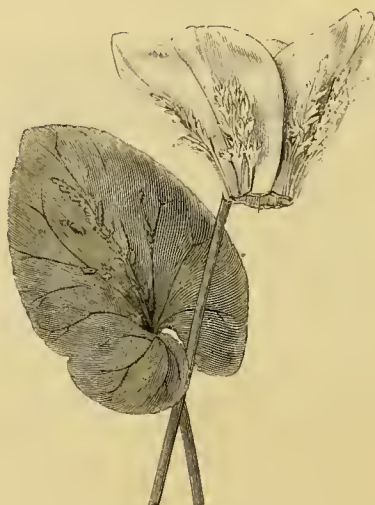


FIG. 97.—A FRINGED CYCLAMEN.

which if it can be perpetuated, as no doubt it can be by patient selection, will be the progenitor of a new race which we doubt not will be received with favour. It consists in the development from the veins of the petals of a little lace-like frill, such as is shown in our illustration (fig. 97). Primroses of all kinds, and *Cyclamen* is one of them, are very apt to produce these outgrowths from the petals, familiar enough to botanists, but which hitherto have not been looked on with much favour by florists, for, to say the truth, from their point of view, such outgrowths, however interesting botanically, are not such as to commend themselves to the æsthetic taste of the florist. In this case, however, the outgrowths did find favour in their eyes. The growths in question are of the same nature as those so common in *Kales* and others of the *Cabbage* tribe, and they are of interest as showing that leaf and branch are not essentially so different as they appear to be. Here we have a petal branching just as a shoot may do, and to prove the point the leaves also show a similar tendency, though to a less degree.

**ALLIUM NEAPOLITANUM.**—This is an excellent spring-flowering plant, and one of its chief characteristics is its great freedom of bloom. As seen in excellent form at Harefield Grove, it was represented by four bulbs in a pot, and these had thrown up three and four fine umbels of pure white flowers each. It is a plant well adapted for culture in pots, because it does not flourish save in exceptional situations when planted in the open air, and it is equally valuable for cutting and decorative purposes at this season of the year.

### GOOSEBERRIES FOR MARKET.

GOOSEBERRIES are largely grown in Lincolnshire for market—much more largely perhaps than is generally known. Gooseberries are grown in company with Apple trees, doing well under their shade. Standard Apples are planted in lines, and until such times as they have been planted five years or so green and Potato crops are grown about them. When the Apple trees have reached the age named then Gooseberry trees are placed between them, two or three according to their size and growth between each tree. Then when the Apple trees have grown somewhat, and have made some shade, a line of bushes is planted on the north side. Supposing that the line of Apple trees runs from east to west, the trees are planted more rapidly on the north than on the south side of the line of trees, additional lines of Gooseberry bushes being added as shade is provided by the large trees.

Messrs. W. W. Johnson & Son, seed and fruit growers, of Boston, cultivate Gooseberries largely for market purposes, and the sorts they grow are *Crown Bob*, *White Smith*, *Warrington* or *Ashton* (*Aston*?) *Red*, and *Yorkshire Fillebasket*—the last an excellent sort, fully twenty-five years old, and apparently but little known outside the Boston district. But the Gooseberry of the district is *Crown Bob*, and five of this variety are said to be planted to one of the others; these are planted in about equal quantities. The *Crown Bob* is the earliest of all; it is quicker in maturing its fruit than any other variety. As a matter of course—the Boston district being on a flat and exposed coast—the Gooseberries are later in coming to maturity than about London, where there is more shelter and warmth. When there is a heavy crop a portion of it is picked in a green state; by doing this space is left for the others to develop. Early green Gooseberries invariably command a good price in the market.

There is this great advantage in planting Gooseberries under orchard trees, the bushes are thereby protected from the effects of early frosts. Those who plant prefer a three-year-old tree on a clean stem of about a foot in height, and having six or eight branches. The Gooseberry trees are pruned pretty closely in until good and shapely plants are formed; after this is attained pruning is done much more sparingly. As the fruit is generally borne on the younger growths, those experienced in pruning endeavour to keep the bearing branches as far from the ground as possible, especially as some varieties have a tendency to grow near to and spread upon the soil. This practice prevents the fruit from being splashed by heavy rains, and also tends to keep it out of the reach of birds.

The Gooseberry is a rather gross feeder, and does best in a good soil, which should be well fertilised with manure. A dressing is put on the surface of the land in autumn or early winter, after pruning is finished, and then forked into the soil to the depth of 3 or 4 inches, taking care not to injure the roots near the surface. Fish is an excellent fertiliser for Gooseberries. In the season sprats can be purchased on the coast at from 21s. to 25s. per ton, the purchaser fetching the fish in his own carts. A dressing of from 2 lb. to 5 lb. is given about the roots of each tree, and a great effect on the growth of the bushes results.

But there are drawbacks to Gooseberry culture. Certain birds rob the trees of the buds, especially the bullfinch, and what is locally known as the Willow-biter. These two especially eat the buds just when they begin to swell in early spring. Some aver that they hunt after an insect that secretes itself within the bud; but the general opinion appears to be that they are tempted by the saccharine matter stored in the bud. The havoc worked by these birds is greater in some seasons than in others. In cold seasons, when the food of birds is scarce, they attack the Gooseberry trees in greater force, and the measures adopted to prevent this as far as possible is to scatter over the brambles a dressing of lime, or lime and soot mixed, doing this in the early morning, when the dew is on the branches, or immediately after a shower of rain. This application should be repeated after it is washed off, and by persistently applying it it is found a great preventive.

Then the early frosts are occasionally destructive also, when they fall upon the bushes just when the leaf has burst, and flowers appear at the end of the embryo berry. The frost appears to have a kind of burning effect on the fruit, and in this way a large



portion of the crop sometimes suffers. In a single night great damage has been done where the bushes are exposed, and especially so if frost follows rain or sleet, which leave moisture on the trees. Then there is the Gooseberry caterpillar. This attacks the bushes very early—as soon as the fruit begins to swell. Such a painful experience as having the crop of a large breadth of Gooseberries entirely spoilt by this pest is known in Lincolnshire. More than that, the act of clearing the trees of leaves does them permanent injury. The theory held by the cultivators is that the larvæ of the Gooseberry caterpillar are deposited about

Sheffield, Leeds, Newcastle-upon-Tyne, and Sunderland. The longevity of the Gooseberry trees depends in a great measure upon the character of the soil, in a good deep fertile loam the plants will last for years.

In regard to pruning, Mr. A. Johnson is decidedly of opinion that Gooseberry trees are over-pruned. He holds the opinion, and carries it into practice, that the shoots should be simply shortened in, and any crowded wood taken away when they get into a bearing state. Pruning is generally finished by the end of January.

Gooseberries are propagated by means of cuttings

6 inches apart, and some 18 inches between the rows.

Generally, sufficient cuttings are obtained from the trees at the time of pruning; but where a large number are required it is customary to plant out "stools" as they are called, and large quantities of cuttings are taken from these. If the wood be well matured, and the cuttings when made are not kept too long out of the ground, from 80 to 90 per cent. of them will root. When the young plants have been transplanted two years they make good saleable stuff.

The Gooseberries that are allowed to remain on the trees are gathered when nearly ripe, and not quite fully coloured; they travel well in consequence, and colour completely in course of transit. They are generally sent to market in small packages; it is not a good plan to put large quantities together. R. D.

### HILLIA LONGIFLORA.

So long ago as 1804, Dr. Sims described and figured in the *Botanical Magazine*, tab. 721, this elegant stove plant—described then as very rare, and hardly less so now. Our figure, from a specimen sent by Mr. Burbidge (fig. 98), shows what sort of a plant it is, but we have to cite Dr. Sims' words in support of the statement that it fills "the whole house in the evening with its fragrance." Dr. Sims notes that it was named in honour of Sir John Hill, "author of several voluminous but useless botanical works"—a severe criticism, which "Sir John" brought upon himself by his questionable practices, which rendered him obnoxious at the time, though a later generation, knowing nothing of the man's faults, and appreciating only his works, may hesitate to adopt the adjective "useless," applied perhaps in a fit of spleen, excusable at the time, but not so now-a-days. If the man was a quack, he at least did some good, and we had better remember the good than the ill. The plant is a member of the Rubiaceæ order, not far from *Luculia*, and is a native of the West Indies.

### DAFFODIL NAMES.

LAST week a botanist said to me, "We have not time, even if we had inclination, to attend to the varieties of a single species, so that if we deal with them at all, we generally accept the names as we find them." This makes it more incumbent on those who give the names to give them carefully, and in the case of Daffodils a committee of experts has been formed for the purpose of settling names; it is on the work done by this committee, of which I have not been, and, as far as I know, am not a member, that I should like to make a few remarks. Daffodils proper may be divided into two sets, those which we believe to be of natural or wild origin, and those which are known to have been, or presume to have been, produced in gardens. In the latter set it has been generally agreed that fancy names should be given, no matter whether Tom, or Prince Poniowski Doldorowki (though those who have to write the labels would prefer the former), provided the names are distinctive and uniformly kept, and that the varieties are distinct, or at least not confusingly similar. But the wild varieties form a class to which greater scientific interest belongs, and it has been agreed that botanical or Latin names should be given to these. In doing this, some attempt has presumably been made to fix the old names upon those varieties to which they were originally given, and I am afraid that the committee have not been successful in this attempt. For want of a better authority reference has been made by them to Haworth's *Monograph of the Narcissus*. I have often tried to make something out of Haworth's *Monograph*, but the first difficulty is to determine in what language it is written; if it is intended for Latin, I can only say that in many sentences there is not the least clue to lead to the discovery which is the nominative case, which the accusative, which adjective agrees with which substantive, so that the meaning of the writer is left hopelessly obscure; but admitting that there are many parts of it in which one can divine the author's meaning, still, they often lead us to conclusions quite at variance with those at which the Naming Committee seem to have arrived. For instance, Haworth tells us that the leaves of *N. nanus* are "semiunciam lata," by which I presume he means "half an inch wide"—a description which will not fit the "nanus" of our gardens. Again, if there is one thing clear



FIG. 98.—HILLIA LONGIFLORA: FLOWERS WHITE.

the roots of trees, and so, early in the year when the bushes are breaking into leaf, a good sprinkling of soot is spread over the soil and pricked into the surface. It is also the practice when the caterpillars are feeding on the leaves to sprinkle powdered lime over them, following this up for a time. Hellebore powder is also found to be an efficacious remedy.

As a rule the Gooseberry makes a profitable crop. It is generally found advantageous to get a good proportion gathered in the early and green state, and especially so if there is a probability of a plentiful crop that would interfere with the sale, and also bring down prices. A great deal of the fruit is sent south and west of Lincoln, but the principal portion goes to

made of last year's wood, and they are preferred when they make cuttings 15 to 18 inches long. After being trimmed, the buds and thorns are cut away with the exception of three or four at the top of the cuttings, and about the end of October or in November they are planted in lines, leaving 4 to 6 inches of the cutting out of the ground; the cuttings are only an inch or so apart in the lines, and the rows about 8 inches from each other. They remain in these nursery rows for about two years, are then taken up, again trimmed, leaving sufficient roots at the bottom, and cutting the top growths back closely. The upper roots are cut away and then the young plants are planted out in nursery quarters 4 to



from Haworth's *Monograph* it is that he had himself no idea what characters he meant to indicate, or what Daffodil to describe by the name *obvallaris*, which, he says, he gives to a Daffodil which came to him from Truby, in Derbyshire. This name has now become attached to the Tenby Daffodil, for no reason that I could ever discover. This Tenby Daffodil was figured in the *Botanical Magazine* in the last century by the name *N. Sibthorpii* (or *N. major* var.  $\gamma$ ). Last week, assisted by Mr. Baker—who attended to my wants with the most patient courtesy—I went through all the Daffodils in the Kew herbaria. The only specimen of the Tenby Daffodil at Kew, which is one of the oldest, is named *N. Pseudo-Narcissus* var. *Sibthorpii*; and why this original name has been supplanted by one quite without meaning I cannot see.

Another name which is now applied to a different class of flower from that to which it was originally given is *N. bicolor*. The wild forms in the old Kew herbaria clearly belong to something close to the type of *N. Pseudo-Narcissus*, with narrow leaves, and the trumpet widening at the mouth. On referring to the *Historia Plantarum* of Linnæus, I find that he took the name and description of *N. bicolor* from his predecessor Rudbeck, and that he describes a form coming very near typical *N. Pseudo-Narcissus* except in colour, and certainly not the late flowering, broad, and fleshy-leaved kind with the cylindrical trumpet now accepted as the type of the class. It is true that we can hardly dispute the claims of such Daffodils as *Empress* and *Horsfieldi* to the title of "*bicolor*." Still they are very different from the old "*bicolor*" of the last century, and have sprung up recently from a class of which I feel sure that the wild original is to be found in that very variable Daffodil, the muticus or abscissus of the Pyrenees. Messrs. Collins & Gabriel were far nearer the true bicolor when they exhibited at the show on the 14th a Pyrenean Daffodil, closely allied to Mr. Barr's *pallidus præcox*, under the name of *bicolor minor*. Again, I cannot help thinking that this name, *pallidus præcox*, has been given somewhat prematurely. The Daffodil so named belongs to a distinct class of Daffodils of many forms and colours, and of great merit as garden plants, which I have grown experimentally for some years, having first got them from near Bayonne. To this whole class I should like to give the name var. *pyrenaicus*, because, as far as I know, they are confined to the Pyrenean district. When established in England they are neither earlier nor later than ordinary English Daffodils, certainly not so early as Tenby or nanus. A very elegant selection from them was presented to the Naming Committee on the 14th by Messrs. Ware, and wisely relegated for further acquaintance. It may be convenient and desirable at some future time to fix and name for garden purposes some of the best varieties of these: the present name of *pallidus præcox* is most indefinite, as any one who has grown it must own. Still, it covers only a small proportion of the whole series of var. *pyrenaicus*. *C. Wolley Dod, London, April 20.*

## Orchid Notes and Cleanings.

### PRUNED DENDROBIUM NOBILE.

The splendid specimen of this, over 4 feet across, and bearing 630 fine flowers, exhibited at the Royal Horticultural Society on Tuesday, by Mr. Prinsep, gardener to the Hon. Mrs. Portman, Buxted Park, Uckfield, and for which he was awarded a Cultural Commendation, seems to set at rest the question as to the practicability of pruning this plant hard, or even cutting it down when in flower, and yet by special treatment causing the then just springing growths to perfect themselves and furnish as good and as well flowered a plant in the next year, and so on. The following method of treatment, so cleverly and successfully pursued by Mr. Prinsep, may enable some who are sure that they possess the requisite accommodation to attempt a similar plan, but in my opinion the systematic pruning of any Orchid after the manner we read of is not likely to be good in general practice, although no doubt we often have plants which would both be and look all the better for having some of the two or three-year-old stuff cut

out of them. Twenty years ago or more I made observation on *D. nobile*, from which the pseudobulbs had been removed with the flower, and I then found that, although the plants came round all right and flowered, I should have preferred to have had the back bulbs left on. Mr. Prinsep's treatment from now, when his plants are in bloom, is to cut out all the flowering pseudobulbs with the flowers on them, leaving only the three or four leafy ones which have no flowers and the young shoots just springing up. The plants are at once placed in a moist house kept at a temperature of 80° to 100° Fahr., which during the summer may often rise to 120°. Here the growths rapidly form, and in the first week in September they are fully completed, and are then removed to a cold, airy house, which often gets down to 45° in winter, to ripen their growths. Early in February, the flower-nodes having begun to swell, the plants are, as they are required, removed into an ordinary intermediate stove heat, where by the end of March and April they bloom as in the previous year. The advantage of Mr. Prinsep's treatment, where practicable, is that a strong, tidy, well-bloomed plant is secured, which, by furnishing the pseudobulbs with the flowers, renders their value and usefulness when cut of much more importance than those which are cut short-stalked off the plants. The disadvantages in general practice are, that it is no use to attempt such culture unless the very hot growing-house and other requisites are available, for if any hitch takes place in any part of the treatment the plants cannot do the work required of them in a year, and having no old stores to fall back on the failure is complete. Any way Mr. Prinsep deserves credit for his success, and so will all who succeed as well by pruning their *Dendrobium nobile*, although we know that we can get them equally good unpruned. *James O'Brien.*

### A QUESTION FOR ORCHID GROWERS.

Does breaking out the spike of a *Cattleya* before the blooms are open benefit the bulb and the succeeding growth? Many growers will doubtless say, "Yes, of course." I thought so at one time, but I have quite changed my idea by experience of three years' duration. I had a *Cattleya Trianae*, a fine variety. I bloomed it once, and next year, wishing to ease the plant, and gain size of bulb, I pulled the sheath and spike out of two leaves when the latter was just emerging from the former. The result was that the bulb made afterwards was rather weaker than the one which did not carry "open flowers," and a spike of one bloom instead of two as two years previously. The third lead on the plant was a very large one, and has carried its three flowers annually. I may say that I shall never try to ease the lead, and persuade it to throw four. I think it will do so alone in time. Similar experience has been mine with a *C. Mossii*; though rather worse, for the bulb is half as large only. The plants have been grown along with all the others, which are well and happy. Now, again, with *C. Wallisii*. I bought a badly established plant that had evidently been bloomed almost to death; it made a puny bulb, with two puny leaves on it, one crippled; the next two bulbs were a little improvement, but the plant's life always hung on a thread, as it persisted in making roots that never lived long, but on my third bulb it produced one fine bloom. The bloom was a great strain on the plant, but as soon as it opened fully it was cut. The plant at once plumped up, and has rewarded me with a great quantity of root (for a small plant), and now is breaking well from two bulbs. I am convinced had I pulled out the sheath and bud in it I should have been a loser, whereas now I am gainer in an extra lead. Having detailed my effects I come to my cause. It all lies in a nutshell. The whole plant is green, the flowers are otherwise: are there certain juices in the plant for the bloom separate from those for the plant? [No; but the cell-contents are different, and the work done in them consequently is different. Ed.] If so, the very fact of the undeveloped bud being cut out imprisons the juices that would have gone into the flower. Naturally, these juices the plant would get rid of by blooming, and the unnatural care therefore damages it. If any one can help me to thrash out this subject I shall be obliged. But *en passant* I may as well say that I know cutting out an *O. crispum* spike materially enlarges the bulb and the next growth as well. This apparently upsets my theory, but *Cattleyas* and *Odontoglossums* grow in such different heats, that the "flower juices" in a

cool temperature may not damage the bulb though imprisoned in it—in fact, may not "generate gas," to use a far-off expression. I purposely write this now to enable any one who likes to start a discussion, if they so please, at the Conference. *Dr. B. Crawshaw.*

## FORESTRY.

### FELLING.

GENERAL forest thinning may still be continued, but in the case of hard woods, Oak excepted, this should speedily be brought to a close. Every forester who wishes to maintain a healthy state of vegetation in his woods should at once act upon the advice given in former articles on "Forest Work" respecting the clearing out of all dead and decaying matter.

### BARK STRIPPING.

Should the present mild weather continue bark stripping will in many districts commence towards the end of the present month. A sharp outlook should, therefore, be kept on the Oak, and on the first indication of the bark rising freely, which may be readily known by inserting a barking iron below the bark, no time should be lost in beginning the peeling operations. Have all tools in readiness, and the trees singled out and marked, so that no delay may be occasioned when once the work has been started.

### PLANTING.

Although the season is now far advanced for planting operations generally still where care and despatch in removing are insisted upon many trees and shrubs may still be removed with safety. Should dry weather after planting continue the free use of the watering can can only be relied upon as a safeguard against injury and a large percentage of losses. Syriaging overhead in the evening is of great value, and should where practicable, always be insisted upon.

### GENERAL WORK.

Road-making and repairing will now demand attention, indeed the present month is, perhaps, preferable to any other for this work. Clear and scour out plantation ditches, remove obstructions from the mouths of closed drains, and where it may be found necessary cut new ones for the removal of stagnant moisture. The lawn and shrubberies will now require attention, the former in the way of rolling and levelling, and the latter to see that shrubs have not become overgrown and infringing on each other. All dead or unhealthy trees and shrubs should be at once removed and others of robust growth substituted in their stead. Lawn improvements, such as levelling and turf-laying, can now be advantageously carried out, and bare patches of the ground forked slightly over and sown down with grass seeds, that is where the use of turf is not, for appearance sake, really required. *A. D. Webster, Penrhyn Castle, North Wales.*

## The Flower Garden.

### TREATMENT OF THE BEDDING PLANTS.

THE busiest time of the year for the flower garden is at hand. For the next two months it will require great care and attention to keep the work from falling into arrears. Summer bedding plants should now be hardening off in pits or cold frames, where they should have all the air possible, only just protecting them against frosts at night; and many of the hardier kinds may be transferred to the open air, provided they are hooped over or otherwise protected.

### OVERBLOWN SPRING BEDDERS.

As the spring plants and bulbs cease blooming they should be immediately removed to the reserve garden. The bed should then be manured and dug ready for the reception of the summer plants. Care should be taken to put out the hardier kinds first, such as *Calceolarias*, *Verbenas*, and *Lobelias*. The bed and borders can now be prepared, and all arrangements made for the summer garden by the time the plants are ready. I mostly bed out about May 12, taking care to have the plants well prepared previously, by exposing them to all the air possible night and day



about eight or ten days before I turn them out, and there are a large number of hardy plants that can be used with good effect which are already planted, and will save labour and assist at summer bedding for edges and the centre of beds.

#### SORTS OF HARDY BEDDING PLANTS.

The following are some of the plants used, all of which can now be planted, viz., Echeverias, Sedums, Saxifrages, Sempervivums, Festuca glauca and F. viridis, Arabis lucida variegata, Cerastium tomentosum and C. Biebersteini, Santolina incana, variegated Thyme, Ajuga reptans, Achillea aegyptiaca, Euonymus variegata, and sorts of Yuccas, Violas, Pansies, Aucubas of various sorts, Retinospora aurea, and others; Thuia pygmaea and T. pygmaea lutea, Thuinopsis dolabrata variegata. Planting arrangements must be left to individual tastes to arrange to give the best effect, but I may advise that high or glaring colours should not predominate, but the colours should be carefully blended so as to produce harmony rather than violent contrasts.

#### STOCKS, ASTERS, WALLFLOWERS, PHLOX DRUMMONDI, AND ZINNIAS.

These should now be pricked off from the seed-pots or boxes into other boxes and pans, and be placed in a frame till well established, and then in about three weeks they will be fit to plant out into the beds. The herbaceous garden should be carefully looked over, and all rubbish cleared away, and attention should be paid to thinning, tying, and staking the different plants before they become too thickly grown together or injured by the wind. *W. Smythe, Basing Park, Alton, Hants.*

## Plants and their Culture.

#### STOVE PLANTS.

WITH the more congenial weather of the past few days the plants in this division should have made rapid progress.

#### INSECTS.

Where mealy-bug exists that insect will increase with alarming rapidity during this warm season; if, however, my former advice on this point has been regarded, this parasite of our hothouse and other plants should either have been quite eradicated, or much reduced in numbers. A close watch will need to be kept on the various forms of scale, likewise thrips and aphids. Fumigation with tobacco-paper will soon settle the two latter. If the scale is caught in time before their bodies become hardened, a much weaker solution of insecticide will be found sufficient to kill them. Some ingenuity will be needed in the management of the entire collection of stove plants, in order to dispose of them in the other houses as the stove itself becomes crowded. Being free from bug here, I place some of them in the vineries and other forcing-houses without running any risk. Overcrowding the plants, now that they have started into free growth, will not only be prejudicial to the plants themselves, but render them liable to attacks from insects, and other evils. A lesser number of plants well grown will give better returns usually than a greater number badly done.

#### ARRANGING THE PLANTS

From now onwards the stove plants should be grouped into two sections, those that delight most in being exposed to increased sunlight should be so arranged, whilst such as are found to thrive best when more shaded should also be placed by themselves so far as it can be done. Of the former the flowering plants are those to be most studied and thus treated, the Crotons also delight in sunshine. From amongst the latter the fine-foliage plants should receive attention with the addition of the Ixoras, which when in growth will be found to succeed best with partial shade. Any plants that were not considered to be in want of a shift when the early spring potting was done, will now require it before they become over-much pot-bound.

#### TEMPERATURES.

As the temperature increases more frequent applications of the syringe will be needed to maintain an atmospheric moisture in the houses so as to make

them congenial to healthy growth. If we should have a return of easterly winds, the evaporating troughs must be kept constantly filled, as at such times the pipes will of necessity be heated more than usual, thus causing an aridity in the atmosphere. Should this weather occur, it will be better to diminish the night temperature a few degrees, and during the daytime be very cautious in the application of air. With a keen wind prevailing we would rather see the temperature rise somewhat higher than usual, modifying the same by an extra syringing, even if the sun be shining. The general run of temperatures may now be as follows, viz., by night 65° to 68°, a few degrees more or less being immaterial, having due regard to the prevailing weather. We would prefer to see the stove at 60° in the early morning than 5° higher when attained by sharp firing. The rise during the daytime should also be in accord with the weather, from 7° to 10° being ample if cold and cloudy, whilst during bright sunshine 85° may be regarded as the maximum except at closing time when 90° will be none too much; bottling up, as it were, the sun's rays in this manner will be a saving in firing. *J. Hudson, Gunnersbury House, Acton, W.*



## FRUITS UNDER GLASS.

#### THE ORCHARD-HOUSE.

CROPS of Peaches, Nectarines, Apricots, Cherries, and Plums in unheated houses of this kind are placed in peril at this season whenever the thermometer registers 8° of frost; surely a risk of this nature ought not to be undergone in these days, when the means of heating houses is not expensive, and is readily applied. An ordinary fruit-house would require one 4-inch pipe carried round the four sides of the house, to be put into use when frost threatened, which would prevent any mischief being done. Insect pests which usually infest the trees referred to above should be entirely got rid of before the flowers and foliage expand, the advantage resulting whenever this matter is properly done is such that it cannot be too often referred to. If due regard was given to it the trees will develop flowers, leaves, and fruit perfectly; otherwise they will be deformed, and, as a rule, abound with insects so enclosed and protected as to make their extirpation no easy task.

The cold murky weather and frosty nights we have experienced lately has stopped the growth of the trees in orchard-houses considerably, and deprived us of the help of the bees at a time when they are most required—that is, now the trees are in flower; it will therefore be advisable to lightly brush the flowers over occasionally, and the syringing, which I hold to be helpful in fructification, should be lightly done in the morning; it has further necessitated more care in ventilating. Cold currents of air should be avoided or modified when heat is available until such time as a favourable change comes, when plenty of air will be needful, and syringing should be regularly and forcibly done every day. As growth proceeds, remove all superfluous shoots. Pinch in at about the sixth leaf those which are to be retained, and the top and terminal shoots outside the trees may be allowed to run a foot before they are stopped. When the Apricots, Peaches, and Nectarines have attained the size of Peas they should be slightly thinned in the first instance, of course leaving those which are best placed or development. In the case of Cherries and Plums this operation should be deferred till after the stones are perfected.

Trees in pots will need every attention in the way of watering. In order to be satisfied on this point they should be looked over at least twice every week, and if water is necessary give it plentifully. As time proceeds, and root-action becomes more active, much more water will be required, when also some stimulant may be given, such as guano, &c. Trees planted out must not be neglected in this particular, but have an abundant supply of it when necessary. In every case when the surface-dressing in pots becomes full of roots add more material to it to further encourage their growth, and to assist in swelling off and ripening the fruit properly. *G. T. Miles, Wycombe Abbey.*

## The Hardy Fruit Garden.

#### BORDERS.

WHERE wall trees are grown under heavy copings the roots are apt to become very dry close to the wall, and this is often the cause of the fruit not setting. This is more especially the case with old trees of wall Apricots. When such is the case the trees should be well watered close up to the wall. Until all danger of frost is over it is necessary to continue the protection of wall trees.

#### INSECTS.

Peaches and Nectarines are very liable to become infested with greenfly early in the season. Tobacco-powder is one of the best remedies I know if applied on the very first appearance of the fly. It may be dusted all over the infested shoots in a dry state, and washed off in a few days with a syringe.

#### DISBUDDING.

Young trees should be gone over as soon as they begin to grow, and all shoots that are not required for forming the trees carefully rubbed off, or pinched back to form fruiting spurs.

#### APPLES AND PEARS

that are well covered with fruit-buds would derive much benefit by a good watering with manure-water, not close to the stems of the trees, but at the extremity of the roots, the whereabouts of which can be judged by the size of the trees and the time since which they have been root-pruned. Trees that are destitute of fruiting buds are better without any stimulant. I should advise these to be kept as dry as possible, so as to encourage them to form fruiting buds; for this reason these should never be mulched with manure in the same way as trees bearing a heavy crop of fruit.

#### STRAWBERRIES.

Plantations of these should have a good watering with manure-water immediately the flowers can be seen in the heart of the plants. When slugs are troublesome the beds should be dressed with hot lime before being mulched.

#### RASPBERRIES.

Should these not be growing satisfactorily, a good dressing of rotten manure should be spread all over the roots. This will effect a great improvement the first season. *J. Smith, Mentmore, Bucks.*

## The Kitchen Garden.

#### GENERAL WORK.

CAULIFLOWERS should be encouraged by waterings of liquid manure. Thin successive crops of Turnips and Spicach, also seedling Broccoli, Brussels Sprouts, Cauliflower, Cabbage and Lettuce. Undoubtedly the main plots of Carrots, Onions, and Parsnips should have had the Dutch hoe passed between the rows. Soil that has been rolled before and after the reception of seeds should be surface stirred immediately the young plants are visible should the weather permit. It is surprising how this operation when executed at the proper time invigorates the crops, especially in their younger stage of growth. Much good can be done by mulching some crops; but in the absence of artificial watering it should never be applied until it has been ascertained that the rain has penetrated to a sufficient depth for the maintenance of vigour in the crop. Young Carrots when well above ground should receive a good dressing of wood ashes and soot in equal parts. Not only will this prevent the ravages of insects, but will also stimulate the crop. For the next fortnight draw a little soil to Potatoes as they appear above-ground, finishing off with a general earthing-up at a later period. Wait for a good soaking rain, then mulch the Peas with half-decayed material and the crop will be independent of the weather in this respect. The early sowings of Brussels Sprouts, Cauliflowers, Cabbage, and Lettuce will have been, or should be when large enough, either planted into permanent quarters or pricked out into nursery beds, and during the present dry weather must be well watered. If water is not available wait a reasonable time for rain. In the absence of artificial watering or rain it would be useless moving them now (the 20th) the soil is dust-dry here. Endive should be blanched now in a cool dark shed.

#### SEED SOWING.

Sow a second bed of Chervil, also a sowing of Sweet and Bush Basil should be made out-of-doors in a sunny position. The main sowing of Borecole should be made onward to the end of the month. *G. H. Richards, Somerley Gardens, Ringwood, Hants.*



## APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, April 28	{ Special Sale of Orchids, at Frotheroe & Morris' Rooms.
WEDNESDAY, April 29	{ Sale of Imported Orchids, at Stevens' Rooms.
	{ Sale of Valuable Established and Imported Orchids, at Frotheroe & Morris' Rooms.
THURSDAY, April 30	{ Sale of Established and Imported Orchids, at Stevens' Rooms.
	{ Sale of Carnations, Picotees, and Plants, at Frotheroe & Morris' Rooms.
FRIDAY, May 1	{ Sale of Imported Orchids, at Frotheroe & Morris' Rooms.

THE Royal Horticultural Society celebrated PRIMROSE DAY on Tuesday last. It must not for a moment be supposed that that venerable and now staid body attached any political signification whatever to the display made in the conservatory. It would, we imagine, be among the first to protest against any such desecration of the Primrose, or, indeed, of any flower whatever. It would, we have no doubt, had the question been brought before it, have even deprecated any partisan connection with the name of CHARLES DARWIN, whose memory, some well-meaning but as we think injudicious persons, wish to connect with Primrose Day, as a sort of scientific counterpoise to political partisanship. It is true that CHARLES DARWIN knew a great deal more about Primroses than Lord BEACONSFIELD, and that the world is indebted to the philosopher of Down for vastly more information concerning Primroses than to the politician of Hughenden. It is true, too, that the issues at stake, and the ultimate value of DARWIN'S researches, which are for all time, have far more widely reaching consequences than the relatively limited and temporary matters dealt with by the party politician. The march of a periwinkle, EDWARD FORBES was wont to say, was of far greater moment in the world's history than the progress of an ALEXANDER—a statement that, however exaggerated and strange it may seem, is, from the point of view of the naturalist, absolutely true: and on the same principle DARWIN'S researches and their consequences will have a value long after the strife of existing party politics has become matter of history; but for all that, we lament the attempt to make party capital out of flowers. As things are, however, the Primrose cult will no doubt wax for a season and then wane. Meanwhile, if it must be so—if enthusiastic Darwinians will adopt the Primrose, because the great master died on April 19—and eager politicians will do the like for analogous reasons—then in place of the humble, modest wildling with all its thousand beauties and associations so foreign to the nature of such displays, let our gardeners set to work, hatch the golden eggs, and grow the Primroses or whatever else is to be the badge, by the acre. No sentiment would thus be wounded, no harm would be done, woods and hedgebanks would not be rifled of their loveliest adornment, perhaps to its utter extinction, while, on the other hand, many would be benefited.

But Primrose Day at the Horticultural was troubled by no such reflections. The profane reader will smile as he reads that the great gathering of the "National Auricula Society (Southern Section)" was held on that day and on that spot—that collections were shown and prizes awarded even to the eighth degree of excellence for flowers, the differences between which it requires the training of a lifetime to discern. But for all that the word this time was writ large, and Auriculas, with all their quaintness of colour and their niceties of difference, were placed amicably side by side not only with laced Polyanthus, scarcely less exclusive and rigid than themselves, but with catholic minded Primroses of every shade, hue, and species: Primroses, like the Auricula, but as different—that is, superficially different—as two things bearing the same name could well be. For a report of the meeting we must refer to another column, and here only refer to what we consider a most wholesome sign

of the times—a gradual breaking away if we may so call it from the narrow trammels of party politics—we mean, of course, florists' standards!—and a steady march onward on broader lines with more natural and less arbitrary restrictions. Special societies have done good in their time, but in the new development of Congresses and Conferences (never mind the inappropriateness of the terms) they promise to do much more. However much we have admired the results of their labours, we have heretofore learned wonderfully little from the earnest enthusiasm of generations of ardent florists. They have, we fear, thrown away their opportunities. They have put before themselves an object, and they have stuck to it with good results from their point of view no doubt, but with how little benefit to the progress of knowledge, *i.e.*, the welfare of humanity! But now the age of Congresses has set in, and amid the flood of talk they bring with them there are waves of real progress—real diffusion of knowledge—real widening and deepening of thought and effort, so that the Horticulture of the future is certain to achieve even greater victories in the future than she has done in the past. Nothing is more easy than to get up a laugh at such Congresses, but the fact remains, that they stimulate progress and new development in matters where, according to the old *régime*, there was but little advance in a straight line, but much travelling in a continuous circle—much shaking of prearranged atoms in a kaleidoscope. The Apple Congress did a marked good; the Daffodil Congress has excited a most laudable desire to know what can be known—both, too, have hit the public taste. We cannot doubt that the Primula Conference of next year, to which that of this year was preliminary, will, in its turn, advance our knowledge of plant life, and thereby enhance our material and æsthetic welfare, and furnish an unexceptionable method of celebrating Primrose Day.

— THE OXFORD BOTANIC GARDEN.—It has often been our privilege to give illustrations of the botanic gardens belonging to the old universities of the Continent, and we have alluded to the manifold interest and picturesque beauty of these venerable institutions. Neither in interest nor in beauty of surroundings does our own Oxford come second—rather, may we say, it is a long way ahead. Our illustration (fig. 99) will recall a scene familiar to all Oxford men and to the army of visitors, and we shall have their assent when we say that for picturesqueness no garden scene of the kind can excel it, not even Pisa or Padua. As we intend shortly to give a further account of the old garden we reserve further comment now, and merely state that the exquisite tower is that of Magdalen College, the archway, so different from the tower in style, and yet so fine in its effect either singly or by contrast, forms the entrance to the garden.

— GLASGOW. Mr. F. ORPEN BOWER, M.A., F.L.S., Lecturer on Botany at the South Kensington Normal School of Science, has been appointed Professor of Botany in the University of Glasgow, *vice* Professor BAYLEY BALFOUR.

— A BOUQUET.—The bouquet and large basket of flowers that were presented to the Princess of WALES by Mrs. PIKE, on behalf of the citizens of Cork, was made at Besborough Court, and comprised *Phalenopsis* in variety, *Dendrobium nobile* and others, *Cattleya Trianae*, and Roses; besides *Stephanotis*, *Gardenias*, *Eucharis*, *Lily of the Valley*, and *Adiantum*.

— DAFFODILS.—Mr. HARTLAND of Cork sends us some fine specimens of large flowered Daffodils to show what Irish soil and early July planting can do. The specimens may all be referred to the variety *maximus* as the type, and comprise *Horsfieldi*, *Emperor*, and *Empress*. All are extraordinarily fine specimens—veritable giants. The bulbs, we are informed, were planted in July, and those of *Horsfieldi* ten days previously to the others. From Lord

BALFOUR, of Burley, we have received a similar collection, but not equal in size to the Irish specimens.

— A NATIONAL LAND COMPANY.—On April 24, at WILLIS' Rooms, a meeting will be held for the purpose of forming this Company. The Company intends to buy land in large quantities, *i.e.*, from 1 acre to 4 acres, and to sell out in small ones on a system of deferred payments. The Company will also let land where desirable.

— EARLY RHODODENDRONS.—Mr. BURBIDGE sends us from the Trinity College Botanic Garden Dublin specimens of *R. virgatum*, a dwarf Sikkim species of compact habit, leaves glaucous on the under-surface, and dense trusses of small white campanulate flowers. The plant is hardy (it grows at an elevation of 7000 feet), but the flowers were produced under glass. *R. glauco-hybridum*, is a very free-growing pink-flowered form like Early Gem.

— IRIS MILESII.—Prof. FOSTER showed at the Scientific Committee a Himalayan Iris of rare beauty and distinctness, which is, we believe, shortly to be illustrated in the *Botanical Magazine*, on which account we confine ourselves now to the recommendation to Iris lovers to secure what is certainly one of the most beautiful of its kind, intermediate in some respects between *Iris stylosa* and *Iris fimbriata*.

— LINNEAN SOCIETY OF LONDON.—This Society will hold a meeting on Thursday, May 7, at 8 o'clock, P.M., when papers on the undermentioned subjects will be read:—1. "Germination of Seeds after long Submersion in Salt Water," by JAMES J. WHITE. 2. "Fossil Ferns of the British Basalts," by J. STARKIE GARDNER.

— "THE BOTANICAL MAGAZINE."—The April number contains coloured figures and descriptions of the following plants:—

*Dracontium fecundum*, HOOK. F., t. 6808.—One of the section producing large, deeply cut, single leaves after the spathe, which is hooded and purplish in colour, as in D. elatum. The tuber throws up a profusion of small tubers above-ground, each about the size of Hazel-nuts. The plant is a native of British Guiana.

*Anthericum Elicheandroides*, BAKER, t. 6809.—A very curious Liliaceous plant, with tufted, lanceolate, undulate leaves, and upright racemes of star-shaped yellow flowers, each about an inch across, with spreading oblong segments, yellow, with green veins. It flowered in the Cambridge Garden, and is supposed to be a native of Mexico.

*Clematis stans*, SIEBOLD and ZUCCARINI, t. 6810.—One of the erect-growing species, with three-foliate leaves, and broad, ovate, coarsely-toothed segments, with erect many-flowered cymes of tubular bell-shaped flowers of a pale blue colour. It is a native of Japan.

*Chusquea abietifolia*, GRISEBACH.—A graceful little Bamboo, with small linear leaves, and loose pendulous spikes of violet flowers. Native of Jamaica, where "it climbs the loftiest trees, and its pendulous branches form feathery masses of great beauty."

*Salvia Greggii*, A. GRAY, t. 6812.—A shrubby species, with narrow oblong leaves, and racemes of labiate flowers, the lower lip largest, with two rounded crimson lobes. It is a native of Northern Mexico.

— "BOLETIN ANNUAL."—The last-issued part of the *Bulletin of the Brotero Society of Portugal*, published under the auspices of Prof. HENRIQUES, of Coimbra, contains a carefully compiled list of the Euphorbiaceæ of Portugal, with differential characters, synonyms, and bibliographical references, by M. DAVEAU. Prof. HENRIQUES contributes a note on the vegetation of the Serra do Marao, and Dr. WINTER continues his list of Portuguese fungi.

— HILLEBORUS ARGUTIFOLIUS.—Mr. BURBIDGE sends us specimens of this Hellebore—just the plant for an artist, so far as its bold and yet graduated forms are concerned. The botanist will appreciate the way in which the plant reveals the secrets of its growth in the gradual transitions from leaf to flower segment, and will wonder what are the insects which find an attraction in the green flowers. Has the flower a perfume to lure the insects to the nectar in those queer honey-pots inside the segments? That it





FIG. 99.—THE ENTRANCE TO THE OXFORD BOTANIC GARDEN. (SEE P. 540.)

does require cross-fertilisation is evident from the ripening of the stigma before the pollen is ripe.

— NORTH AMERICAN ROSES.—In the course of some remarks on these plants Mr. SERENO WATSON writes that, "The differences which have to be taken into consideration in determining the species of the genus *Rosa* are so variable, and present such a multitude of combinations, that there are few genera

which illustrate more fully the different views that can be taken by different botanists respecting the specific value of the same characters. The number of species admitted by LINNÆUS in 1762 was fourteen; by Sir J. E. SMITH, in 1816, fifty-seven; by LINDLEY, in 1820, seventy-eight; by SERINGE, in 1825, ninety-one, besides fifty-one which he classed as imperfectly known. BENTHAM and HOOKER, in the *Genera Plantarum* (1865), limit the

number of species then known to thirty. The number of species credited to Great Britain by LINDLEY was ten, by BAKER (1871), eleven; by HOOKER (1871), seven, with six sub-species; and by BENTHAM in the same year, five "probably real species." DÉSÉGLISE in 1876 makes the whole number of Old World species 410, of which 323 are European (sixty-six in Great Britain), seventy-five Asiatic, and four African, eight being of uncertain habitat. CRÉPIN's revision of the



European species (1869) accords in the main, at least provisionally, as respects the weight and number of species, with DESEGLISE. NYMAN in the *Conspectus Floræ Europæ* (1878) enumerates forty European species, with fifty-two sub-species. REGEL in his *Tentamen* (1878) recognises a total of fifty, six species of which occur in Europe, thirty-four are Asiatic, and five American; several of our species being referred to foreign types, as we have seen. On the other hand, GANDOGER (*Tabule Rhodolice Europæo-Orientalis*, 1881) distributes the Old World forms into twelve genera and 4266 species. A perfect agreement of opinion respecting the Roses of America is therefore not to be expected. In the following revision eighteen species are recognised. . . . In the general grouping I have followed nearly that of CRÉPIN. The species divide naturally into two series, one having the sepals persistent or breaking away at length by an irregular rupture above the base; in the other the sepals deciduous from the receptacle by a clear circumcission at the base. The first divides again into two groups, the one without, and the other with infrastipular spines."

— "STUDIES IN MICROSCOPICAL SCIENCE."—This admirable publication, already briefly noticed, is edited by Mr. ARTHUR COLE. The letterpress is well executed, the coloured lithographs are sufficient for the purpose—particularly as, together with the plate, is issued a microscopical slide. The work is divided into three sections, devoted to animal, botanical, and miscellaneous history respectively, so that students may provide themselves with all or either of the sections, as may suit their convenience. The value of such a publication depends on the excellence of all its parts; one department must be as well done as all the rest, else it is likely to mislead rather than aid the student. Speaking of the botanical section more particularly, we can most heartily commend the work to the notice of our readers. Messrs. BAILLIÈRE, TINDALL & COX are the publishers.

— BANGOR SHOW.—On Thursday and Friday, August 6 and 7, a show will be held of horticultural productions, combined with another of poultry, pigeons, cage-birds, and rabbits. The first show, which was held on September 10, 1884, was of such a character as to augur well for the success of future gatherings.

— SEATS.—In March last Mr. ALEXANDER TURNBULL, of London, presented to the Botanic Garden of Jamaica twelve large and eight small seats, which have been arranged around the central tank. Each seat is labelled with the name of the donor, and with the injunction, "Do not cut an old friend."!

— SALE OF ORCHIDS.—We notice that, at the sale of the plants at Garbrand Hall, Ewell, Surrey, by Messrs. PROTHEROE & MORRIS, the following Orchids were sold:—*Vanda suavis* Veitchi, for £42; *Oncidium ampliatum* majus, £31 11s.; *Cypripedium Stonei*, £84; *Aërides Fieldingi*, £22; *Aërides Lobbi*, £18 18s.; *Dendrobium Farmeri*, £37 16s. Other Orchids and some Azaleas also were sold for good prices.

— READING CHRYSANTHEMUM SOCIETY.—The annual exhibition will be held in the spacious municipal buildings on November 13. So much success attended last year's show that the schedule has been extended, and the prizes in the leading classes increased.

— CULTIVATION AND WHAT IT DOES.—Mr. ELWES has frequently exhibited specimens of Tulips after a few years' cultivation, and contrasted them with the same flower when first introduced. The contrast is remarkable, so much so sometimes that botanists might hesitate to consider them of the same species, and hair-splitters would be amply justified (history apart) in making not one but many new species. On Tuesday last Mr. ELWES showed a form of *Tulipa oculus-solis*, from Merv, and contrasted it with the same plant after cultivation. The fact is, the plant in its native country has to grow as it can, but when introduced to gardens it is protected from adverse influences and fostered, so that it grows out of all knowledge. It is curious to note that while in Tulips the principal effects of cultivation seem to be the increased size and the absence of undulated margin to the leaf, and the

greatly enhanced size and coloration of the flower, in Fritillaries the change seems to be from solitary flowers to racemes of two or three, without much change of size or colour. These matters are of interest, especially in relation to the alleged changes of Daffodils in cultivation.

— WINCHESTER HORTICULTURAL SOCIETY.—The exhibitions of this well conducted Society will be held on July 16 and November 17 and 18, when prizes will be bestowed on the usual liberal scale.

— STIPA.—Among the Russian sheep which find their way to the Paris markets are some whose fleeces are rendered painful to handle by the numbers of spines they contain. These spines are really, according to M. PRILLIEUX, the fruits of a species of Stipa, probably *S. capillata*, a grass whose seeds, or rather fruits, are surmounted by very long twisted awns, which uncoil and coil according to the greater or less humidity of the atmosphere. This hygrometric property, as is known, favours the burying of the seed in the ground, it being forced beneath the soil like a corkscrew, the process being facilitated by the hairs on the fruit, which are directed from below upwards, so that while it is easy for the point of the fruit beneath the screw to pass in a downward direction, it is almost impossible for it to pass in the opposite direction. The same construction causes it to penetrate the fleeces of the sheep, and to injure the hands of the butcher.

— ROOTS AND OXYGEN.—The necessity of a due supply of air (oxygen gas) to roots has long been admitted, both by physiologists and practical cultivators, some of whose tillage operations receive their justification from this very circumstance. It will, however, be novel to many to learn that the direction and curvature of the growing part of the root are influenced by the quantity and nature of the gases with which they come in contact. According to Herr MOLISCH, an abstract of whose paper will be found in the *Annales Agronomiques* for March, the growing parts of the root are directed towards or from the gas (supposing there is more on one side than on the other), the degree of curvature being dependent, not only on the amount of the gas, but on its nature. The depth to which roots penetrate, and the direction in which they go, are thus regulated to some extent by the amount of gas in the soil.

— ABERDARE HORTICULTURAL SOCIETY.—The annual show, combined with a display of cottagers' produce, will be held on August 6 at Aberdare.

— SIUM HELENIANUM.—Of the four known species probably this is the most interesting, from the fact of its being one of the few existent plants indigenous to the historic island of St. Helena. Nor would it appear in this country except by virtue of its property as an economic plant. The green stems have a peculiar but not disagreeable taste, reminding one of Samphire. They are sold in the markets of its native country under the name of Jellico (the name in all probability being merely a corruption of Angelica). Unlike our native species, the stems show a tendency to become shrubby, a character shown in many other representatives of the European flora under similar climatal conditions. The small white flowers are numerous produced in terminal umbels, and although unattractive are agreeably scented.

— SIKKIM RHODODENDRONS.—Mr. C. B. CLARKE, F.R.S., in the course of some remarks on a recent excursion made by him in the Sikkim Himalaya, makes the following remarks on these beautiful shrubs:—"I observed with interest the great variability of the Rhododendrons within a limited area (but with variety of level and aspect) on Sundukphoo. The common species there, *Rhododendron campanulatum*, D. DON, varies from white to mauve and pink, two shrubs close beside each other differing greatly in colour; moreover, the corolla varies in size and shape, some of the trees at lower levels having smaller and wider-mouthed corollas. *R. cinnabarinum*, HOOK. & ARN., is in general rather a dull-coloured species, the brick-red shading off into a tawny-yellow; but there were particular trees of this species, at various levels, on Sundukphoo of extraordinarily brilliant colour, the red having become a scarlet, and the orange entirely disappeared. For gardening purposes I can see that we must look to individuals, not

to species. The cultivators of Rhododendrons must send men to these upper levels to mark particular trees in spring, and the men must come again in autumn and collect the seeds of the marked trees."

— MAGNOLIA CAMPBELLII.—At the last meeting of the Floral Committee some flowers of this Magnolia were exhibited by Mr. CRAWFURD, from his garden near Cork. The flowers as shown but feebly represented the magnificence of the bloom as represented in Sir JOSEPH HOOKER'S *Illustrations of Sikkim Himalayan Plants*, and therefore received no higher award than a Vote of Thanks. The committee is not to be blamed for this, for they could only speak as to what they saw before them. The tree at Mr. CRAWFURD'S is 35 feet in height. Our nurserymen, though they have grown the plant for years and tried it grafted on a variety of stocks, have not yet succeeded in flowering it, but we have little doubt that now that it has made its appearance we shall not be long before we see it in all its beauty. Sir JOSEPH HOOKER in the *Botanical Magazine*, t. 6793, speaks of it as "in every respect (except in having deciduous leaves) the noblest species of the genus," and prior to the destruction of the forests by far the most notable tree of the outer ranges of the Sikkim Himalaya, the flanks of which are still rose-coloured in spring from its habit of flowering before the production of the leaves. It was named in honour of Dr. CAMPBELL, for many years political resident at Darjeeling, and to whom the rise and progress of that magnificent hill station are due. The flowers measure when full grown 10 inches in diameter, and are often of a deep rose colour. Sir JOSEPH HOOKER mentions having seen "four or five such on a branch 1½ foot long, resembling a bunch of Nelumbium flowers, but far more vividly coloured." That such a plant should only receive a Vote of Thanks is, to our thinking, a misfortune; and, although we freely admit the Floral Committee could do no other from the specimen before it, yet the Society, cognisant of the merits of the plant, should have signalled the first appearance of the plant at their meetings by a Botanical Certificate. It has been flowered, we believe, in Italy before it produced its blooms in Ireland.

— PAPER-MAKING IN BURMAH.—The following description of the method of making the black-paper memorandum books used in Burma and Siam will be interesting. A coarse kind of paper is commonly made from the barks of the Malaing (*Broussonetia papyrifera*), the Nyaung-Oyu (*Ficus Rumphii*), and the Ouhne (*Streblus asper*), but the bark of the *Broussonetia* being finer than the other two gives a paper of superior quality. The stalks of the plants are cut up into convenient sizes, and the bark being loosened by beating is taken off in strips and put with about a third of its weight of slaked lime and with a sufficiency of water into a six-gallon cauldron and boiled for twelve hours. The lime is put in to remove all extraneous matter from the fibre and also to break up the stringy nature of the fibre itself. The fibre is then taken out, the lime removed, and the stuff pounded into a pulp. This pulp is next thrown into a wooden frame with a coarse cloth bottom, and is evenly spread out and placed in the sun to dry. It is now a sheet of grey, somewhat limp, and very tough cardboard, about one-sixteenth of an inch thick, and has next to undergo a process of drying before it is ready for use. The charcoal obtained from the branches of the Yezawa and Daugywe (*Cassia tora*) is pounded into powder and finely sifted; this is mixed with a paste made from rice-flour, and rubbed into the paper until it becomes thoroughly black. The dyed paper is then placed while still wet on a smooth board and polished with a pebble. The paper is made up into books, opening both backwards and forwards. The books are employed in many places for memoranda and accounts, and as the writing can be rubbed out with Betel leaves, it will remain in use for many years, being similar, indeed, to the use of slates in Europe.

— GARDENING APPOINTMENTS.—Mr. W. KIDD, Gardener to Dr. PATERSON, Fernfield, Bridge of Allan, has been appointed as Head Gardener to R. B. WHITE, Esq., of Arddarroch, Garelochhead.—Mr. LEACH, late Gardener to E. P. MONCKTON, Esq., Fineshade Abbey, has been appointed Head Gardener to ARTHUR HODGSON, Esq., Clopton, Warwickshire.—Mr. JOHN SNOW, as Gardener to J. BRUCE, Esq., South Park, Wadhurst, Sussex.—Mr. W. JONES, as Head Gardener at Hafodunos, Abergelle, North Wales.





## HOME CORRESPONDENCE.

**The Hairs at the Tips of the Perianth Segments of Narcissus, &c.**—The presence of a tuft of minute white hairs at the tip of each perianth segment in the *Narcissus* is a point of interest, its apparent use being to attach the tips to each other, so as to prevent the flowers opening till ready for insect fertilisation. If this be so, the hairs on the segments of *N. capax*, in which variety neither pistils nor stamens have yet been found, are a good example of the continuance of hereditary peculiarities in plants after such peculiarities are no longer of use. That these tufts have been derived from very remote ancestors is proved by their presence not only in *Amaryllids* but in at least some *Liliaceous* plants (as in the enclosed flowers of *Crown Imperial*). It would be interesting to trace how far these tufts are characteristic of parallel veined plants. *C. M. Owen*. [We suggest that the hairs in question may prevent water from getting to the anthers, or, perhaps, shut out undesirable insects. The perpetuation of the tufts on the flower-segments of *N. capax* is hardly to be called a hereditary transmission, inasmuch as the plant is [multiplied by bulbs, not reproduced by seed. Ed.]

**Floore Notes.**—The alpine garden is now become interesting; vegetation is from three weeks to a month later than last year. Among plants in flower the rare *Polemonium confertum* is conspicuous. This seldom-seen flower is the darkest and dwarfiest of the family; the flower-stems rarely attain a height of 9 inches, the leaves alone being highly ornamental. *Lloydia serotina* is also just opening its flowers; though a British plant, this is one of the most difficult to keep alive in cultivation—much more to flower. It is doing well here. I have not heard of its flowering before under cultivation, but it may have done so. The very curious *Scolopus Bigelowii* has been in fine flower; its quaint form is sure to attract attention. Few appear to know anything about it, but no plant is more worthy of cultivation. The various *Trilliums* are showing very strong, and will soon be in full flower. *Draba Mawana* has been a sheet of bloom, and will be so for some time. *Primulas* of various species and varieties are more floriferous than usual this spring. Although it has not been a severe winter, there are many more blanks left than might be expected. *Aberia*.

**Potato Planting: How Not to Do It.**—I witnessed some Potato planting this week in South Bedfordshire. Potatoes had been grown on the same land for three years in succession. The seed Potatoes were during last autumn placed in old waste sacks on the spot where lifted, and covered with hot stable-dung. Last week the dung was forked off and the old sacks and their contents exposed. The sacks were perfectly rotten, and the shreds covered with mildews and moulds. About one-third of the Potatoes were in the horrible and well known "cream" condition, as brought about by Van Tieghem's *Bacillus Amylobacter*, the starch-destroying *Bacillus*. This precious "cream" (mingled with the juices of the dung) was running in every direction over the tubers. Many of the seed Potatoes had produced long weakly and diseased shoots. The stench round the heaps was sickening. The planting was going on in rain; the men were selecting the "best" specimens for the rows, and placing the over-diseased and too much grown ones in heaps by themselves. The rows were 1 foot apart, and the planted tubers correspondingly close. I asked one of the men what he intended to do with the waste examples. "We shall give them to some old sows," said he; "they're growa too much for Christians" (!). "They won't be up to much," I said, "after they are boiled." "We never biles Teaters for sows," said the man; "they loikes 'em better as

they are—they'll enjoy 'em, they will; some folks buys sows on purpose to eat Teaters like these." *W. G. S.*

**Syringing Plants.**—Applying water to the head of a plant with a syringe is an operation often looked on as so simple that any one with the use of his hands can manage it, which is correct so far as simply discharging the water on to the leaves and branches, in a way to moisten them, with a view to helping growth by making up to the leaves for the drain which the dry air of a hot sunny day has caused them. But in most cases this is not the only reason for syringing plants. Another, and an equally important object, is usually aimed at—to prevent the different kinds of insects to which the plants are subject from getting a footing on them, particularly such as red-spider, thrips, and aphides. It is scarcely possible that any one having much to do with the cultivation of plants should fail to see that the different kinds of insects named each follow their own instinctive course in the way they take up their quarters and operate on the plants they attack. At the same time it cannot fail to have been noticed that each of the insects named, although following the law of Nature that teaches them to shape their course with a view to their security and preservation, yet so far adapt themselves to circumstances that they do not behave alike on all plants, nor the same under all conditions of the plants. The fat aphides, for instance, that feed until they are ready to burst, are not able to move about freely, and generally first begin their operations at the underside of the leaves of the plants they attack, and on some things mostly remain there, whilst on others they congregate principally on the young shoots. Black thrips on most plants keep as much as they can out of harm's way on the undersides of the leaves, whilst on others they attack both sides alike. The little yellow thrips that affects *Allamandas* and *Crotons* keeps principally to the points of the shoots on the underside of the young leaves; red-spider generally begins on the underside of the leaves first, and as they get numerous become bolder, and betake themselves to the top as well. It does not require much observation to enable any one to see that when in syringing the water is let to reach the plants anyhow, or simply allowed to fall on the leaves like the rain they get when in the open air, very little is done to keep the insects named from getting a lodgment. Water is just what they dislike, and, if in place of using the syringe in an any-way sort of manner, care is taken to wet all sides of the plants and leaves alike nine-tenths of the attacks of these troublesome pests will be avoided. These remarks especially apply to plants grown under glass; the time for using the syringe daily to many things in this department is coming on, and if this simple work is done as it should be much after-labour and disappointment will be avoided. The work in question is so simple, and the effects when rightly carried out are so manifest, that it would seem scarcely necessary to allude to it were it not that there is plenty of evidence that in syringing plants little thought is often given to the double object that can so easily be attained. *T. Baines*.

**Magnolia conspicua.**—This *Magnolia* is rightly named *conspicua*, for it is indeed a telling object just now in the gardens, and it is the finest flowering tree of this season of the year. Unfortunately, we in the Thames Valley often get the blooms injured by frost; but the beautiful summer weather of late has brought the tree out grandly, and the perfume exhaled in the evening from the flowers is delicious. Planters would do well in planting this to associate it with some dark foliaged plants, such as dark green *Hollies*, &c., which show it out to perfection. I consider this a variety that contrasts well with *M. purpurea*, which has small purple veins in the flowers, but both ought to be in every pleasure garden where hardy flowering trees are admired. *J. C.*

**Improvement of Vegetables.**—Any one who has had the opportunity of growing or seeing many of the recent introductions or selections of culinary vegetables must confess that there has been a considerable improvement, and likewise must have found that some of the old sterling varieties are either lost or become deteriorated. Where is the old type of *Snow's Broccoli* as grown twenty years ago? I have not seen it for many years; at that time you could have picked it out of all the other sorts by its growth: the same may be said of *Walcheren* and *Penzance*—none of them are

so early as they were at that time. If these have deteriorated we have great improvement in *Veitch's Self-protecting Autumn and Spring White*. *Cattell's Eclipse* was at one time the best late *Broccoli*, but that is now superseded by *Veitch's Model*. Where is the original type of *Pine-apple Short-top Beet*? I have not seen it for some years although it is in many catalogues. *Omega*, which was sent out about four years ago, is an improvement, but I venture to say that *Pragnell's Exhibition*, sent out last year by Messrs. *Veitch*, will supersede them all for quality; it has not the earthy taste which most of the others have. If Mr. *Wilke* will try *Nonpareil Cabbage*, I think he will prefer it to *Enfield Market*; *Ellam's Dwarf* is an excellent early variety, but for a summer Cabbage, and one that is soon ready to cut, perhaps there is none equal to *Little Pixie*. As to *Celery* I believe there is none equal to what was sent out perhaps thirty years ago as *Cole's Solid Red*, and *Major Clarke's Red*; the first-named will never "bolt," will last longer than any other I know without running to seed, it is never pithy or hollow in the leaves: as to its qualities for eating raw, it is surpassed by none. I have tried several varieties but must keep to the old one. As to *Melons*, *Reed's Scarlet-flesh* and *William Tillery* are certainly an advance on *Golden Perfection* and *Beechwood*; but I must confess that I cannot keep them true. There is also an improvement in *Tomatos* in *Hackwood Park Prolific*, sent out last year by Messrs. *Veitch*. As to *Turnips*, we can pull them a month earlier since we have had *Early Munich* and *Extra Early Milan*: and where is there a *Turnip* equal in quality to *Veitch's Red Globe*? As to *Peas*, of course it depends upon the season you require them; the best early I consider is *William I.*; *Laxton's Prolific* is a good second early; *Gladiator* is very good; *Marvel* is extra good, so is *Champion of England*; but *Huntingdonian* is a selection from it, and much better for crop. Those who like a sweet *Pea* will probably prefer the two latter to any [other, otherwise *Ne Plus Ultra* will be preferred by many; it continues to grow very late, is a good cropper—a very fine *Pea* for late season. There is no doubt soil, locality, and methods of cultivation have much to do with the quality of vegetables as of fruit. If we could have the country polled with regard to the favourite varieties no doubt but there would be a great variety of opinion with regard to them. *David Walker, Dunorlan, Tunbridge Wells*.

**Forcing Tree Pæonies.**—That the above is an old practice in England the following facts will demonstrate. In April, 1853, I went under Mr. *Harley*, High Legh Hall, Cheshire, and took charge of the conservatory there, and I have yet a vivid recollection of the magnificent display of *Tree Pæonies* then in bloom. On expressing to Mr. *Harley* my admiration, he wondered they were not more grown, as all the time he had been at High Legh (then about forty years) he had found them most useful. *Persian Lilacs* and *Moss Roses* were also grand, and I found they were all treated alike, and grown in the same sized pots (about 15-inch ones). By the way, why cannot South-country gardeners, when speaking of pots, give the number of inches diameter instead of number so-and-so, which we North-countrymen do not understand? After blooming these were put into a cool-house for a month or so, top-dressed, and then plunged into a trench of ashes like a *Celery* trench in the kitchen garden, and regularly supplied with water during the summer, and were not forced again the next year, Mr. *Harley* having two lots, which he forced alternately. *T. Dobson, Whitburn Hall, Sunderland*.

**The Eucharis Mite.**—I am quite aware that defective drainage was the cause of the mischief to my plants, and that the red rust, or mites—the microscope shows that they are synonymous—was brought on in consequence. Daily experience teaches us, notwithstanding what Mr. *Michael* says to the contrary, that mites, and indeed pests of every description, are more partial to plants in an unhealthy state than to those in robust health, and his murderous *Rhizoglyphus* must be quite exceptional in their taste, should they prefer to attack the healthy. There are, however, only two cases yet mentioned in all the correspondence which has taken place on this subject, in which they have done so, viz., those at *Trentham* and those mentioned by Mr. *Lees* in your last issue. His statement is indeed quite startling, for he says it



is quite common. Surely this announcement requires corroboration. The failures stated by all your other correspondents were distinctly traceable to ill-treatment, either in over-forcing, over-watering, or some other mismanagement. I am happy to state that mine have entirely recovered their former vigour since they were repotted, and show no trace of mites now. I am still of opinion that we may regard mites with equanimity, murderers and all, if we continue to give justice to the plants in our treatment to them. I am bound to say that most of those gentlemen who have recently written on the subject are of the same opinion. It would be most interesting to your readers if Mr. Stevens would favour us with a short account of what state his plants were in as regards drainage, &c., when the *Rhizoglyphus* attacked them. *A. Macdonald, Cheadle, Manchester, April 20.*

**Imported Orchids.**—In your issue for April 11 (p. 483) Mr. Douglas asks for information as to present results of the lately imported white *Lælia anceps*. Mine are as follows:—I purchased large masses on Feb. 13, and immediately broke them up into over fifty plants; thirty of these had natural leads, the remainder are plants formed entirely of back bulbs. All those with leads are now in growth (some eight or nine still retain a leaf, all the others lost them as did Mr. Douglas', they having been almost all bent at the base, which is fatal), some roots are 2 inches long, and eyes have grown out 1 inch and some grew a little over. They look strong and I should judge twelve would bloom (some plants have but three bulbs); the "back bulb" plants have also rooted and pushed eyes out, but about two-thirds (or sixteen) of these still remain dormant, but all are plumped up and healthy, and I only see at present six deaths, four gone, and two going. Treatment was as follows:—All cleaned and washed carefully at once, dipped head over heels in a tub by my own hand, laid on the shingles on shady stage, syringed copiously on a fine day, all crocked up, and still syringed, then as roots began to emerge all were potted up as required: some of the "back bulb" plants are still in the crocks only. My result I consider most satisfactory, and next winter I shall be very pleased to show them to Mr. Douglas if he does not (but I hope he will whenever he likes) see them this summer, as well as all my other Orchids. I am quite convinced that all *Cattleyas* and *Lælias* have had enough drying by the time they arrive in England, and they want "a bath" at once. Some people have been surprised at my bathing them as I do, but they speak for themselves as to whether they like it, and summer or winter I give them all the same treatment at once on reaching home. I also put them into their permanent quarters at once. *De B. Crawshaw.*

**Fruit Prospects in the Eastern Counties.**—The weather has been rather trying for Apricots, but though this is so, they have set well on walls where protection has been afforded, and promise to be a good crop, as they are swelling slowly; but, as usual, there are symptoms of branch dying, the real cause of which has not yet been found out. Many think it is from cold, and as it generally occurs after frost, or in untoward seasons like the present, there would appear to be something in it, and if it originates through chill, little can be done by way of prevention or cure beyond sheltering the trees in the spring. The best protection that can be afforded is a light glass coping, which, in a great measure, prevents the escape of heat from the bricks at night by radiation, and, what is of almost equal importance, keeps the rain off, which, while the blossoms are open and the fruit small and tender, is a great gain, as Apricots will stand much cold when they are dry. The flowers of Peaches look a little weather-beaten, but so far as can be judged at present the injury only extends to the petals, the anthers and stigmas appearing all right, and all that is wanted now is warmth to give an impetus to the embryo fruit, and push it along, but the wind at the time of writing is still in the north, and the temperature low, with a clear sky that betokens more frost. This and the keen air we ward off our Peach wall by having the whole double-netted with fish nets, the meshes of which cross and sift the wind, thus taking the sting out of it, and giving the blooms a chance to set, which I have great hopes of their doing. Plums and Cherries are just opening, and will soon be a sight, as they are crowded with bud, especially the latter, which no doubt arises from the rest they had

last year, as they had little to carry. Pears, everywhere that I have seen them, are in the same satisfactory condition, but their fast-opening buds look brown and discoloured, which, however, only affects the scales, and these they will throw off with the first rains, as the flowers are only waiting a warm shower to open. Apples, like Pears and other fruits, are fortunately late, but full of promise, and bad weather must extend well into May if it harms them, as, unless a great change takes place, they will not be in bloom for three weeks or a month yet to come. *J. Sheppard, April 17.*

**Monstera deliciosa.**—Seeing your note in issue of March 28 on *Monstera deliciosa* in fruit, I may say that two years ago I had five fruits on my plant of *Philodendron pertusum* (which I believe is almost the same thing), and now it is carrying four again. *De B. C.*

**Orchid Fruit.**—We add still another illustration to those already given, with a view of showing the diversity of the seed-vessels of these plants, and of inducing those who have the opportunity of so doing



FIG. 100.—SEED VESSEL OF *CATTELEYA ACLANDIAE*.

to note and record the form of the seed-vessel, which may often be of use for purposes of discrimination, and for completing the history of particular plants. The present illustration (fig. 100) shows the seed-vessel of *Cattleya Aclandiae*, and should be compared with the descriptions and illustrations of those that have been previously given.

**Double Daffodils.**—Mr. Brockbank, on p. 502, *Gardeners' Chronicle*, informs us he has in his garden double *Narcissus* of the varieties *Telamonius*, major, maximus, obvallaris, princeps, and cernuus. I have often heard of the first five, and, as opportunity offered, purchased or begged roots of them, and on all occasions found the five resolved themselves into one, and that *Telamonius plenus*. A double major, maximus, and obvallaris I am certain does not exist. A double form of princeps may yet be found, but the roots sold last year under this name are *N. Telamonius plenus*. I have observed that some one advanced the statement that *N. princeps* is Italian and found growing wild with double *Telamonius*, so that some enterprising amateurs may unearth double princeps; but till now there is, I think, no such plant in our gardens. If Mr. Brockbank still adheres to his statement, and will send roots to the Horticultural Gardens, Chiswick, of his *N. Telamonius plenus*, major *plenus*,

maximus *plenus*, obvallaris *plenus*, and princeps *plenus*, Mr. Barrow, I am sure, will carefully plant them, and those curious in such matters may visit the gardens, and judge between Mr. Brockbank and your correspondent. It is quite true, as Mr. Brockbank advances, that *Pseudo-Narcissus* in England takes a wide range in size, and, I would add, in colour. I have seen them the counterpart of that figured at p. 513, *Gardeners' Chronicle*, as Minnie Warren in size and pure white, and I have seen them nearly 4 inches long. It may, therefore, safely be advanced we have wild in England *Pseudo-Narcissus* in size from 1½ inch to 4 inches in length, and from pure yellow to snow-white. The whites, or albinos, if they may be so called, are not plentiful, but whether these different sizes and colours of the English *Pseudo-Narcissus* are represented by double forms is an unsettled question, and the committee on doubling would, I should say, be greatly assisted in their work if such men as Messrs. Brockbank and Wolley Dod would send their sets of gradation to the gardens at Chiswick. *Argus.*

—Any criticism on my statements on this subject I shall always esteem a favour, though, as I have said, I wait for the result of experiments before taking a farther active part in the controversy. In reply to "A Member of the Daffodil Committee," whose note appears on p. 511, I say that I have known for forty years that Daffodils will not flower unless the germ of a flower is formed the previous year during the decay of the leaves, but I also know from more recent experience that the form and parts of that flower may be much modified by the food the bulb receives during the early period of its growth after the decay of the leaves. I have reason to think that it is then that incipient filaments are converted into petaline or petaloid ligules, and that their number may be increased. In this way I have reason, founded upon experiment, for believing that the difference between a double and a single flower may be effected in one growth—say from July to April. I may here mention incidentally that from remarks made to me at the recent Daffodil show, there seems to be a belief that seven or more perianth segments in a Daffodil flower is an approach to doubling. This is a mistake; the first approach to true doubling always takes place inside the crown at the base of the filaments, which become thickened and twisted. In fact, though the normal filaments are not necessarily suppressed, the additional growth generally has the form of enlarged filaments. *C. Wolley Dod, April 20.*

**Proposed Foresters' and Gardeners' Benevolent Institution for Scotland.**—Mr. Rust and Mr. Grieve writing on the above institution feel inclined to think that there is no use for a Benevolent Institution for Scotland because there is a Benevolent Institution for the benefit of gardeners already existing. I beg to differ from Mr. Rust and Mr. Grieve. It is only two years since an appeal was made to the principal gardeners in Scotland for subscriptions and to become members of the society already existing in England; and if Mr. Grieve will take the trouble of looking over the subscription lists he will find that gardeners in Scotland were not inclined to take any interest in the Institution. But it is gratifying to know that the Institution in England owes some measure of its success to having so many northern members. We are told by Mr. Grieve that the Institution has the patronage of the Queen. Perhaps the proposed Scottish Benevolent Institution, if formed, will be fortunate in getting the patronage of the Queen and that of the Prince of Wales. For my part, I am strongly against joining the Institution in England, while I hope foresters and gardeners in Scotland will put their shoulders to the wheel, and try and get a Benevolent Institution formed in Scotland, and save the Institution in England the trouble and expense of having northern pensioners. *J. M. L.*

**Orchid Pruning.**—With your permission I should like to reply to the remarks of "T. B." on p. 484. I am not a little surprised that he does not accept the terms of my offer to send some plants of *Dendrobium nobile* to South Kensington, but calls it a piece of cool assurance. If anything be "cool," it is the lame attempt he makes to shift the burden of proving his own statements on to my shoulders, instead of proving them himself. It was not I, but he, who had the first word about pruning Orchids. He stated, but did not prove, that pruning was altogether



wrong, and all those who resorted to the practice were little better than acrobats, who delighted to put themselves into all kinds of unnatural contortions. I replied that I was a strong believer in pruning certain kinds of Orchids, and to back my opinion, so to speak, I sent the Editor a spike I had so treated, and which he was good enough to notice. I had previously informed "T. B." why I could not exhibit, and at the same time I said how and upon what terms he could see the plants. And now I am, forsooth, "cool!" Well, let that pass. Now, it so happens that the very spike I sent the Editor is the means of proving very conclusively that "T. B." knows nothing of *D. nobile* pruned or unpruned, for he says, from your remarks concerning it, it is a growth of 1883. Your readers will recollect that I said the specimen I sent you was by no means the finest I could have sent: neither was it. I could then, and can now, cut growths considerably longer, and with a great many more blossoms on them. But I sent that particular growth because it was leafy, and so would prove beyond doubt it was a last year's (1884) growth. No man living ever saw a two-year-old growth of *D. nobile* in bloom with leaves on it, not even "old hands" like "T. B." I wonder what "T. B." would say if he saw a *D. nobile* plant that has been pruned for the last four years, and has at the present moment over three dozen growths, not a few near 3 feet long, containing between 600 and 700 blossoms. Yet I have such a plant. Four years ago this very plant was in a 6-inch pot! This does not say much for "T. B.'s" "weakening" theory. Just a word about what "T. B." calls the lead. Nothing remains on the plant from which I cut your spike excepting two or three growths that were made late in the autumn, and which have not blossomed this year, but will do so next year after they have shed the leaves they have now on them. This year's growths have already started from the stems cut about a fortnight ago. They are quite as healthy as usual. In conclusion, I can only say I have no wish to show my plants for my own aggrandisement. I made my offer to "T. B." in perfect good faith, and on the assumption that he perfectly well knew there are employers who have no wish to have their plants taken about the country, but who simply grow them, or have them grown, for their own gratification and edification. I am still open to accept the terms I mentioned about showing at South Kensington, or I shall have the greatest pleasure in showing any one, who obtains the address from you, sir, the really magnificent plants I have been fortunate enough to grow. *D. N.* [We refer our readers to the description, at p. 538, of the magnificent specimen of pruned *Dendrobium* shown at South Kensington, and which at once puts at rest all question as to facts. As to the expediency of the practice as a general thing—that is quite another matter. *ED.*]

**The Parcel Post.**—There are doubtless many gardeners who have suffered inconvenience, if nothing worse, through the delay of parcels sent by the above. I have at different times despatched small parcels of flowers to be (as I thought) just in time for a particular purpose; but so far I have missed my mark, which is, to say the least, very annoying to both sender and receiver. I now send small parcels which weigh less than 12 oz. by the ordinary letter post, by which the cost is sometimes less, and never above a halfpenny more, whilst the delivery may be depended on, as in the case of letters. For heavier parcels I think the railway is the best, if at a convenient distance, as flowers packed in the morning might be sent almost any distance by evening, whilst by the parcel post they must in most cases have been cut at least the afternoon before, which is a great consideration. *T. T. W.*

**French Marigolds from Cuttings.**—Last summer Mr. J. Downie, of the Beechhill Nurseries, Murrayfield, Edinburgh, wishing to preserve some very fine French Marigolds, put in some cuttings early in September, which rooted, and have made nice plants by the present time. One result is that as soon as the cutting plants attained to anything like size, they commenced throwing flower-buds in the greatest profusion, and these have to be kept picked off in order to enable the plants to grow into anything like size. Perhaps this may be to some extent due to the culture of the plants under glass; something also is due to the fact that they are obtained from cuttings and not from seeds. It is obvious that flowers produced

under glass would lack the size and correctness and brilliancy of marking found in flowers produced in the open air; so some interest will attach to the character of the flowers when the plants bloom in the open air. The practice of growing French Marigolds is an old one, but the fact that it is so seldom followed probably indicates that the results were not satisfactory. Now that single flowers are in the fashion it is not surprising that strains of single French Marigolds are being offered. But it can scarcely be imagined they will ever take the place of the fine double varieties on the exhibition table, and especially in the Midlands and North, where striped double Marigolds are much more grown for exhibition than in the South. *R. Dean.*

**Crassula pyramidalis.**—The flowers of this plant are usually described as inconspicuous, but when accorded favourable conditions as to sunlight and a free circulation of air they are pure white and meritorious enough to deserve the epithet of pretty. They are borne in a dense cluster, terminating a stem that does not exceed 3 or 4 inches at most. Great interest is attached to the plant on account of the densely packed, four-rowed arrangement of the leaves,

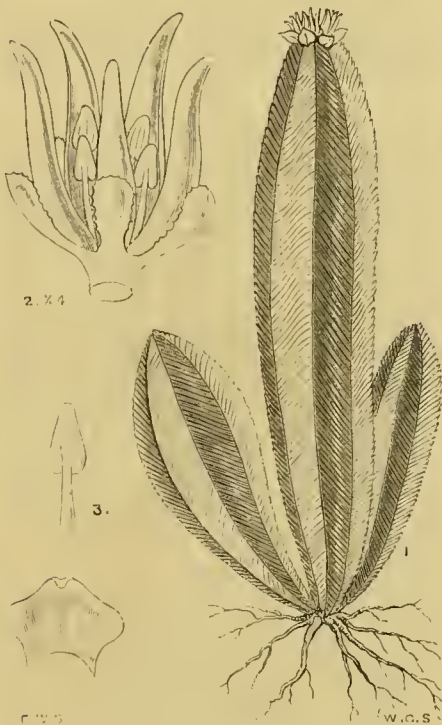


FIG. 101.—*CRASSULA PYRAMIDALIS*.

that give it a very characteristic appearance. The whole forms an oblong piece of uniform width throughout, or nearly so, with little approach to pyramidal shape. The leaves are so densely placed one above another, that the stem is completely hidden. It merits a place in collections if merely out of curiosity. Like the rest of its numerous congeners it is a Cape plant, requiring cool treatment. A neat specimen may be seen flowering in the Cape-house at Kew.

### POTTING CAMELLIAS.

If this operation has been delayed, out of consideration for the numbers of unopened flower-buds with which the plants were until recently furnished, and which, had the latter been potted earlier—that is to say before the plants started into growth—would probably have dropped off in consequence of the check which the plants would have experienced, it should not be delayed any longer, as the plants are now beginning to make rapid headway. Experience tells me that the most suitable compost for Camellias to grow in is one consisting of good fibry sandy loam, lime rubble, small charcoal, and Beeson's Manure, in the proportion of one 10-inch potful of the latter ingredient, four of charcoal, half a barrowful of lime rubble, and four barrowloads of loam, the

whole being well incorporated before being used. Over-potting is an evil to be avoided. Plants in bad condition at the roots will require being put in pots smaller than those in which they have been growing, while plants having plenty of roots should have pots 3 or 4 inches larger than those which they previously occupied. Soil sufficient to raise the surface of the ball of earth and roots to within 2 inches of the top of the pot should be put over the sphagnum and made slightly firm, after which the plant should be placed in the pot, and, a little of the compost having been added, the space between the ball and the pot should then be filled with soil sufficiently dry not to stick to the rammers, which should be used to make the soil firm as the work proceeds. When the potting and arranging of them in the house have been completed give sufficient tepid clear water to settle the soil about the roots, after which it will have to be applied sparingly to the roots until the latter have pushed well into the new soil. During bright sunny weather syringe the plants overhead thoroughly in the early morning and in the afternoon at closing time. This should be varied from 3 o'clock in the afternoon to 4 during the next three months, when air should be admitted more freely, and a little left on at night to consolidate the young wood as much as to partially rest the plants. Plants recently potted should be shaded slightly till rooting takes place, when full exposure will do no harm whatever. *H. W. Ward.*

### ORCHIDS FOR AMATEURS.

(Continued from p. 486.)

**MANURES.**—The Count de Buysson recommends a still bolder treatment than that which I spoke of in my last: he speaks of syringing the plants with guano-water, or with a solution of carbonate of ammonia once or twice a week, or even, when in vigorous growth, on alternate days; and the solutions which he recommends are, in my opinion, very strong—so strong that at present I have not ventured to apply them in their full strength. The Count recommends 15 grains of guano to be added to a litre of water; he says the guano should be put into a muslin bag and soaked in rain-water for twenty-four hours. Now, a litre is something less than a quart. I have used the same quantity of guano to half a gallon repeatedly, with, I believe, great advantage. The leaves are syringed with this solution once or twice a week in the case of epiphytes, and I have freely watered *Cypripediums* with the solution with the most distinct advantage. A sickly *Cypripedium* often becomes quite healthy in a few weeks after five or six such applications. The solution of carbonate of ammonia recommended is made of the same strength, and used in the same manner as the guano-water; and here again I am disinclined to try a stronger fluid at present than one containing from 20 to 30 grains to a gallon of water. I believe some of the least floriferous Orchids will become regular flowerers under this treatment, and I hope, at no distant date, some of the readers of the *Gardeners' Chronicle* will give records of great success by the adoption of such simple methods. The use of manures must be confined to such plants as are in active growth, and a free supply of air should be given during the use of both guano-water and ammonia-water so long as any odour of either substance hangs about the house; but with the judicious application of the fluids I have recommended, the smell is very slight, even in the morning after the house has been shut up all night.

I will mention one case in which the effect of guano was absolutely marvellous. I bought a pan of *Cypripedium barbatum*, the leaves of which were very sickly and spotted with rusty-looking spots. In a month, with four applications of the guano, the plants had entirely recovered, and not a spot remained upon them, whilst young shoots were developing vigorously. This is exactly the result which might have been predicted with certainty after reading the observations of the Count upon the subject. It is well known that many species deteriorate under cultivation, such, for example, as *Dendrobium formosum* and *Cattleya citrina*; I am curious to know whether this may not be entirely obviated by the application of guano or ammonia, but at present I cannot speak with any authority on the subject, but I intend to make the experiment and am inclined to predict success.

### REPOTTING PLANTS.

The repotting of Orchids is a very important element in their successful culture, and is not well



understood by novices. I have myself made some very serious mistakes in repotting, but we learn as much by failures as by success, and I wish to warn my readers against falling into an error which is sure to lead to misfortune. The roots of Orchids, like the plants themselves, are at rest during a considerable portion of the year, and they are then very liable to be destroyed by any excess of moisture; indeed, in most Orchids they can hardly be kept too dry. In the autumn, when the plants require rest, the pots should be full of roots, the fuller the better, but beware of increasing the pot-room at this period: the time to repot is when the roots begin to manifest activity in the spring, and even then it is better to have too little than too much room. Sometimes in the autumn the roots are growing freely, and one is sorely tempted to repot the plants; I have done so myself on many occasions, and have always regretted it. After repotting the roots came to rest, and damage was always done to the plants.

I believe the spring is far the best time for repotting, and this should be performed after the roots have had their annual rest, when they recommence growing. Any plant which is not doing well should be repotted at any time, and especially if the compost appears to be clogged and the drainage imperfect; but I believe it is a fatal mistake to give such plants much pot-room. Plants which are doing well should certainly not be disturbed in autumn merely because they appear to want pot-room.

These remarks apply to the epiphyte species. The semiterrestrial kinds, *Cypripediums*, *Calanthes*, and *Pleiones* should be repotted when they start into growth; the *Calanthes*, which shed their leaves, pass into perfect rest after flowering, and where room is of consequence the bulbs may be stored in paper bags during the winter, like those of *Gloxinias*, and they are, I believe, much improved by such treatment. All the compost must be shaken from the old roots, and the ripe bulbs must be kept dry, and at a temperature of from 40° to 45° to ensure perfect rest. A number which I placed on a shelf in my cool house last winter were replanted early in March, and are now growing vigorously. The same treatment is advisable with *Pleiones*.

When Orchids have been top-dressed with sphagnum, unless the moss is growing, I think it well to remove it in winter, and replace it with some fibrous peat, from which every particle of soil has been shaken out; or, at any rate, this should be done in spring, unless some fresh growing sphagnum can be put in the place of that which is dead, for the decaying moss upon the pots is most prejudicial to the health of the plants.

Sphagnum varies very much in its vitality; some grows well, some very badly. I believe that which is taken from a heath, where it has had the full benefit of the sun, grows best where there is plenty of light, and that from a wood where shading is used freely. It is far better to do without sphagnum altogether than to have dead sphagnum about the plants; but for *Vandas*, *Phalenopsis*, *Dendrobiums*, and *Odontoglossums*, I do not think anything is so good as living sphagnum. *Cattleyas* and *Lælias*, on the other hand, appear to do better in good fibrous peat.

Whilst speaking of repotting Orchids, I would say a few words on the different kinds of receptacles in which they may be planted. *B. T. L.*

(To be continued.)

## Law Notes.

**IMPORTANT ACTION BY A FLORIST.**—At the Chard County Court, the other day, Mr. F. W. Laxton (Deputy Judge) was engaged in hearing actions between Mr. Edgar Jarman, seedsman, of Chard, and Mr. John Chisholm, florist, and for some time salesman in Jarman's employ. Chisholm sued Jarman for the sum of £32, being £6 arrears of salary due, and £26, being thirteen weeks' salary, which he claimed in lieu of a quarter's notice and wrongful dismissal. Mr. Jarman brought an action against Chisholm to recover possession of a house. From the evidence adduced it appeared that Jarman advertised for a salesman, and Chisholm and his wife (on the understanding that the situation was a permanent one) broke up their home in London and undertook the Chard business; but after about twelve months had elapsed Jarman reduced the salary 10s. per week, and ultimately gave the manager a month's notice to leave his employ, which led to the

present actions. The case devolved on the question as to whether there was an agreement between the parties to give and take three months' notice on either side to terminate the engagement. Ifis Honour decided that there was a verbal agreement between them, and gave judgment for Chisholm in the sum of £16 10s., with costs on the higher scale; he, however, ordered the latter to give up possession of the house in fourteen days. The case was one of great interest, and the Court was crowded. *A Correspondent, Chard.*

## Reports of Societies.

### ROYAL HORTICULTURAL and AURICULA: April 21.

This gathering, held in the conservatory, was the last of a series in which the Narcissi have played a prominent part. On this occasion the flowers looked in greater beauty than ever, but their demand on the public recognition was divided with the Auriculas, and other members of the genus *Primula*, which were displayed in considerable numbers.

#### Scientific Committee.

Sir J. D. Hooker in the chair. Present: Messrs. Elwes, Smece, Pascoe, Bennett, Lynch, Murray, Ridley, Houston; Professor Foster, Dr. Masters, Rev. G. Henslow.

#### TULIPS AND FRITILLARIAS.

Mr. Elwes exhibited the following species and varieties:—A magnificent form of *T. oculus-solis*, brought by Mr. Donovan from Merv. It has the habit common to Asiatic species of opening out flat in the sun like a plate, though Mr. Pascoe observed that it will also do so at Montpellier, though it is not usual with South European Tulips; *Fritillaria tenella*, showing the influence of cultivation, one specimen being double the height of the wild form; *F. obliqua*, which appeared to be a long-cultivated form of *F. tristis*, with the peculiarly twisted leaves; *F. græca* remains of a dwarf size; this, as well as *F. lycica*, become many-flowered, instead of remaining two-flowered, under cultivation. Mr. Elwes remarked how wild Tulips under cultivation lose the wavy margins to the leaves, while the flowered become much enlarged, &c. *Fritillaria delphinensis* appeared to be a seedling of *F. latifolia*, produced by bulbs from North Italy. He also exhibited *Narcissus calathinus* from the islet of Glénan off the Brittany coast. *Erythronium propallans*, and the lovely blue *Teophylax cyanocrocus* from Chili, and which is nearly if not quite hardy.

#### IRISES, &c.

Professor M. Foster exhibited several species of Iris as so-called *I. agrostifolia*, but the narrowest leaf was not so narrow as that of *angustifolia*. It seemed intermediate between *I. unguicularis* and *I. cretensis*, partaking more of the latter; *I. Milesii*, from the Himalayas, intermediate between *I. tectorum* and *I. fimbriata*; *I. æquiloba*, a form of *pumila*, but with nearly cylindrical ovary, that of typical *pumila* being trigonal. Another form of *pumila* remarkable for its beard was the smallest of the bearded Irises, and another form very strongly scented like the Tonga Bean, *Fritillaria amœna*, really *F. Sibthorpiana* (Boiss.).

#### HELLEBORES: HYBRIDS.

Dr. Foster read the following communication from the Rev. Mr. Ellacombe:—"In 1877 I received from Berlin a collection of hybrid Hellebores under the following names:—1, hybridus; 2, 3, albido-virescens; 4, reticulatus; 5, caucasicus purpurascens; 6, C. porphyromelas; 7, C. pallidus; 8, C. p. albus; 9, punctatus hybridus; 10, P. purpurascens. For three or four years these were all fairly distinct, but now the result is this—3 has entirely lost its mixed character and bears two distinct flowers, a large white and a pale pink; 1 has also gone into two colours, apparently guttatus and Olympicus; 5 is almost Colchicus; 4 is in two colours, a dull pink and a greenish white; 6 and 9 have become almost identical; 2 is a buff one, and apparently constant; 5 is also constant and a fine plant; 7 is constant; 10 has two very distinct colours, a good white and a very deep dull plum. These colours are not mixed in the flowers, but the plants bear the two distinctly, as much as if they were distinct plants placed close together, but they are not distinct plants, but are borne on one root. The change from the hybrid characters to the colours of the parents has been gradual."

#### HYDROCHARIS MORSUS-RANÆ: PROPAGATIVE BUDS.

Mr. Houston exhibited buds having two kinds of

leaves; the lower, curved downward, hanging down, appeared to have the use of balancing the plant so as to keep it erect.

#### IMPATIENS EPISCOPI.

Mr. Lynch exhibited some fine plants of this new species grown at the Botanic Garden, Cambridge, from the Usagara Mountains of Central Africa, 4000 feet elevation. He had succeeded in raising a hybrid between it and *I. Sultanii*, but it bore no pollen; but from the evidence of the fruit, apparently set and swelling, it will prove fertile with both parents.

#### MAGNOLIA CAMPELLI.

Mr. W. Crawford, of Lakelands, near Cork, sent blossoms gathered from a tree 35 feet high. It flowered for the first time three years ago, and has forty flowers this year.

#### WISTARIA SINENSIS, PODS OF.

Mr. Noble sent a fruiting peduncle bearing three pods near the end, but which had failed to ripen any seed; they were from a seedling plant brought by Mr. Fortune from China, and is the only one which bears pods, but never ripens any seed. Mr. Noble remarks that the old plants derived from cuttings do not appear capable of forming pods. The Rev. G. Henslow remarked on this circumstance that the formation of pods without seeds was probably due to the inefficient action of the pollen. As Max Wichura has shown in the case of hybrids, "The ovaries may swell and ripen, but not contain a trace of seed" (*Journ. Hort. Soc.*, vol. i., n.s., p. 63). Mr. Meahan in a paper in *Linn. Journ.*, vol. xvii., p. 90, stated that the fact the seedling standard Wistarias as a rule only have pods with ripe seeds at Philadelphia, the trained plants rarely fruiting unless they sent up a shoot free into the air and unsupported, just as Ivy flowers and fruits, only under the same conditions. Subjoined is his account of the plants as grown by him:—

"I have seventy-nine plants of *Wistaria sinensis*, standing about 3 feet from each other in one straight row. These plants were themselves seedlings, and therefore not subject to objections which might be made if they had been all raised by layers from one original plant. They were trained to stakes a few feet high until the stems were strong enough alone to sustain their heads. In this condition they are called standard or tree Wistarias, just as Roses budded on stems a few feet high are known as standard or tree Roses. These make no attempt at vigorous growth when compelled to sustain themselves, but they flower profusely every year, and always produce more or less seed. The interesting fact in connection with this seedling is that only the flowers towards the termination of the raceme are fertile, and the fact may be thus formulated—as the growth force in the rachis weakens the probability of fruit is increased.

"In order to present this fact clearly I have had thirty old flower-stalks counted, and find they bore on an average sixty-five flowers to a raceme. I have had 250 stems bearing one seed-vessel examined, and the number of flowers which fell before the seed-vessel was produced counted. The average of these is forty-eight, showing that in this number of cases more than two-thirds of the whole number of flowers on a raceme fall before one seed-vessel is produced. Of the seventy-nine plants a great number of the racemes produce no seed, and of those which do one pod is mostly all. But forty-four racemes produced two seed-vessels. These seed-vessels were some distance apart on each rachis; but the average distance has been taken, and then the average of the whole forty-four, and this shows that with this more favoured condition of nutrition only the forty-fifth flower bore seed. Seven out of the whole number on the seventy-nine trees bore three seed-vessels. In like manner these have been averaged, and the result gives 43.50 as the number of the flower successful in its seed-bearing object. There can be no question about the correctness of the position that it requires more nutrition to perfect three capsules than one. We might reasonably look for their appearance in what we should regard as the most vigorous portion of the raceme and the point best able to bear them, but we see that the average position of the three on the rachis is less in proportion to their numerical order than the two, and the two to that of the single seed-vessel, and that in all of the three classes the earliest two-thirds of the flowers fall, leaving the weakest portion of the rachis to bear the seed.

"All this has relation to nutrition. As regards pollinisation some remarkable experiences were obtained. In none of the early flowers of the raceme could we find a trace of pollen, though the anther-cells seemed perfect; but after about the half of the flowers had fallen some succeeding were found with a small quantity of pollen, and it would be of course from such as these that the seed-vessels came.

"So far it might appear that the whole question resolved itself into one of pollinisation. But alongside of these seventy-nine tree Wistarias is one very strong one of the snow-white variety. This had hundreds of racemes thereon, and every flower examined had a profusion of perfect pollen. But there is not a single seed-vessel on this plant. The branches of a tree of the common blue form freely interlace, and have the same but no greater degree of fertility than the trees elsewhere. The barrenness of the white would be remarkable, in view of the general rule that albinos have less vigour than their more dusky parents; and this vegetative vigour ought to weigh in favour of fertility in this case. But



the white Wistaria is an exception. It is more vigorous than the blue variety. Ten of the flower stems taken at random show an average length of 9 inches, while ten of the blue show but 6 inches. Ten racemes also give sixty-seven as the average number of flowers, while sixty-five is the average of the blue.

"From these facts I think there can be no doubt—

"First, that the Wistaria, when it grows vigorously, though it may produce an abundance of flowers, is unfertile.

"Secondly, that it is more fertile in proportion to the weakness of its vegetative force, even though that force should be inadequate to a large supply of pollen.

"Thirdly, that mere temperature can have little influence on these conditions, as when the branches of two varieties interlace, under the same conditions as regards temperature, one is barren.

"Fourthly, that the lack of pollen in itself can have little to do with fertility, as the flowers of the pollen-bearing white, as freely visited by bees as the blue variety is, gave no greater fertility to the interlacing branches of the blue than to the trees many yards away."

#### Floral Committee.

Present:—John Fraser, Esq., in the chair; and Messrs. J. O'Brien, J. Dominy, H. M. Pullett, H. Williams, H. Ballantyne, S. Hibberd, C. Noble, H. Herbst, J. Walker, W. Bealby, J. Hudson, H. Bennett, W. Kellock, Dr. Masters, Rev. W. Wilks, A. Perry, W. Turner, J. Douglas.

Messrs. Barr & Son staged one of the best lots of Narcissi, consisting of most of the known kinds and several newer and lesser known hybrids, a Silver Banksian Medal being awarded for the group. Mr. Thomas Ware, Hale Farm, Tottenham, had a very choice collection of Narcissi, Scillas, Fritillarias, Primula Sieboldi in variety, P. obconica maxima, the charming Muscari alba, Anemone stellata fulgens, and Trillium grandiflorum, pure white; a pretty panful of Veronica repens, the growth not more than 1½ inch in height. A Silver-gilt Banksian Medal was awarded.

Messrs. Paul & Son, the "Old" Nurseries, Cheshunt, showed a collection of alpine and herbaceous plants, amongst them being Anemone Robinsoniana, pale blue; Androsace Chamæjasme, Omphalodes Luciliae, the minute Saxifraga valdensis, white, dense flowered; and S. carophylla, similar, but with a stronger habit, and rather larger blooms; Fritillaria meleagris Themistocles, a flower of a white ground with small green dots; and a Continental variety of Aubrietia purpurea, darker by far than the usual form, deserved special notice. A Silver Banksian Medal was awarded for this interesting collection.

#### MISCELLANEOUS EXHIBITS.

Messrs. Hugh Low & Co., Clapton, exhibited a beautifully flowered specimen of Dendrobium anosmum Dayanum, the petals and sepals pale purple—the lip being of crimson-purple far into the interior of the throat, with an edge of same colour as the petals. Calceyia gigas, Trontino variety, with sepals and petals of rosy-purple, and throat and lip same colour, the edge of the latter being much crimped. A Vote of Thanks was awarded. Sir T. Lawrence, Bart., had a large plant of Maxillaria Turneri, profusely bloomed. The flowers, which are white and yellow, with a tube barred interiorly with purple on a white ground, are disappointing as to the effect produced, although very numerous. A Cultural Commendation was awarded. Messrs. J. Veitch & Sons had two semi-double Ghent Azaleas, rosy-pink and pale pink changing to one still lighter, named respectively Louise Amée Van Houtte and Mina Van Houtte. A Vote of Thanks was accorded. Mr. W. Bull showed a tall Crinum giganteum concinnum, white-flowered and drooping, showing merely the outside of the flower; Liliun elegans guttatum, a dwarf much spotted border variety. Mr. Ballantine, gr., The Dell, Egham, showed a plant in bloom of Phalenopsis Marie. Mr. R. J. Lynch, the Botanic Gardens, Cambridge, had Impatiens Episcopi, a species (?) from Eastern Africa, rose-coloured, and precisely similar in habit to I. Sultan. Messrs. W. Cutbush & Sons, Highgate Nursery, sent a large collection of the varieties of Epacris, Boronia serrulata (now but rarely seen), B. tetrandra, Choisya ternata, and the tiny-flowered Acacia Juniperiana, apparently a good bloomer; Laurustinus, Statice, and Anopterus glandulosus—a plant having upright shoots, terminated with spikes of pure white bell-shaped blooms. A Silver Banksian Medal was awarded for the group. Sidney Cortauld, Esq., Bockley Place, Braintree, exhibited an Odontoglossum Wilckeanum, good in colour; and O. mulus Cortauldianum, that possessed, as shown, but little merit. A Vote of Thanks was awarded. Mr. Charles Turner, Slough, showed some neat well-bloomed show Pelargoniums, measuring generally a yard across; and some small specimens of Azalea indica, well known kinds. A Silver-gilt Banksian Medal was awarded for the group. Messrs. James Carter & Co. exhibited sixty Cinerarias, well-bloomed, in 32-sized pots; the quality of the majority was very superior, the flowers being large, regular, smooth, and the colours all that could be desired. A Bronze Medal was awarded.

The show of Pansies from Mr. F. Hooper's nursery at Widcombe Hill, Bath, proved that the ability to grow these flowers to perfection has descended from the former to the present proprietor in no lessened degree. Mr. J. James, Woodside, Farnham Royal, showed a box of Cineraria blooms, and was awarded a Vote of Thanks. W. Crawford, Esq., Lakelands, Cork, showed blooms of the early-flowering Magnolia Campbelli, gathered, it was stated, from a tree 35 feet high, and which flowered for the first time in 1882, it having this year forty blooms.

Mr. Crawford was awarded a Vote of Thanks. H. J. Elwes, Esq., Preston Hall, Cirencester, showed Tulipa oculus-solis mervisensis, imported from Turkestan.

#### FIRST-CLASS CERTIFICATES AWARDED.

To Mr. Ballantine, for Phalenopsis Marie.

To Mr. H. J. Elwes, for Tulipa oculus-solis mervisensis.

#### Fruit Committee.

Present: Harry Veitch, Esq., in the chair; Messrs. J. Lee, J. Ellam, A. Howcroft, J. Burnett, W. Denning, A. Sutton, Harrison Weir, G. T. Miles, J. Woodbridge, G. Paul, T. F. Rivers, G. Bunyard, T. B. Heywood, G. Goldsmith.

Fruit was shown by Mr. James Dean, Limpsfield, Surrey, he having twenty-five dishes of well preserved Apples, amongst them, especially plump and fresh looking, being Northern Spy, Sturmer, Wellington, Yorkshire Greening, Winter Queening, Gloria Mundi, and Alfriston.

#### The National Auricula Society, Southern Section.

This exhibition took place as usual in the conservatory, and the exhibitors made a charming representation of the several representatives of the genus Primula, but not to the extent seen in previous years. Biting east winds, cloudy weather, and cold nights, followed by three or four days of brilliant sunshine and a hot atmosphere by day had, no doubt, told upon the flowers, and a good deal of roughness was observed in consequence. Not a few of the flowers were undersized also, as another consequence of trying atmospheric influences. But all who did show appeared to have done their very best, and "The best can do no more."

#### SHOW AURICULAS: COLLECTION OF FIFTY PLANTS.

Probably on no previous occasion were only two of these shown, as on Tuesday last, and their absence did affect the bulk of the exhibition. Mr. J. Douglas, gr. to F. Whitbourn, Esq., Great Gearies, Ilford, was well ahead with a very good lot, including the following:—Green-edges: Verdure (Douglas), Admiral Napier, Talisman, Lancashire Hero (shown generally on this occasion in its green character), and Lovely Ann; grey-edges: George Lightbody, Ajax (Horner), Confidence (Campbell), General Graham (Douglas), Mrs. Moore (Douglas), Lady Sophia Dumaresque, and Mabel (Douglas); white-edges: Glory, Smiling Beauty, Acme, Conservative, Sylvia, and Dr. Kidd; selfs: C. J. Perry, Blackbird, Ellen Lancaster, Duke of Albany (Douglas), Lord of Lorne, and Ad Sapphire (Horner). 2d, Mr. C. Turner, Royal Nursery, Slough, with green-edges Lancashire Hero, F. Knighton (Turner), and Dr. Horner; grey-edges: Mrs. W. Crown, Col. Chamneys, and Stapleford Hero; white-edges: Conservative, Acme, Beauty, Sylvia, Glory, and John Waterson; selfs: Topsy, Lord of Lorne, Mrs. Sturrock, Eliza, Clipper, Vulcan, Topsy, Mennon, and Miss Barney.

In the class for twelve varieties, the Rev. F. D. Horner, Lowfields, Burton-in-Lonsdale, Carnforth, was decidedly 1st with a fine lot of flowers, mainly of his own raising, consisting of—Green-edges: Monarch (Horner), The Rev. F. D. Horner (Simonite), and Greenfinch (Horner); grey-edges: Greyhound (Horner), a superb variety, coming as near to perfection as one can imagine an Auricula to be, having a splendid truss of a dozen or so of large, flat, finely formed pips full of life and expression, golden tube, thick paste, rich black ground well defined; altogether extra fine—this variety was selected as the Premier Auricula in the exhibition; Thetis (Horner), and George Lightbody; white-edges: Reliance (Horner), and Nigella (Horner); selfs: Heroine (Horner), Lynette (Horner), Mrs. Horner (Horner), of a fine magenta-purple, and Sapphire (Horner). 2d, Mr. J. Douglas, with green-edges Prince of Greens, Rev. F. D. Horner, Lancashire Hero, and George Lightbody (Douglas), having a good tube and fine solid pip; grey-edge Mrs. Moore; white-edges: Sylvia, Conservative, and Acme; and selfs Sappho, Pizarro, Duke of Albany, and Perfection (Douglas), shaded plum, good tube and solid pip. 3d, Mr. H. Pohlman, Parkinson Lane, Halifax, whose best flowers were Prince of Greens, Lancashire Hero, George Lightbody, Acme, John Simonite (white), Sapphire, Ellen Lancaster, and Brucette (Pohlman), a dark self. 4th, Mr. C. Turner.

In the class for six varieties the Rev. F. D. Horner was again 1st, with green-edges Monarch and the Rev. F. D. Horner; grey-edges George Lightbody, White Albattross (Horner); selfs Heroine (Horner) and Florence (Horner), a very pretty magenta-violet flower of good quality. These, like the varieties in the larger class, were well finished specimens. 2d, Mr. J. Douglas, with green-edges Prince of Greens and the Rev. F. D. Horner; grey-edge George Lightbody, white-edge Conservative; selfs Duke of Albany and a seedling deep puce-crimson variety; 3d, Mr. E. Pohlman, with Prince of Greens, Lancashire Hero, and Anna, George Lightbody, Sapphire, and Ellen Lancaster; 4th, Mr. R. Deao, Ranelagh Road, Ealing; 5th, Mr. C. Turner; 6th, H. A. Rolt, Esq., Hartfield Road, New Wimbledon.

In the class for four varieties Mr. W. Bolton, Wilderspool Road, Warrington, was 1st, with excellent specimens, staging well grown and flowered plants of Prince of Greens, Lancashire Hero, Frank Simonite, and Mrs. Wilson, a violet coloured self in the way of C. J. Perry; 2d, Mr. T. E. Henwood, Hamilton Road, Reading, with Prince of Greens, Dr. Horner, Beauty, and Gipsy

(Mellor), a dark self; 3d, W. Brockbank, Esq., Brockhurst, Didsbury, with Colonel Taylor, George Lightbody, Acme, and Negro (Mellor), also a useful dark self; 4th, Mr. C. Phillips, Hamilton Road, Reading; 5th, the Rev. E. L. Fellowes, Wimpole Rectory, Royston.

In the class for two varieties Mr. T. Henwood was 1st, with Acme and Mrs. Heap (Mellor), a deep blue self; 2d, J. Galsworthy, Esq., Conbe Warren (Mr. C. Orchard, gr.), who had George Lightbody and C. J. Perry; 3d, the Rev. E. L. Fellowes, with Alderman C. E. Brown (Grey) and Pizarro; 4th, Mr. W. Bolton; 5th, W. Brockbank, Esq.

In the classes for single specimens, the very proper rule that one exhibitor may not exhibit more than two plants in each class, reduced the number of specimens shown in each, but it broke down the monopoly the larger growers have hitherto enjoyed in this group of classes. The best single specimen green was Monarch, shown by the Rev. F. D. Horner; and he was 2d also, with Conquest, one of his own raising; 3d, Mr. C. Turner, with Justus Corderoy, a bright green-edge, but with a weak paste and pale tube; 4th, Mr. E. Pohlman, with Prince of Greens; 5th, Mr. W. Bolton, with the same. A seedling, and Lancashire Hero received the three remaining prizes. The best grey-edge was William Brockbank (Mellor), a fine bright-looking variety, described farther on; 2d, the same, with Lancashire Hero; 3d, Mr. Henwood, with Richard Headley; and 4th, with George Lightbody; 5th, Mr. Phillips, with the same; the Rev. F. D. Horner was 6th, with Alexander Meiklejohn; 7th and 8th with Lancashire Hero. The Rev. F. D. Horner was 1st and 2d in the white-edged class, having Miranda (Horner), very fine; and Magpie (Horner), also in admirable condition. Then followed Mr. Pohlman, with Acme; Mr. Henwood, with Frank Simonite; Mr. Douglas, with Acme and Conservative; and Mr. Brockbank, with Acme and John Simonite. In the self class, the Rev. F. D. Horner was 1st and 2d, with Heroine, very fine; then came Mr. Pohlman, with Mr. Douglas, and Negro; Mr. Henwood, with Othello and Pizarro; Brilliant and Pizarro bringing up the rear. It is always very difficult to compile a correct list of awards in these single classes, and it would be as well if a rule were made requiring that the name of the exhibitor be placed on each pot. This would obviate a good deal of unnecessary confusion.

#### ALPINE AURICULAS.

These, as is usual, attracted a great deal of attention from exhibitors; their brilliant colours appeared to suit the popular taste. Mr. Turner was in strong force, his own seedlings being very fine and striking. He had the best twelve, having of gold centres, Viscount, Sunrise, Placidia, Troubadour, J. J. Colman, and Duncan; cream and white centres, Philip Frost, Mabel, Mr. McGeorge, Selina, Mrs. Kingston, and Edith. 2d, Mr. J. Douglas, with gold centres, Unique, Princess of Waldeck, Hebe, Amelia Hardwidge, and Mr. Douglas; cream and white centres, George Lightbody, Slough Rival, and Lady Howard de Walden; seedlings making up the number. With six varieties Mr. C. Turner was also 1st, having gold centres Pallas and Unique; cream and white centres, Edith, Tennyson, Mrs. Lamb, and Placidia; 2d, Mr. Douglas, with Princess of Waldeck, Diadem, Ada Hardwidge, Sensation, and a seedling; 3d, Mr. R. Dean, with Sensation, Phoenix, Colonel Scott, George Lightbody, and Jessie Dean, a pretty gold-centred laced variety; 4th, Mr. A. Spurling, The Nest, Blackheath; 5th, the Rev. E. L. Fellowes.

In the class for single specimens, the best gold centre was Rosalind (Turner), from Mr. Turner; 2d, Ladybird, from Mr. J. Douglas; 3d, Lucretia, from Mr. Turner; 4th, Minstrel, from Mr. J. Douglas; 5th, Diadem, from the Rev. E. L. Fellowes. Mr. Turner was 1st and 2d in the class for white centres, having Philip Frost and Chastity; 3d, Mr. Douglas with Ada Hardwidge, and 4th with Diadem; 5th, the Rev. E. L. Fellowes, with George Lightbody and Beatrice.

#### FANCY AND LACED AURICULAS.

Mr. J. Douglas was 1st in this class with twelve plants, having golden-edged varieties, but characterised by much sameness of character; 2d, Mr. R. Dean, with nearly all laced varieties, a new double, named Violaeca, being shown in the collection.

#### SEEDLING AURICULAS.

Two money prizes were offered for seedlings in the classes for green, grey, and white edges, and selfs. In that for green-edges the Rev. F. Horner was 1st, with Redwing (Horner), good tube and excellent paste; rich black ground colour and smooth edge of deep green; fine pip and truss. 2d, Mr. R. Dean, with Criterion (Dean), good tube and paste, rich black body colour, and edge of deep green; not fully expanded but highly promising. The judges expressed a wish to see this again. The best grey-edge was William Brockbank (Mellor), rich golden tube, dense paste, broad deep black ground and excellent edge of grey; a fine bright and effective variety, but a little rough in the pip as shown, which was in all probability only an accidental defect. This was also awarded a First-class Certificate of Merit. The Rev. F. D. Horner was 2d, with Hyperion (Horner), an effective and pleasing variety, likely to prove very useful; good tube and paste, and rich black ground. No seedling white-edged varieties appeared to be forthcoming, or at least good enough for awards.

In the class for selfs Mr. W. Bolton was placed 1st, with Mary Grainger (Bolton), a rich deep plum-coloured variety, very smooth, and of good substance; good tube, but thin in the paste; should this come of a denser character with cultivation it will form a perfect self. 2d, Mr. W. Brockbank, with Bluebell (Mellor), a pleasing



blue-purple self, good tube and paste, very pretty and distinct.

#### SEEDLING ALPINES.

Here Mr. Turner carried all before him, having a large group of fine seedlings. The best golden centre was Rosalind, having a deep golden centre and maroon ground, broadly edged with rusty-salmon; 2d, Lobelia, much in the same way, yet quite distinct. The best white centre was Albion, dark ground, edged with pale mauve; 2d, Marion, dark, edged with bright mauve.

#### POLYANTHUSES: GOLD-LACED.

These were well shown, good plants, and well bloomed. Mr. J. Douglas had the best six, staging capital examples of John Bright, Prince Regent, Laocer, Formosa, Elliott's Red Ground, and George IV.; 2d, Mr. W. Brockbank, with George IV., Exile, Cheshire Favourite, Prince Regent, Lord Derby, black ground; and Blackbird, also a dark variety; 3d, Mr. R. Dean, with Exile, Saderson's Beauty, Prince Regent, Cheshire Favourite, John Bright, and George IV. The best three came from Mr. Brockbank, who had Exile, President, and Cheshire Favourite; 2d, Mr. J. Douglas, with Elliott's Red Ground, Prince Regent, and George IV.; 3d, Mr. R. Dean, with William IV., Prince Regent, and George IV. In the class for single specimens the Rev. F. D. Horner was 1st and 2d with Cheshire Favourite, and Mr. Brockbank 3d with the same; then followed in the order of merit, Cheshire Favourite again, Prince Regent, and George IV.

#### SEEDLINGS: GOLD-LACED.

In the class for a red ground variety the 1st prize and a First-class Certificate of Merit was awarded to Red Rover, rich red ground, finely laced, shown by Mr. Douglas.

#### FANCY POLYANTHUSES AND PRIMROSES.

Mr. R. Dean, Ealing, was 1st, with twelve plants of fancy Polyanthuses, and also 1st with the same number of Primroses; and while the former were very good, the latter were especially so—large plants, crowded with bloom; 2d, Mr. J. Douglas, in both classes; Mr. F. Hooper, of Bath, being 3d with Primroses. The class for twelve Primroses brought but two collections. Mr. J. Douglas was 1st with three varieties of P. Sieboldi, P. Nelsoni, P. rosea, P. marginata, P. obconica, P. nivea, and P. intermedia; 2d, Messrs. Paul & Son, nurserymen, Cheshunt, with a choice lot, comprising the pretty blue P. glutinosa, P. Obistri, P. ciliata purpurea, P. pulcherrima, P. pubescens, P. nivea, &c.

#### ROYAL BOTANIC: April 22.

The second show held by this Society this year took place on Wednesday last, in the corridor and part of the large conservatory in their gardens, and was the means of bringing together an excellent display. Numerous exhibits were decidedly above the average, and although the entries were not large, the show must be considered a success. Messrs. Paul & Son, The "Old" Nurseries, Cheshunt, had between forty and fifty standard and dwarf pot Roses arranged at the west end of the conservatory. People who have seen Paul & Son's Roses will understand what an imposing spectacle this group presented when told that the quality of the exhibit was equal to the usual specimens shown by them. In this group Marie van Houtte, Merveille de Lyon, Maréchal Niel, Madame Marie Verdier, Madame de Montchateau, Madame Margottin, Leon Renault, Duke of Connaught, Madame Falcot, &c., were exceptionally fine. They were awarded a Large Silver Medal. Mr. H. James, Farnham Royal, Slough, had a group of his famous Cinerarias, which were of fine form and substance, and very dwarf. Mr. T. S. Ware, Tottenham, London, had a large stand of choice cut blooms of Narcissus, &c., for which he received a Large Bronze Medal. A group of Cinerarias from Messrs. Carter & Co., Holborn, with large heads of bloom, bright coloured but rather small flowers, also was awarded a Large Bronze Medal. Messrs. Barr & Son, Covent Garden, had a choice collection of Narcissus, which contained large quantities of the favourite types, also five new ones of exceptional merit, viz.:—Mrs. Langtry, very fine, almost like a Eucharis; Katherine Spurrell, fine pure white perianth with yellow cup; M.M. de Graaff, fine rounded white perianth with a wide cup; Flora McDonald, like the latter, but with more pointed perianth segments; Sulphureus Beauty, fine form of the loocomparable type, with faint white bar down the centre of each segment of the perianth. A Large Bronze Medal was awarded for the group. Messrs. J. Veitch & Son, Chelsea, also received a Large Bronze Medal for a splendid collection of Narcissus, &c. Messrs. Collins Bros. & Gabriel were awarded a Bronze Medal for a similar collection. Messrs. Paul & Son, Cheshunt, were awarded a Large Bronze Medal, and Messrs. J. Carter & Co. a Bronze Medal, for collections of alpine. Mr. J. Douglas, Great Gearies, Ilford, and Mr. C. Turner, Slough, had each a choice collection of Auriculas, for which they were respectively awarded Large Bronze Medals. Mr. W. Bull, Chelsea, had a few rare plants, including fine pans of Hæmantaen Kalbreyeri maximus, Vriesia Janieirensis variegata, Sarcocolla Toliana, Clivia princeps, Alocasia Sanderiana (a fine thing), Tillandsia principis, Pinguicula caudata, &c. Messrs. Todman & Son, Upper Tooting, showed Azaleas British Queen, fine double white; Edith Todman, semi-double, deep rose. Messrs. Cutbush & Son, Highgate, were awarded a Large Bronze Medal for a nice collection of plants, consisting of Epacris, Ericas, Azaleas, Acacias, Boronias, &c., Azalea Phœbus, semi-double rose, very fine. Messrs. J. Veitch & Son exhibited

some fine Amaryllis, amongst them Prince George of Wales, vivid crimson, with distinct white eye, was very fine. The same firm also showed double Ghent Azaleas Louise Aimée Van Houtte and Mina Van Houtte. Three baskets and two stands of superb cut Roses shown by Mr. J. Walker, Thame, Oxon, were awarded a Small Silver Medal.

For six greenhouse Azaleas, nurserymen, Mr. C. Turner, Slough, was 1st, with well flowered examples, as seen the day previously at Kensington; Mr. H. James, Lower Norwood, was 2d, with good examples of Duc de Nassau, Concinna, La Victorie, Duplex, Maculata, Roi de Hollande, and Apollon; Messrs. T. Todman & Sons were 3d. Six ditto, amateurs.—1st, Mr. G. Wheeler, gr. to Lady Louisa Goldsmith, St. John's Lodge, Regent's Park, with Duchesse de Nassau, Criterio, Stella, Magnificans. Mr. H. Eason, gr. to B. Nokes, Esq., Hope Cottage, Highgate; and R. Butler, gr. to H. Gibbs, Esq., St. Dunstan's, Regent's Park, were placed equal 3d. Twelve Rhododendrons.—Messrs. H. Lane & Son, Berkhamstead, were 1st—Queen of the West, Mrs. R. Sturgiss, Nero, Snowflake, Marchioness of Downshire, Verschaffeltii, Cynthia, Rowena, Fastuosum flore-pleno, W. E. Gladstone, Lord John Russell, Etendard de Flandres, and Bodaertianum. The same firm were 1st for twelve hardy Azaleas. For twelve alpine Auriculas Mr. C. Turner and Mr. J. Douglas were respectively 1st and 2d. For twelve prize Auriculas the positions were reversed, with Mr. E. Pohlman, Parkinson House, Halifax, 3d.

For twelve hardy herbaceous plants Messrs. Paul & Son, Cheshunt, were 1st, with a fine collection. For nine Cinerarias Mr. J. James was 1st; 2d, Mr. J. Douglas; 3d, J. Carter & Co.; all with good stuff, but Mr. James' strain decidedly superior to the others. For twelve stove and greenhouse plants Mr. H. James was 1st, with good specimens of Epacris miniata splendens, Azaleas Hercules, Apollon, and Jean Vervaine, Ericas Victoria and Marnockiana, Eriostemon pulchellum, Gardenia intermedia, Anthurium Andreanum and Scherzerianum, Franciscea confertifolia; 2d, Mr. G. Wheeler, with good Azaleas Duchesse de Nassau and Fieldingii, Adenandra fragrans, Anthuriums, &c.; 3d, Mr. R. Butler. Mr. Perry, gr. to G. Rowlett, Esq., The Woodlands, Cheshunt, was 1st for six forced Roses, amateurs, with good examples of Ferdinand de Lesseps, Alba rosea, Étoile de Lyon, Madame Victor Verdier, John Hopper, Magna Charta, Duke of Teck, and Caroline Kuster. For nine forced Roses, Messrs. Paul & Sons, Cheshunt, were 1st, with magnificent plants of Innocenta Pirola, Madame Clemence Joigneaux, Duke of Edinburgh, Céline Forestier, Madame Lacharme, Beauty of Waltham, Caroline Kuster, La France, and Madame de St. Joseph. Mr. J. Douglas was 1st for twelve Amaryllis, all good. Fairlop Oak received a Floral Certificate, being the best—a very vivid crimson, of great substance and fine form. Mr. C. Turner, Slough, was 1st for nine Pelargoniums. Messrs. B. S. Williams exhibited some good Amaryllis, among which A. magnæfolia, very vivid crimson, pure white star, and Mr. Walford, something similar, but the stars, more flaked, were the most remarkable.

Botanical Certificates were awarded to Mr. W. Bull, Chelsea, for Alocasia Sanderiana and Vriesia Janieirensis variegata; and to Messrs. J. Carter & Co., for Saxifraga Vandellii.

Floral Certificates were awarded to Messrs Collins Bros. & Gabriel, for Narcissus spurius coronatus; to Mr. J. James, for Cineraria Countess, Amy Robsart, and The Bride; to Mr. W. Nicoll, Lower Merton, Surrey, for Azalea Princess of Wales; to Mr. C. Turner, for alpine Auricula Chastity, and Rosalind and Sunrise show Auriculas; to Messrs. J. Veitch & Son, for Amaryllis Prince George of Wales; to Messrs. Barr & Son, for Narcissus MM. de Graaf.

#### NEWCASTLE SPRING FLOWER SHOW:

April 15 and 16.

The spring show of the Durham, Northumberland, and Newcastle Botanical and Horticultural Society, which was held in the Town Hall and Corn Exchange, Newcastle, was an entire success. On its merits as a floral exhibition it will favourably compare with any of the Society's previous spring shows; and when it is remembered how cold and backward has been the season this year this fact acquires greater significance. The exhibits were numerically in excess of those of last spring; they were drawn from a wider field of competition, some of them having been sent from London, and others from Scotland, and in variety and beauty it is difficult to imagine how they could have been excelled. As has been the case with the Society's exhibitions for some years, the strongest department was that of plants in bloom, of which there was a magnificent display, including two fine collections sent by Messrs. Smith & Co., Worcester, and Messrs. Fell & Co., Hexham, respectively, which, though not for competition, enhanced considerably the general effect of the exhibition. Auriculas, Cinerarias, Dielytras, and Tulips were all strongly represented. Of Roses there was a somewhat small but very fine collection. Hyacinths, with their wealth of colour and delightful odour, are ever a popular exhibit, and they were on this occasion deserving of every commendation. A feature of curiosity was the exhibition of a few hothouse Strawberries, sent by a local gentleman. The arrangement of the exhibits was much the same as in former years, except that the plants in bloom were placed in the centre of the Corn Exchange, on the ground formerly occupied by the Hyacinths, which were ranged along the west side of the building—an alteration which improved the general effect of the display. The Secretary (Mr. Gillespie) and committee of the Society

were indefatigable in their management, and left nothing to be desired in the general arrangements of the show.

In the open classes the 1st prize for four dissimilar plants was awarded to Mr. F. C. Ford, who likewise was 1st for four Azalea indica. For six Dielytra spectabilis, Mr. McIntyre was 1st. For six Deutzias Mr. W. R. Armstrong was 1st. Mr. J. Wood securing the 1st prize for three Genistas. Mr. Noble was 1st for six Spiræas, Mr. J. Blackwood was 1st for six Cinerarias, Mr. J. Short was 1st for six Primula sinensis; Mr. D. Thompson for six Cyclamen. Mr. W. J. Watson won the 1st prize for his splendidly grown Lily of the Valley, and Mr. W. L. Thompson took honours for table decorations. The winners in the Auricula classes were Mr. W. H. White for twelve, Mr. Alfred Holms for six, and Mr. W. L. Thompson for four plants—in these classes alpine varieties being excluded. The best prizes in the Hyacinth competition were bestowed on Mr. W. J. Watson for twenty-four pots and twelve pots, for nine pots of Tulips, and likewise for six pots of Polyanthus Narcissus. Mr. F. C. Ford was 1st for twelve Camellia blooms and for twelve Rhododendron blooms. Mr. J. Short was awarded the 1st prize for twelve bunches of Azalea blooms in not less than six varieties, and Mr. Wright for twelve Rose blooms.

In the open class, from which nurserymen were excluded, Mr. J. McIntyre was placed 1st, for two Azalea indica; Mr. A. Methven, for an Acacia; Mr. McIntyre, for three Dielytra spectabilis. The prizes for twelve Hyacinths, six ditto, and six pots of single Tulips, were won by Mr. J. Wood, Mr. W. Sanderson, and Mr. J. Wood respectively.

Amateur exhibits were numerous and generally of much merit.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON  
FOR THE WEEK ENDING WEDNESDAY, APRIL 23, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRICAL DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Deposited from Average of 40 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 40 years.	Dew Point.	Degree of Humidity. Sat. = 100.	
April	In.	In.	°	°	°	°				In.
16	29.61	—0.14	51.0	40.0	11.0	44.7	—1.9	42.8	93	E. E. 1.15
17	29.82	+0.08	61.2	39.0	22.2	48.6	+1.8	42.6	80	E. N.E. 0.03
18	29.08	+0.23	65.3	36.0	29.3	40.8	+2.8	44.0	81	N.W. 0.00
19	30.13	+0.38	67.1	39.5	27.6	51.8	+4.6	41.3	78	N.E. 0.00
20	30.05	+0.31	72.5	40.5	32.0	56.3	+8.9	38.7	52	W. SW. 0.00
21	29.93	+0.17	71.0	43.0	28.0	56.6	+9.0	37.2	49	W. SW. 0.00
22	29.62	—0.14	67.0	47.5	19.5	57.2	+9.4	43.0	59	S. S.W. 0.00
Mean	29.88	+0.13	65.0	40.8	24.2	52.1	+4.9	41.4	70	E. N.E. 1.18

April 16.—Raining heavily from early morning. Fine in afternoon. Rain in evening.

- 17.—Very fine day and night.
- 18.—Very fine day and night.
- 19.—Very fine day and night.
- 20.—Very fine day and night.
- 21.—Very fine day and night; lunar halo.
- 22.—Very fine day and night; lunar halo.

LONDON: Atmospheric Pressure.—During the week ending April 18, the reading of the barometer at the level of the sea increased from 29.73 inches at the beginning of the week to 29.79 inches by 9 A.M., decreased to 29.78 inches by 5 P.M. on the 12th, increased to 29.94 inches by 9 A.M. on the 13th, decreased to 29.89 inches by 5 P.M. on the same day, increased to 29.92 inches by 9 A.M. on the 14th, decreased to 29.75 inches by 9 A.M. on the 16th, increased to 30.17 inches by 9 A.M., decreased to 30.14 inches by 1 P.M. on the 18th, and was 30.16 inches by the end of the week.

The mean reading of the barometer for the week was 29.91 inches, being 0.36 inch higher than last week, and 0.01 inch below the average of the week.

Temperature.—The highest temperature in the shade in the week was 65° 3, on the 18th; the highest on the 16th was 51°. The mean of the seven high day temperatures was 56° 2.

The lowest temperature was 35°, on the 14th; on the 16th the lowest temperature was 40°. The mean of the seven low night temperatures was 37° 2.

The greatest range of temperature in one day was 29° 3, on the 18th; the smallest was 11°, on the 16th. The mean of the seven daily ranges was 19°.

The mean temperatures were—on the 12th, 44° 6;



on the 13th, 43°; on the 14th, 42°·5; on the 15th, 43°·6; on the 16th, 44°·7; on the 17th, 48°·6; on the 18th, 49°·8; and these were all below their averages (excepting the 17th, which was 1°·8 above) by 1°·3, 3°·1, 3°·8, 2°·9, 1°·9, and 2°·8 respectively.

The mean temperature of the week was 45°·3, being 3°·8 higher than last week, and 2° below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 130°·5, on the 18th. The mean of the seven readings was 110°·8.

The lowest reading of a minimum thermometer placed on grass was 28°·7 on the 13th. The mean of the seven readings was 31°·6.

*Rain.*—Rain fell to the amount of 1·18 inch during the week, of which 1·15 inch fell on the 16th, and 0·03 inch on the 17th.

**ENGLAND: Temperature.**—During the week ending April 18, the highest temperatures were 66°·7, at Cambridge, 65°·6 at Brighton, 65°·3 at Blackheath; the highest at Newcastle was 54°, at Truro 57°, and at Plymouth 58°. The general mean was 61°·2.

The lowest temperatures were 28°, at Cambridge, 30° at Truro, 31°·5 at Sheffield; the lowest at Plymouth was 37°, at Brighton 35°·4, at Bristol and Blackheath 35°. The general mean was 33°·2.

The greatest ranges were 38°·7 at Cambridge, 30°·3 at Blackheath, 30°·2 at Brighton; the smallest ranges were 19° at Newcastle, 21° at Plymouth, 26° at Sunderland. The general mean was 28°.

The mean of the seven high day temperatures was highest at Blackheath, 56°·2, at Brighton 55°·9, at Cambridge 55°·1; and was lowest at Bradford and Newcastle, 46°·8, at Sunderland 48°·1. The general mean was 50°·8.

The mean of the seven low night temperatures was highest at Plymouth, 39°·8, at Brighton 38°·9, at Liverpool 38°·1; and was lowest at Wolverhampton, 33°·8, at Hull 34°, at Cambridge 34°·3. The general mean was 36°·6.

The mean daily range was greatest at Cambridge, 20°·8, at Blackheath 19°, at Truro 17°·9; and was least at Newcastle, 9°·5, at Nottingham and Sunderland 11°. The general mean was 14°·2.

The mean temperature was highest at Brighton 45°·9, at Blackheath 45°·3, at Plymouth 44°·2; and was lowest at Wolverhampton, 39°·6, at Bradford 39°·7, at Hull 40°·2. The general mean was 42°·2.

*Rain.*—The largest falls were 1·18 inch at Blackheath, 0·61 inch at Wolverhampton, 0·54 inch at Nottingham; the smallest fall was 0·01 inch at Sunderland, 0·06 inch at Newcastle, 0·09 inch at Bolton and Hull. The general mean fall was 0·31 inch.

**SCOTLAND: Temperature.**—During the week ending April 18, the highest temperature was 63°, at Leith; at Greenock the highest temperature was 57°. The general mean was 60°·8.

The lowest temperature in the week was 29°, at Perth; at Greenock the lowest temperature was 34°·2. The general mean was 31°·4.

The mean temperature was highest at Paisley, 45°·3; and lowest at Perth, 41°·4. The general mean was 42°·9.

*Rain.*—The largest fall was 0·10 inch, at Dundee; the smallest fall was 0·01 inch, at Edinburgh. No rain fell at Glasgow, Greenock, Leith, Paisley, Perth. The general mean fall was 0·02 inch.

JAMES GLAISHER, F.R.S.

## Answers to Correspondents.

**BULBS:** *A Member of the Daffodil Committee.* The foundation is laid, and the general arrangement concluded, but not to such a degree as necessarily to prevent modification in point of detail according to circumstances as growth goes on. You will see that we are in accord in all essentials.

**CINERARIA WONDER OF THE WEEK:** *Lucombe & Pince.* Very good blooms, equalling anything seen at metropolitan shows, so far as size, form, and colour go. Why pack in that injurious cotton-wool?

**DEFORMED GARDENIA BLOOMS:** *X.* We cannot say for certain; it is sometimes the result of a surfeit of rich stimulating manures, and consequent poor assimilation, and is not often seen under rational treatment.

**DOUBLE ALLAMANDA:** *E. P.* We do not remember to have seen a double Allamanda before. Your flower is a very curious hose-in-hose sort of production, with a second complete corolla inside the first, the lobes of the second being placed exactly in front of those of the first, not alternate with them.

**DOUBLE SPATHED CALLA:** *Woolton Wood.* By no means rare.

**HYACINTHS:** *W. P. & Sons.* The presence of three flowers on one stalk, as in your specimen, is very unusual and interesting. We will examine and report.

**NAMES OF PLANTS:** *C. B. M.* *Odontoglossum Alexandrie*; a fine form of it. — *W. H. D.* 1, *Primula elatior* (true); 2, *Anemone hortensis*; 3, a *Valeriana* (specimen insufficient); 4, *Anemone ranunculoides*; 5, *Dondia epipactis*; 6, *Narcissus incomparabilis*, var. "Butter and eggs." — *W. E.* Only a form of the wild Daffodil showing a tendency towards the "major" form. It is not sufficiently distinct to have a separate name, though fat catalogue makers might be of another opinion. — *K. S. L.* *Narcissus incomparabilis*, var. "Butter and eggs;" 2, one of the forms of *N. major*; 3, *N. Telamonius plenus*; 4, one of the forms of *N. tazetta*; 5, *N. cernuus*. — *W. & G. B. N.* *cernuus*. — *W. M. B.* *Senecio Ghiesbreghtii*, so far as we can tell from the leaf alone. — *R. P. F.* 1, *Cephalotaxus drupacea*, male; 2, *Cephalotaxus pedunculata*, also male. You will find the history of these plants in *Gardeners' Chronicle*, Jan. 26, 1884; 3, *Retinospora decussata* of gardens. It is apparently an infantile form of some Juniper. — *W. & G. B.* *Narcissus Pseudo-Narcissus*, variety *cernuus*. — *J. W.* *Phalenopsis Ludemanniana*.

**ORCHIDS:** *D. B. C.* 6, Withered and crushed beyond recognition; 470, *Laelia*—curious. We will examine and report; 132, a good form of *O. crispum*.

**PERIODICALS, AMERICAN AND FRENCH:** *Fruit. Gardeners' Monthly*, edited by Thomas Meehan; *Revue Horticole*, edited by MM. E. A. Carrière and Ed. André.

**PHOTINIA SERRULATA:** *W. E.* Many thanks. We shall figure your specimen, but we do not think it is quite so rarely seen in flower as you imagine. In any case it is not common. The young leaves are very beautiful.

**ROSES:** *Rash Behary Roy.* The Roses you mention may be obtained from Mr. Henry Bennett, Rose grower, Shepperton, Middlesex.

**STEPHANOTIS:** *C. B.* Fasciation. We have not seen this before in this plant, but probably it would occur on any. It is a sign of over-rapid, vigorous and disproportionate growth.

**WORMS ON LAWN:** *E. H.* Water with clear decanted lime-water in the evening, and sweep up the worms in the early morning. To make the grass grow use finely-sifted loam and wood ashes, two-thirds of first to one-third of last named; or, failing the ashes, use the loam alone, or mixed with guano in the proportion of one part guano to twenty of loam.

**WHITE CINERARIA:** *W. Tyte.* A good variety, its large number of substantial petals being greatly in its favour, and well set off with a neat violet eye.

## CATALOGUES RECEIVED.

**JAMES COCKER & SONS, Aberdeen**—Florists' Flowers. **BRUNAT, Boulevard Saint Cyrien, à Poitiers, Vienne, France**—General Catalogue of Flowering Plants. **RICHARD SMITH & CO., Worcester**—Rose List.

**COMMUNICATIONS RECEIVED**—*J. Lamont, J. Snow, W. H. R. D., A. B. Prowse, W. M., J. B., J. S., J. S., Hortus, C. V. Riley, G. F. W., Leopold Shulham, J. F. A. O., H. W. W., E. Bonavia, H. E., J. W., Harrow, J. M., W. Swan, W. H. D., N. Blanford, W. T. T. D., J. H. Bedford, Miss Owen, H. Nettelfield, W. E., Cassell & Co., J. T. B., M. Henry, Baroda, Dr. King, Calcutta.*

## Markets.

COVENT GARDEN, April 23.

TRADE more brisk, with a better demand for forced goods. Several samples of new Grapes from the Channel Islands to hand, making fair value. *James Webber, Wholesale Apple Market.*

### FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 6 5 0	Lemons, per case	9 0 15 0
— Nova Scotia and		Pine-apples, Eng. lb.	1 0 2 0
— Canadian, barrel	12 0 21 0	— St. Michael, each	2 6 8 0
Grapes, new, per lb.	6 0 10 0	Strawberries, per lb.	4 0 8 0
— old, per lb.	6 0 12 0		

### VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	4 0 6 0	Lettuces, Cab., doz.	1 6 6 0
Asparagus, English, per bundle	3 6 10 0	— French Cos, each	0 6 6 0
— French, bundle	4 0 8 0	Mint, green, bunch	0 9 1 0
— Perpignan, oat., per bundle	2 0 2 0	Mushrooms, p. basket	1 0 1 6
Beans, Eng., per 100	2 0 2 0	Onions, per bushel	4 0 6 0
Beet, per doz.	1 6 2 0	— Spring, per bun.	0 6 6 0
Cabbages, per doz.	1 6 2 0	Parsley, per bunch	0 6 6 0
Carrots, per bun.	0 6 10 0	Peas, per lb.	1 0 2 0
Cauliflowers, English, dozen	2 0 4 0	Potatoes, new, per lb.	0 6 1 0
Celeriac, per root	0 4 2 0	Rhubarb, bundle	0 6 6 0
Celery, per bundle	2 6 2 6	Salsify, per bun.	1 0 2 0
Cucumbers, each	0 9 1 6	Seakale, per punnet	2 0 2 6
Evidence, per dozen	2 0 2 0	Small salad, per punnet	0 4 2 0
Garlic, per lb.	0 6 6 0	Spinach, per bushel	3 6 6 0
Herbs, per bunch	2 0 2 0	Tomatoes, per lb.	2 0 2 0
Horse Radish, bun.	3 0 4 0	Turnips, bun.	0 5 2 0
		— new, per bunch	1 3 6 0

POTATOES.—All markets 5s. to 10s. per ton lower, with a bad trade.

### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0 24 0	Ferns, in variety, per dozen	4 0 18 0
Arbor-vitæ (golden), per dozen	6 0 18 0	Ficus elastica, each	1 6 7 0
— (common), dozen	6 0 12 0	Foliage Plants, various, each	2 0 10 0
Arum Lilies, dozen	9 0 15 0	Guchisias, per dozen	9 0 12 0
Azaleas, per dozen	18 0 42 0	Hebe, 12 pots	9 0 18 0
— Ghent, per doz	18 0 42 0	Hyacinths, per doz.	6 0 9 0
Begonias, per doz.	6 0 12 0	Hydrangeas, doz.	12 0 18 0
Bouvardia, dozen	9 0 18 0	Lily-of-the-Valley, 12 pots	12 0 18 0
Calceolarias, doz.	9 0 12 0	Marguerite Daisy, per dozen	8 0 15 0
Cinerarias, per doz.	9 0 12 0	Musk, per dozen	3 0 4 0
Cyclamens, per doz.	9 0 24 0	Myrtles, per doz.	0 0 12 0
Cyperus, per dozen	4 0 12 0	Narcissus, 12 pots	12 0 18 0
Dracena terminalis, per dozen	30 0 60 0	Palms in variety, each	2 6 21 0
— viridis, per doz.	12 0 24 0	Pelargoniums, per dozen	9 0 18 0
Erica, various, doz.	9 0 18 0	— scarlet, dozen	4 0 9 0
— Cavendishii, doz.	30 0 48 0	Spirea, per dozen	9 0 18 0
— ventricosa, doz.	36 0 72 0		
Fuonyim in var., doz.	6 0 18 0		
Evergreens, in var., per dozen	6 0 24 0		

### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0 4 0	Marguerites, 12 bun.	3 0 6 0
Anemone, 12 bunch.	1 6 4 0	Mignone, 12 bun.	3 0 9 0
Arum Lilies, 12 blms.	3 0 0 0	Narcissus, various, 12 bunches	2 0 4 0
Azalea, 12 sprays	0 6 1 0	— French, 12 bun.	6 0 12 0
Bouvardias, per bun.	1 0 1 6	Pelargoniums, per 12 sprays	0 9 1 0
Camellias, per doz.	1 0 4 0	— scarlet, 12 spray	0 0 9 0
Carnations, 12 blms.	1 0 2 0	Primroses, 12 bunch.	0 4 0 9
Cinerarias, per bun.	0 6 1 0	— double 12 bun.	1 1 2 0
Cyclamen, 12 blooms	3 0 6 0	Primula, double, bun.	0 9 1 0
Eucharis, per doz.	4 0 6 0	Roses (indoor), doz.	1 6 4 0
Euphorbia, Jacquini-flora, 12 sprays	3 0 6 0	— coloured, doz.	2 0 6 0
Gardenias, 12 blms.	2 0 4 0	— French, per doz.	0 4 0 6
Heliotropes, 12 spr.	0 6 1 0	Hyacinths, Roman, 12 large bunches	12 0 24 0
Hyacinths, 12 spr.	0 6 1 0	— mixed, per box	1 6 3 0
— 12 large bunches	12 0 24 0	Jonquils, 12 bunches	2 0 4 0
— mixed, per box	1 6 3 0	Lupageria, white, 12 blooms	2 0 3 0
Jonquils, 12 bunches	2 0 4 0	— red, 12	
Lupageria, white, 12 blooms	2 0 3 0	blooms	1 0 2 0
— red, 12		Lily-of-Val, 12 sprays	0 9 1 6
blooms	1 0 2 0		
Lily-of-Val, 12 sprays	0 9 1 6		

## SEEDS.

LONDON: April 22.—The attendance of buyers on to-day's market was thin, and the business doing was of small extent. Sowing orders for Clover and other field seeds still come to hand, but the wholesale consumptive trade for this season is now, of course, drawing to a close. Some speculative enquiry, however, for holding over has been springing up, as present rates all round are temptingly low. Rape seed is rather dearer. There is no change in Mustard. For Canary and Hemp seed the sale is slow. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

## CORN.

At Mark Lane on Monday hopes of peace getting stronger the grain trade got weaker, and prices were even worse than on Friday. For the week English and foreign Wheat may be quoted 2s. to 3s. lower. Towards the finish to-day the tone grew steadier. Flour was 6d. to 1s. per sack lower. Malt Barley upheld late value, but grinding sorts were 6d. to 1s. lower. Beans and Peas were not altered in value, arrivals being very light. Oats were 6d. cheaper, with very dull sale. Maize off stands was 6d. lower; round corn in some cases 1s. lower. —On Wednesday, owing to the explanations in Parliament on the previous night there was a very unsettled feeling in the grain trade; higher prices were asked all round, but the result at the close was considered disappointing. A sale of two of English Wheat had been made at 1s. above Monday's rates, and also in foreign at a partial advance of 6d. to 1s. Flour ruled very quiet. Barley showed a partial advance of 3d. on grinding descriptions. Beans and Peas remained unaltered; Oats showed a partial improvement of 3d. per quarter; and Maize was held dearer. —Average prices of corn for the week ending April 18: —Wheat, 34s. 1d.; Barley, 31s. 3d.; Oats, 20s. 11d. For the corresponding period last year: —Wheat, 37s. 3d.; Barley, 30s. 10d.; Oats, 19s. 5d.

## HAY.

Tuesday's Whitechapel market report states that trade was very dull with larger supplies. The market had a drooping tendency. Quotations: —Clover, prime, 83s. to 110s.; prime second cut, 85s. to 110s.; inferior, 46s. to 75s.; hay, prime, 76s. to 102s. 6d.; inferior, 25s. to 60s.; and straw, 22s. to 35s. per load. —On Thursday the moderate supply on sale met with a fair demand at Tuesday's rates. —Cumberland Market quotations: —Clover, best, 90s. to 105s.; inferior, 60s. to 84s.; hay, best, 84s. to 95s.; inferior, 45s. to 75s.; and straw, 30s. to 34s. per load.

## COALS.

The following are the prices current at market during the week: —Beeside West Hartley, 14s. 9d.; East Wylam, 15s. 6d.; Ravensworth West Hartley, 14s. 9d.; Walls End—Tyne (unscreened), 11s. 3d.; Hetton, 18s.; Hetton Lyons, 16s. 6d.; Lambton, 17s. 6d.; Wear, 16s. 6d.; Tunstall, 16s. 6d.; Binchester, 16s. 6d.; Tees, 18s.

**Government Stock.**—Consols closed on Monday at 95½ to 96½, and on Tuesday at 95½ to 95½ for both delivery and the account. Wednesday's prices were 95 to 95½ for both transactions. Thursday's closing figures were 95½ to 95½ for both delivery and the account.



## PAXTON'S STRAWBERRY CRINOLINE.



Extensively used for Growing Strawberries to preserve them from Slugs, Contact with the Soil, Superfluous Moisture, and other Nuisances, dispensing with the usual litter. See testimonials.

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HORTICULTURAL IRON and WIREWORKER,  
The Pheasantry, Beaufort Street, Chelsea, S.W.  
For GARDEN & CONSERVATORY write for CATALOGUE.

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STRATFORD LABELS.



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The *Gardener's Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

Samples and Price Lists free.

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

GARDEN REQUISITES.—Sticks, Labels,  
Virgin Cork, Kaffia Mats, Bamboo Canes, Rustic  
Work, Manures, &c. Cheapest Prices of  
WATSON AND SCULL, 90, Lower Thames St., London, E.C.



THOMAS GREEN & SON  
(LIMITED),

Smithfield Ironworks, Leeds,  
And Surrey Works, Blackfriars Road, London, S.E.  
Horticultural Engineers to Her Majesty the Queen,  
CALL SPECIAL ATTENTION TO THEIR

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WROUGHT-IRON TUBULAR  
HOT-WATER BOILERS,

And others with SHELVEs, and Hollow or Ordinary Cast-iron  
GRATE BARS;

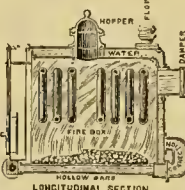
SADDLE BOILERS,

With WATERWAY BACKS, and WELDED BOILERS,  
which are Specially adapted for Heating Greenhouses, Conserva-  
tories, Churches, Chapels, Schools, Public Buildings, Entrance  
Halls, Warehouses, Workshops, &c.

They are the neatest, cheapest, most effective, and durable  
of any extant.

The Tubular ones are remarkable for their great heating  
power, slow combustion, and the length of time the fire will  
burn without requiring attention. This pattern

Had the First and Highest Prize, a Silver Medal,  
Awarded to it at the Royal Horticultural Society's Exhibition,  
South Kensington, London, on June 3, 1881.



THE JOURNAL OF HORTICULTURE OF JUNE 9 SAYS:—

"HEATING APPARATUS.—A great number of boilers, valves,  
&c., were exhibited by eight competitors, and considerable in-  
terest was manifested in the verdict of the judges, and much  
discussion was brought to bear on the merits and shortcomings  
of the different boilers. The apparatus for which the Silver  
Medal was awarded was a wrought-iron saddle boiler, with a  
series of intersecting tubes, somewhat in the form of a letter X,  
but the tubes in ogee form, in the crown of the boiler. Most  
gardeners who examined the boiler expressed a favourable  
opinion of it. It is no doubt a quick and powerful boiler with-  
out being complex, the latter condition having, no doubt, had  
weight with the judges."

The *Garden* of June 11 says:—

"The premier prize, a Silver Medal, was taken by Messrs.  
Green & Son for their new patent tubular saddle boiler. It is a  
modification of their original patent, the boiler being longer and  
not so high. It is found to be a powerful and efficient boiler, and  
heats a large quantity of water quickly with a small consumption  
of fuel."

Descriptive Illustrated Price List may be had free on application.  
Estimates given for all kinds of Heating Apparatus, and Hot-  
water Fittings of every variety supplied on the shortest notice.  
Galvanised Iron Cisterns, from 4d. to 1s. 6d. per gallon.

IRON HURDLES, GATES, TREE GUARDS,  
Iron and Wire Espaliers, &c.  
MATERIAL for WIRING GARDEN WALLS.

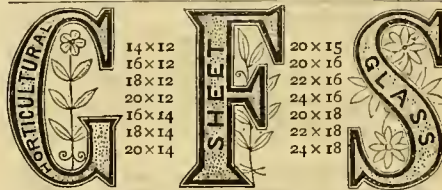
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EYES, 7d. per doz. HOLDFASTS, with  
Winders, 7s. per dozen. WIRE, 2s. per 100 yards.  
CATALOGUE free. Please name this paper.

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21-OZ. Foreign of the above sizes, in 100 and 200 feet boxes,  
3ds and 4ths qualities, always kept in stock.  
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Glass Articles, can be obtained from

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GLASS, LEAD, OIL and COLOUR MERCHANTS,  
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"LUDGATE" WATCH,

SILVER,

£5 5s.

GOLD,

£12 12s.



Is a "Special Strength" Silver English Lever, my best  
London make, with Three-Quarter Plate Movement.  
Jewelled throughout.

Chronometer balance, with damp and dust-proof  
Patent ring-band, and extended barrel, in  
flexible sterling silver dome cases  
With crystal glass front.

Winds, set hands and opens at back.

The superiority in value, accuracy, and durability of the  
"Ludgate" Watch over the Swiss and American Keyless and  
Non-Keyless Watches, made in imitation of and sold as  
English work, and the ordinary Full-plate English Watch is  
enormous. The "Ludgate" Watch is compact, strong, hand-  
some, and durable. Being Three-Quarter Plate, it is superior  
in value and appearance to any £10 Watch sold, and, being  
compensated, it keeps perfect time; fitted with crystal front, it  
combines the strength of the Hunter, and convenience of the  
open face. Of my best London make, it will last a lifetime,  
stand rough usage of all and every kind without damage, and  
being made in three sizes, it is for the above reasons suited for  
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bour no Slugs or Insects,  
take up little room and,  
once put down, incur no  
further labour or expense.

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GARDEN VASES, FOUNTAINS, &c., in Artificial Stone,  
very durable and of superior finish, and in great variety of design.  
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for Conservatories, Halls, Corridors, Balconies, &c.,  
from 3s. per square, yard upwards. Pattern Sheet of Plain or  
more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies,  
Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable  
Paving of great durability. Wall Copings, Drain Pipes and Tiles  
of all kinds. Roofing Tiles in great variety. Slates, Cement, &c.  
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perfect non-conductor of heat or  
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have done so for the last three  
years, and every one who  
sees my plants is astonished  
to see how healthy and  
well they are without  
the use of glass."

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3 yards and  
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PROTECTION for FRUIT  
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GARDEN NETTING, 2 yards wide, 1/4d., or per 100  
yards, 10s.; ditto, 4 yards wide, 3d., or per 100 yards, 20s.  
SCRIM CANVAS, 1 yard wide, 3d.; 1 1/2 yard, 4 1/2d.; and  
2 yards, 6d. per yard.

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8 yards square, to cover 18 loads, No. 1 quality	..	£6	0	0
8 ditto	..	..	5	4
8 ditto	..	..	2	10
9 ditto	..	..	8	8
9 ditto	..	24	..	6
9 ditto	..	..	3	0
10 ditto	..	..	3	0
10 ditto	..	30	..	7
10 ditto	..	..	2	6
10 ditto	..	..	3	10
11 ditto	..	40	..	12
11 ditto	..	..	2	12
11 ditto	..	..	3	5
12 ditto	..	50	..	13
12 ditto	..	..	2	14
12 ditto	..	..	3	15
ROPES and BLOCKS, 8 and 9 yards, cloth—each	..	..	2	0
Ditto	..	10	..	18
Ditto	..	12	..	15
POLES	..	8	..	12
Ditto	..	10	..	12
Ditto	..	12	..	15

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**NETTING FOR FRUIT TREES,  
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**TANNED NETTING** for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 2d. per yard, or 100 yards, 15s.; 4 yards wide, 4d. per yard, or 50 yards, 15s.  
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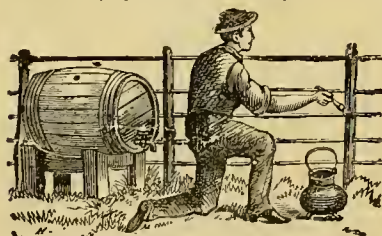
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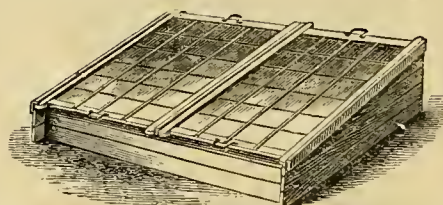
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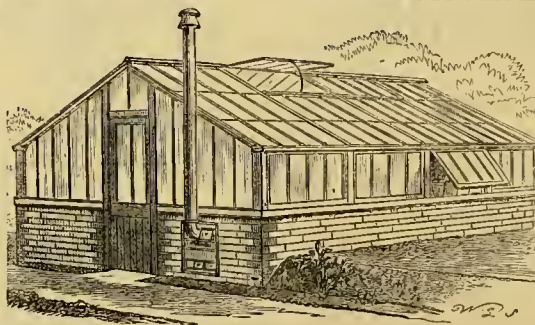
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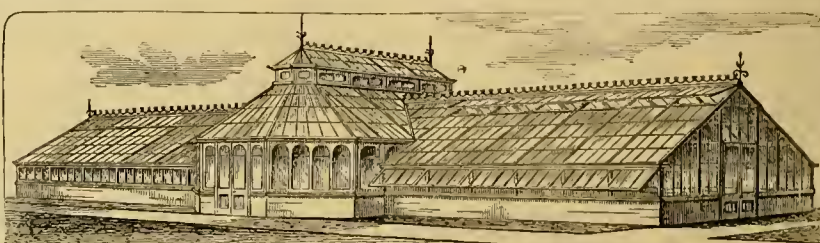
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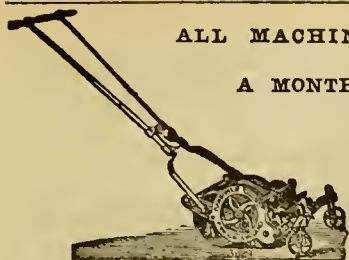
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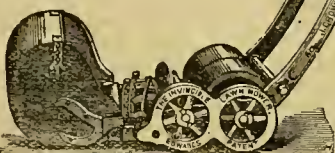
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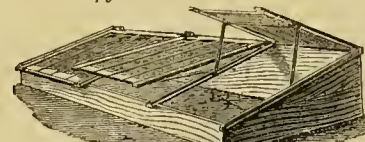
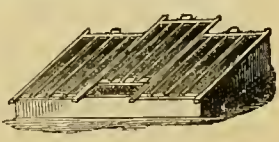
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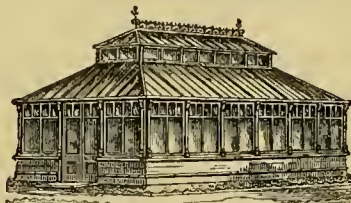
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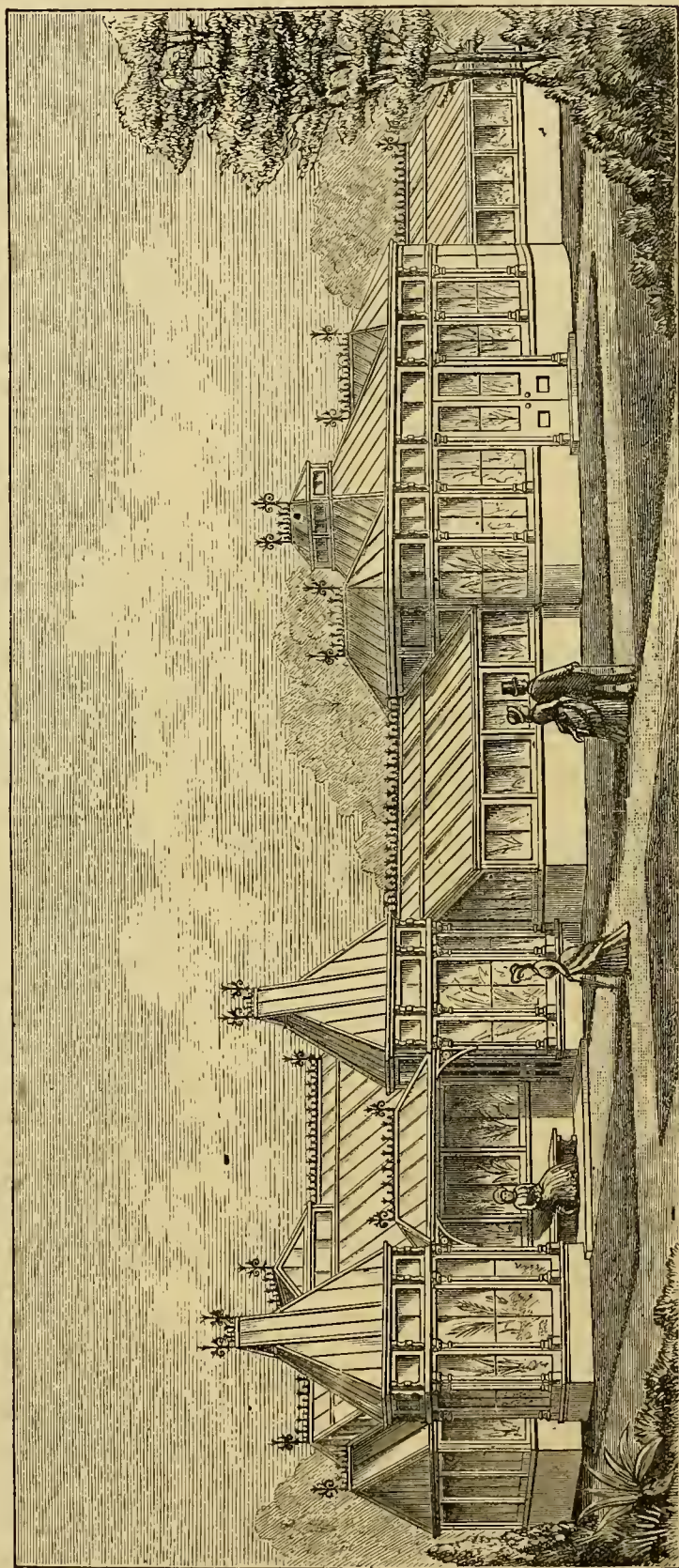
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SATURDAY, MAY 2, 1885.

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Messrs. TURNER BROS., Nurserymen and Florists, Green Hill Nursery, Allerton, Liverpool.

To the Trade.

**ADIANTUM CUNEATUM.**—20,000, in 60's, 18s. per 100, £8 per 1000. Free on rail. Cash with order.  
**CHARLES HOLLINGSWORTH, Firwood Nursery, Farnborough, Kent.**

*Seaforthia elegans.*  
**JOHN STANDISH and CO.** offer fine Furnishing Plants of this popular PALM, in 48's, 2 to 2½ feet high, four to five leaves, at 18s. per dozen; good plants, in large 60's, 12s. per dozen.  
Royal Nurseries, Ascot.

**TWENTY-FIVE THOUSAND LOBELIA** "Emperor William" (from cuttings), bushy plants 2s. 6d. per 100, or 20s. per 1000, carriage paid for cash with order from  
**The PLANT and BULB COMPANY, Gravesend.**

Seed Potatoes.

**H. and F. SHARPE** have still in stock all the leading kinds of SEED POTATOS, and are now offering them at reduced prices to clear out.  
Seed Growing Establishment, Wisbech.

Cabbage Plants.

**ROBINSON'S CHAMPION DRUMHEAD** CATTLE CABBAGE, strong plants, 3s. per 1000.  
**JOHN PERKINS and SON, Billing Road Nurseries, Northampton.**

**WANTED,** Old Stocks of POINSETTIAS, in large or small quantities. Address lowest cash price to  
**A. J. H., Bellevue Nursery, Gunnersbury Lane, Acton, W.**

**WISE and RIDES, Covent Garden, W.C.,** are open to RECEIVE CONSIGNMENTS of Choice CUT FLOWERS, CUCUMBERS, TOMATOS, FRENCH BEANS, Gros Colmar and Alicante GRAPES.

**SQUELCH and BARNHAM,** Long Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatos, Cucumbers, choice Flowers, &c.

**SQUELCH and BARNHAM,** giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

**SQUELCH and BARNHAM.** ACCOUNT SALES sent daily, and CHEQUES forwarded weekly.  
**BANKERS and TRADE REFERENCES.** BASKETS and LABELS supplied.

**GLADIOLI, PYRETHRUMS,** and DAHLIAS, the largest collections in Europe. CATALOGUES gratis.—**KELWAY and SON, Langport, Somerset.**

**GARDENIA INTERMEDIA (true),** small established Plants, some well set with flower-buds, twelve for 6s. Parcel Post free.  
**GARDENER, Holly Lodge, Stamford Hill, N.**

**GERANIUMS and FUCHSIAS,** Surplus Stock (best sorts), strong, well-rooted Plants, 2s per dozen. Package and Parcel Post free.  
**GARDENER, Holly Lodge, Stamford Hill, N.**

Now Ready.

**TEA and NOISSETTE ROSES,** of best sorts only, in great quantity, and of best possible quality. Prices on application. Priced CATALOGUES shortly.  
**EWING and CO., Sea View Nurseries, Havant, Hants (late of Eaton, near Norwich).**

**LAING'S BEGONIA SEED.—GOLD MEDAL STRAIN,** from our Prize Plants. Sealed packets, CHOICE MIXED, from single varieties, 1s. and 2s. 6d. per packet; 5s. extra large packets. We regret to say we are sold out of Seed of Double varieties. COLLECTIONS, 12 named varieties, separate, 7s. 6d.; ditto, 6 named varieties, separate, 4s. LAING and CO., Seedsmen, Forest Hill, S.E.

**CREEPERS for Walls, Trellises, &c.,** in great variety. By planting what is suitable, an unsightly object may easily be made beautiful. Descriptive LIST and advice on application.  
**RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.**

**HERBACEOUS and ALPINE PLANTS.**—Now is the season to plant and insure success. Write for R. H. VEREGAN'S Pocket CATALOGUE, and make your choice from his unrivalled Collection.  
Chad Valley Nurseries, Edgbaston, Birmingham.

**CARNATIONS.**—Strong Seedlings, from a splendid Collection of Choice Named Flowers. All to bloom this year. Per dozen, 2s. 6d.; per 100, 15s.  
**DANIELS BROS., Town Close Nurseries, Norwich.**

*Hyacinthus candicans.*

**BUDDENBORG BROS., BULB GROWERS,** Hillegom, near Haarlem, Holland, offer the above, splendid white flowering bulb, at 50s. per 1000.

To the Trade.

**LAUREL,** Portugal, 1-yr. Seedling, extra fine, 20s. per 1000.  
**HOLLY,** Common, 1-yr. Seedling, 6s. per 1000.  
**RICHARD SMITH and CO., Worcester.**

**"YE NARCISSUS or DAFFODIL,"** containing its History, Poetry, and Culture, with Notes on Hybridisation, and Illustrated with many Woodcuts. Price 1s.  
**BARR and SON, King Street, Covent Garden, W.C.**

**FOR SALE,** a splendid Double White CAMELLIA, 12 feet high. Apply to  
**Mr. MURPHY, Cleveland Lodge, Great Ayton, Yorkshire.**

**HOLLYHOCKS.**—A full Collection of fine named Hollyhocks, in good Plants. Also choice Collections of all FLORISTS' FLOWERS.

CATALOGUE on application.  
**JOHN FORBES, Nurseryman, Hawick, N.B.**

**FIVE THOUSAND PELARGONIUMS.** Must be sold. Clean, large bushy stuff, to flower early. Established in 48-pots, including all the best named varieties, as Dr. Masters, Duchess of Bedford, Bridal Bouquet, Kingston Beauty, &c., 7s. 6d. per dozen for cash. Also ditto in 60's, ready for 48-pots, at 4s. per dozen for cash.  
Address, **MANAGER, The Hill Nurseries, Sandiacre, Notts.**

**EIGHTY THOUSAND CLEMATIS** in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.  
**RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.**

**ASPARAGUS.**—True Giant, 2, 3, and 4-yr. Fine sample 100 or 1000, with price, on application.  
**JAMES BIRD, Nurseryman, Downham.**

**ASPARAGUS.**—A large quantity to offer, of very fine transplanted stuff, 2-yr. and 3-yr., 2s. 6d. and 3s. per 100, 20s. and 25s. per 1000. Also 2-yr. from drills, 10s. per 1000. All packages free on rail.  
**S. BIDE, Alma Nursery, Farnham, Surrey.**

To the Trade.

**MANGEL WURZEL and TURNIP SEEDS.** **H. and F. SHARPE'S** Wholesale Priced LIST of the above-named Seeds is now ready, and may be had on application. It comprises all the very finest varieties of 1884 growth.  
Seed Growing Establishment, Wisbech.

**"HUNTINGDONIAN,"** the finest Main Crop PEA extant.—*Vide the Gardeners' Chronicle* of April 18, page 372. 2s. 6d. per quart, Post-free, from the Raisers,  
**WOOD and INGRAM, Seed Merchants, Huntingdon.**



## SALES BY AUCTION.

## Caversham Park, Reading.

**MR. J. C. STEVENS** has received instructions from the Executors of the late Mrs. Crawshaw to **SELL BY AUCTION**, on the Premises, as above, on **MONDAY and TUESDAY, May 4 and 5**, at half-past 12 o'clock precisely each day, without reserve, the **COLLECTION OF STOVE and GREENHOUSE PLANTS**, consisting of Crotons, Dracenas, Marantas, Palms, Acazias, Camellias, and Azaleas, Ferns, &c.; also 12,000 **BEDDING PLANTS** of all the best varieties; a small collection of **ORCHIDS**, including several nice plants of *Dendrobium nobile*, *Cypripedium insigne*, *C. venustum*, *C. barbatum*, *Cattleyas* of sorts, *Anthurium Scherzerianum*, and other species. A quantity of **IMPLEMENTS**, comprising three Rollers, Water-barrows, Cans, Tanks, Mowing Machines, Farm and Spring CARTS, together with a **CART-HORSE, COB, &c.**

On view the Saturday prior and mornings of Sale, and Catalogues had on the Premises, or of **MR. J. C. STEVENS**, Horticultural Auctioneer, 38, King Street, Covent Garden, W.C.

## Thursday Next.—(Sale No. 6906.)

5000 **LILIJUM AURATUM** from Japan, in very fine condition. **MR. J. C. STEVENS** will include the above in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT, May 7**.

On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6906.)

## VALUABLE IMPORTED ORCHIDS.

**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT, May 7**, at half-past 12 o'clock precisely, by order of Messrs. Shuttleworth, Carder & Co., a grand importation of *LELIA AUTUNNALIS*, *ATROPHIS*, *ODONTOGLOSSUM MADRENSE*, *O. CITROSUM*, *O. CERVANTESII*, *O. INSELEAYI*, *LEOPARDINUM*, *O. ALEXANDRE*, *ONCIDIUM TIGRINUM*, *EPIDENDRUM NEMORALE*, and a beautiful new *BARKERIA LINDLEYANUM CENTRE*, &c.

On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6906.)

## ESTABLISHED ORCHIDS.

**MR. J. C. STEVENS** will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT, May 7**, the small **COLLECTION OF ORCHIDS** formed by Mrs. Brock, of Lexden Park, Colchester, including specimen *Dendrobium*, *Cattleyas*, *Laelias*, *Lycastes*, *Epidendrums*, *Oncidiums*, *Odontoglossums*, &c.; also 300 fine imported plants of *Barkeria elegans*.

On view morning of Sale, and Catalogues had.

## Orchid Conference Week.—Orchids in Flower.

**MR. J. C. STEVENS** begs to announce that his usual monthly SALE of ORCHIDS in FLOWER will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY, May 14** (the day following the Orchid Conference at South Kensington).

Gentlemen desirous of ENTERING PLANTS for this SALE will please send particulars of same not later than **THURSDAY, May 7**.

The Collection of Orchids formed by A. D. Berrington, Esq., of Pant-y-Goitre, Abergavenny.

**MR. J. C. STEVENS** will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., about the MIDDLE of MAY, without the least reserve, the **ENTIRE COLLECTION OF ORCHIDS** formed by A. D. Berrington, Esq., of Pant-y-Goitre, Abergavenny, including, amongst others, *Angraecum sesquipedale*, with forty leaves; *Angulosa Ruckeri*, fine plant, with ten bulbs; *Coleogyne tomentosa*, two plants; *C. viscosa*, *Cattleya crispa*, very fine variety; five plants of the autumn-flowering *C. labiata*, two plants of *C. Lemoniana*, *Laelia anceps Dawsoni*, two good plants; *Odontoglossum Blunthii*, fine spotted form; *O. pulchellum*, &c.

Date of Sale will shortly be announced.

## Wednesday Next.

## CARNATIONS, PICOTEES, and PLANTS.

**MESSRS. PROTHEROE and MORRIS** will **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY NEXT, May 6**, at half-past 12 o'clock precisely, 100 lots of choice named **CARNATIONS and PICOTEES** from the celebrated collection of Mr. Charles Turner, Slough, an assortment of **GREENHOUSE PLANTS** in flower, and **FERNS** from an English Nursery, a consignment of **PANCRATIUM** and **AMARYLLIS** received direct from the West Indies, **PINKS, CLOVES**, and a variety of **HARDY PLANTS and BULBS**, and 400 **GOLD FISH**.

On view morning of Sale, and Catalogues had.

## Friday Next.

**CATTELEA DOWIANA** in flower; a grand specimen, with fine healthy leaves, flowering in fine growths—several of the flowers will be expanded on the day of Sale.

**MESSRS. PROTHEROE and MORRIS** will include the above valuable plant in their SALE on **FRIDAY NEXT, May 8**.

## Friday Next.

## By order of Messrs. F. Hensman &amp; Co.

**MESSRS. PROTHEROE and MORRIS** will **SELL BY AUCTION**, at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT, May 8**, at half-past 12 o'clock precisely, importations of *LELIA ANCEPS*, dark forms in splendid well leaved pieces; *SCHONBURKIA TIBICINA*, the largest specimen ever imported; *ODONTOGLOSSUM ROSSI MAJUS*, the well known superb strain; *CATTELEYA CITRINA*, in large masses; *EPIDENDRUM VITELLINUM MAJUS* in large masses, E. BRASAVOLAE, rare and very beautiful; and **ESTABLISHED ORCHIDS** in flower.

On view morning of Sale, and Catalogues had.

## Monday, May 11.

## The day preceding the Orchid Conference.

**MESSRS. PROTHEROE and MORRIS** will **SELL BY AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **MONDAY, May 11**, at half-past 12 o'clock precisely, by order of Mr. J. C. Stevens, a grand importation of *EPIDENDRUM VITELLINUM MAJUS*, *ODONTOGLOSSUM ROSSI MAJUS* and *RUBESCENS*, *DENDROBIUM*, &c.

On view morning of Sale, and Catalogues had.

## Feltham, Middlesex.

**GREAT UNRESERVED CLEARANCE SALE.**—Important to the Trade and Market Growers. — Nearly 200,000 **GREENHOUSE PLANTS**, Steam **BOILER**, and **Pulsmeter PUMP**, two-horse **VAN**, 200 casts **FLOWER-POTS**, &c.

**MESSRS. PROTHEROE and MORRIS** will **SELL BY AUCTION**, on the Premises, The Royal Nursery, Feltham, Middlesex (in the occupation of Mr. G. A. Roberts, whose tenancy is expiring), on **WEDNESDAY and THURSDAY, May 13 and 14**, at 12 o'clock precisely each day, without the least reserve, the whole of the valuable and well-grown **Stock-in-Trade**, comprising 3000 **PELARGONIUMS**, 7000 **ZONAL GERANIUMS**, 7000 **MARGUERITES**, 10,000 **FUCHSIAS**, large white **AZALEAS** and **CAMELLIAS**, 2000 **CRASSULAS**, 2000 **Intermediate STOCKS**, 5000 **DAHLIAS**, 2000 **Seedling** and other **CYCLAMEN**, 500 **ARUMS**, 300 **AZALEA MOLLI** and **A. INDICA**, about 10,000 **Bedding GERANIUMS**, the well-known and unique collection of **White, Red, and Yellow** **CHRYSANTHEMUMS**, comprising about 80,000 plants; the whole of the **UTENSILS in TRADE**. Vertical **Steam BOILER**, with **Pulsmeter PUMP**, raising 6000 gallons daily; 200 casts **FLOWER-POTS**, galvanised **water TANK**, **BOXES and FRAMES**, two **PITS**, two **HORSES**, spring **VAN**, **HARNESS**, and numerous effects.

May now be viewed. Catalogues may be had of Mr. ROBERTS, on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

N.B.—The valuable **FREEHOLD ESTATE**, of 5 Acres, with numerous **ERRECTIONS and PIPING**, to be **SOLD**, or **LET**. It is ripe for building, and presents a fine field for speculation by the creation of **Ground-Rents**, or resale in **Plots**.

## Orchid Conference Week.

## IMPORTANT to EXHIBITORS.

**MESSRS. PROTHEROE and MORRIS** beg to call the attention of intending Exhibitors (who would prefer selling their Orchids to taking them back from the Show) to the special SALE of ORCHIDS in Flower, to take place at the Central Auction Rooms, on **THURSDAY, May 14**, the day following the Conference.

Messrs. P. and M. will be glad to receive an early intimation from Gentlemen proposing to enter their plants.

## Orchid Conference Week.

## SPECIAL SALE OF ORCHIDS in FLOWER.

**MESSRS. PROTHEROE and MORRIS** beg to announce that they purpose holding a special SALE of ORCHIDS in flower at their Central Auction Rooms, 67 and 68, Cheapside, E.C., on **THURSDAY, May 14**, the day following the Show.

Messrs. P. and M. will be glad to receive from intending Exhibitors an early intimation of their desire to include any Lots they may wish to dispose of.

## Maesmyrnan Hall, Caerwys, Flintshire.

About five minutes' walk from the Caerwys Station. **IMPORTANT CLEARANCE SALE** of a Valuable Collection of **STOVE and GREENHOUSE PLANTS**, &c.

**MESSRS. PROTHEROE and MORRIS** (in conjunction with Mr. John Pritchard) are instructed by Wm. Pickstone, Esq., to **SELL BY AUCTION**, without reserve, on the Premises, as above, on **TUESDAY and WEDNESDAY, May 19 and 20**, at half-past 12 o'clock precisely each day, the whole of the celebrated **COLLECTION OF STOVE and GREENHOUSE PLANTS**, comprising several handsome **Tree Ferns**, **Palms**, splendidly grown **Fuchsias**, **Geraniums**, and **Pelargoniums**, fit for exhibition; **Camellias**, **Azaleas**, fine **Eucharis**, **Tea** and other **Roses**, **Vines**, several **thousand Plants** for **Bedding** purposes, a large and complete collection of 2000 **Chrysanthemums**, a considerable number of **Rhododendrons**, several tons of **STALACTITE**, **MOWING MACHINE**, **GARDEN POTS**, &c.

On view the day preceding the Sale. Catalogues (6d. each, returnable to purchasers) may be had of Mr. JOHN PRITCHARD, Auctioneer and Land Agent, Bodhyfryd, Bangor; and of the Auctioneers and Valuers, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C.

N.B. The Maesmyrnan **FREEHOLD ESTATE**, of about 1200 Acres in extent, with the Mansion, the Manor and Court Leet, will be offered for **SALE BY AUCTION in JULY NEXT**, unless previously **Sold by Private Treaty**.

## Harlesden, N.W.—Clearance Sale.

**MESSRS. PROTHEROE and MORRIS** are instructed by Mr. J. Tibbles (who is relinquishing the business through ill health) to **SELL BY AUCTION**, on the Premises, the **St. Mary's Nursery**, Harlesden, N.W., on **THURSDAY, May 21**, the first portion of the well grown stock, comprising the whole of the **BEDDING PLANTS**, a large quantity of *Imantophyllum*, *Agapanthus*, 150 fine plants of *Anthurium Scherzerianum*, &c.

N.B. The **VALUABLE NURSERY**, with the **GLASS ERRECTIONS**, is for **SALE** upon moderate terms.

Apply to **MESSRS. PROTHEROE and MORRIS**, 67 and 68, Cheapside, E.C.

## Important Sale of Hothouse Plants.

**MESSRS. W. H. PHILLIPS and CO.** (late H. R. FARGUS, PHILLIPS, and CO.) have received instructions from the Executor of the late Mr. Daniel Bloodworth, of the Exotic Nurseries, Kingswood Hill, Bristol, to **SELL BY AUCTION**, at their Sale Rooms, 4, Clare Street, on **THURSDAY, May 7**, about 100 fine full grown **SPECIMEN PLANTS**, amongst which may be mentioned the following:—

**DIPLADENIA**—Brearleyana, insignis, and amabilis (the former variety well set with bloom).

**CROTON**—Fasciatus, Johannis, Weissmani, and majestica.

**COCOS PALM**—Weddelliana, 6 feet high.

**ORCHIDS**—Grand specimen of *Coleogyne cristata*, *Dendrobium nobile*, *Laelia anceps rosea*, and others.

**EUCHARIS**.—Twelve fine specimens.

**DASYLIRION**—Acrotichum—a grand plant, 5 feet in diameter.

**ERICA BARNESII**.

**DIERFENBACHIA WEIRII SUPERBA**, 6 feet high.

**PANDANUS VETICHI**.

**STATICE PROFUSA**, imbricata, and Holfordii.

**STEPHANOTIS FLOREBUNDA**, well set with bloom.

Four **BOUGAINVILLEA GLABRA** (100 spikes of bloom).

**IXORA**—Williamii, Colei, regina, and amabilis.

Also, a fine lot of young **PALMS**, specimen **ROSES**, **CAMELLIAS**, Maidenhair **FERN**, and other **PLANTS**, full particulars of which will appear in Catalogues now being prepared.

All the plants have been exhibited with great success, many winning First and other Prizes at Bath, Weston-super-Mare, and other Shows.

The collection will be on view the morning of Sale, which will commence at 12 o'clock.

Offices, 4, Clare Street, Bristol.

## Fulham, S.W.,

Adjoining the Fulham Union Grounds, and close to the Hammersmith Stations.

## VALUABLE BUILDING ESTATE.

In the High Court of Justice, Chancery Division. Re the General Horticultural Company (John Wills), Limited.

**MR. GEORGE FIELD MORRIS** (of the firm of Protheroe & Morris), the person appointed by the Hon. Mr. Justice Chitty, the Judge to whose Court the matter is attached, will **SELL BY AUCTION**, at the Mart, Tokenhouse Yard, E.C., on **THURSDAY, May 7**, at 2 o'clock precisely, in one lot, the valuable **LONG LEASEHOLD ESTATE**, known as **Wills' Nursery**, Fulham Palace Road, S.W., which possesses the important frontage of 138 feet, and contains an area of 1 acre 2 rods 22 perches, together with the **TWO LEASEHOLD DWELLINGS**, Brick-built **STABLES**, **GREENHOUSES**, &c.: the whole forming a very attractive site for the erection of a School, Institution, Public Building, or first-class Residence, or for development into **Plots**. Held for a long term at a low ground-rent.

Particulars and Plan may be had at the Mart; of Messrs. **BATTY and WHITEHOUSE**, Solicitors, 26, Charles Street, St. James' Square, S.W.; Mr. A. TOOVEY, Solicitor, 18, Orchard Street, W.; and by the Auctioneers and Surveyors, 67 and 68, Cheapside, E.C.

**FOR SALE, a NURSERY in the North-**East of London, consisting of Eleven well-stocked Greenhouses, from 50 to 112 feet long. Good Furnishing and Jobbing Trade. Stock at an agreed price or valuation. Leasehold. Time unexpired, eighty years.

**FLORA**, 41, Wellington Street, Strand, W.C.

## TO FLORISTS and GARDENERS.—

Unexceptional Opportunity for a Beginner. Compact Premises in vast, increasing, high-class neighbourhood. Price for Fixtures and Utensils in Trade, including Two Glass Houses, £150.

**HERBERT DRAKE**, 51, Westbourne Place, near "Prince of Wales," Harrow Road, Paddington, W.

## Warminster Nursery.

**TO BE LET**, with Immediate Possession, the above old-established **NURSERY GROUNDS**, comprising 2½ Acres, more or less, together with **Vinery**, **Hot-houses**, **Stables**, and every convenience.

Apply to **MR. HALLIDAY**, Warminster, Wilts.

## To Florists, Market Gardeners, and Others

**TO LET**, at Fulham, 1½ Acre of **GARDEN GROUND**, with nine Glass Houses. Suitable for the business of a Florist or Seedsman.—For particulars apply to Messrs. **ROSE and JOHNSON**, Solicitors, 26, Great George Street, Westminster, S.W.

## Fifty Nurseries, Market Gardens, Florist and Seed

## BUSINESSES to be DISPOSED OF.

**MESSRS. PROTHEROE and MORRIS'** **HORTICULTURAL REGISTER** contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

## JOHN KENNARD'S HORTICULTURAL

**SUNDRIES**, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

## T. HARPAM, PRACTICAL ROCK BUILDER

and **GENERAL HORTICULTURAL DECORATOR** for Caves, Waterfalls, Fountains, &c., 107, Church Street, Edgware Road, London, W.

## To Landed Proprietors, &amp;c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the **FORMATION and PLANTING** of **NEW GARDEN and PARK GROUNDS** and **REMODELLING** existing **GARDENS**. Plans prepared. 115, Listria Park, Stamford Hill, N.

## ADIANTUM CUNEATUM.—Good strong

Plants from boxes, fit for small 60s, 7s. 6d. per 100, £3 10s. per 1000. Cash with order. **G. ADCOCK**, Florist, Rokeby Road, Brockley, S.E.

## To Exhibitors.

**F O R S A L E** *PIMELEA DECUSSATA*, *PHENOCOMA PROERICA* *OBATA*, *LIFERA BARNESII*.

Fine Specimen plants, fit for exhibition. For price and particulars apply to

**MR. W. HAYWARD**, Breckenbro, Thirsk.

## SPECIAL CHEAP OFFER

of **VERBENAS**, **ALTERNANTHERAS**, **COLEUS**, &c.

**VERBENAS**, White, Scarlet, Purple, and Pink. **ALTERNANTHERAS**, amena, versicolor, Grandesse, magnifica, and paronychioides majoraurea. **COLEUS** Verschaffeltii. **HELIO-TROPE** Miss Nightingale and President. Garfield. All the above well-rooted plants at 6s. per 100, 50s. per 1000. **LOBELIA PUMILA MAGNIFICA**, 2s. 6d. per 100, 20s. per 1000.

Package included. Terms cash.

**JOHN SOLOMON**, Queen's Road Nursery, Walthamstow.

## CYPRIPEDIUM.—2000 may be seen in

Flower at the Clapton Nursery.

**HUGH LOW and CO.** invite inspection.

## SPECIAL OFFER of Tricolor, Zonal, and

other **GERANIUMS**, Brighton Blue **LOBELIA**, and other **PLANTS**.

**W. POTTEN** can still supply many thousands of strong Plants of the above as advertised in *Gardeners' Chronicle*, April 25.

**WILLIAM POTTEN**, Camden Nursery, Sissinghurst, Staplehurst.

## Price Florists' Flowers.

**JOHN DOWNIE** begs to intimate that his **CATALOGUE** of the above is now ready and will be sent post-free on application. It comprises the varieties of **Pansies**, **Violas**, **Pentstemons**, **Phloxes**, **Anthrums**, **Dahlias**, double and single, &c.

As I am now in business solely on my own account, and from a long and varied experience in the cultivation of **Florists' Flowers**, purchasers may rely on nothing being sent them but what is really first-rate. Selection and not collection is my style of doing business.

Beechhill Nursery, Murrayfield, Edinburgh.



# 1885.—DAHLIAS.—1885.

## DOUBLE POMPON VARIETIES.

A good collection, consisting of the varieties most showy in the borders, and those best adapted for cutting.

## SINGLE VARIETIES.

The finest collection in the world, including 12 beautiful new varieties of present season.

## CACTUS and other DAHLIAS.

A most interesting group, consisting of several colours. All are fine decorative plants, and beautifully fitted for cutting.

## DOUBLE SHOW and FANCY VARIETIES.

All the leading varieties in cultivation, including the new ones of 1885.

Priced Descriptive Illustrated CATALOGUE may be had Gratis and Post-free on application.

THOMAS S. WARE,

Hale Farm Nurseries,

TOTTENHAM, LONDON.

## NOW IS THE BEST TIME TO PLANT BOTH.

PRICKLY COMFREY.—We offer crown sets, which are superior to roots, at 2s. per 1000. The root is said to be an excellent remedy for coughs and colds in horses and other animals.

GIANT ASPARAGUS.—Splendid roots, from sandy land, in four sizes, 15s., 21s., 30s. and 45s. per 1000. Trade prices on application.

HARRISON & SONS, Seed Growers, LEICESTER.

## FERNS A SPECIALTY.

Hundreds of Thousands of

FERNS AND SELAGINELLAS,

for Stove and Greenhouse Cultivation, and Outdoor Ferneries.

## ABRIDGED CATALOGUE

of over 1200 Species and Varieties free on application.

LARGE CATALOGUE (price 1s.), containing 75 Illustrations of Ferns and Selaginellas, valuable "Hints on Fern Culture," and other useful and interesting information.

W. & J. BIRKENHEAD,

FERN NURSERY, SALE, MANCHESTER.

## NEW CATALOGUE FOR 1885.

Beautiful Flowers for Indoors, selected from an immense stock. Our Glasshouses cover nearly 2 acres.

Wm. Clibran & Son's New List

(90 Pages Double Column)

Of the newest and finest varieties of all classes of Plants for Greenhouses, Stoves, &c., may now be had for two stamps. It includes only the best varieties of their respective classes. Every season new sorts are added. Comparisons of the varieties when in bloom carefully made, and the inferior kinds discarded. Intending purchasers may rely, when selections are ordered as under, on being supplied with varieties of merit only.

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COMPANY (JOHN COWAN), Limited, have a large and fine stock of EAST INDIAN and other ORCHIDS, and they are constantly receiving fresh importations from various parts of the world. Full particulars of Orchids in stock, and also fresh importations, forwarded on application.

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MANGEL, Champion Yellow Globe, 30s. per cwt.  
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Our Verbenas are again this year unusually strong, well-rooted, vigorous, and clean. Quite equal to previous years; which, according to unsolicited testimonials received, have given great satisfaction.

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Double American, good sample, per 100, 12s.; per 1000, 110s.  
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Packing included. Terms Cash.  
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In 5-in. pots, 1½ feet high, 9 to 12 buds Each.—s. d. s. d.  
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In 18-in. " 2½ to 3 feet high and as much through, with  
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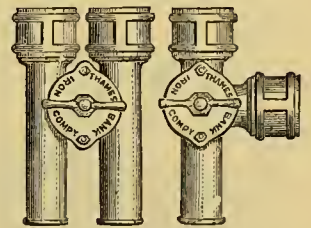
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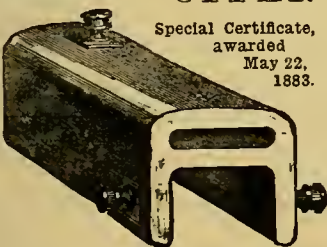
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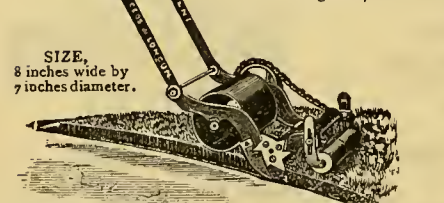
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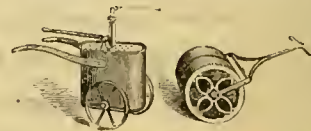
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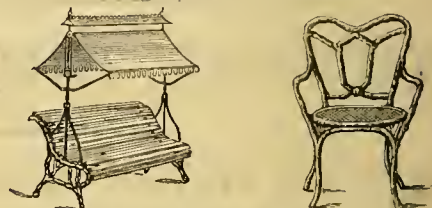
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THE

## Gardeners' Chronicle.

SATURDAY, MAY 2, 1885.

## DOUBLE DAFFODILS.\*

IN attempting to comply with the request the committee has done me the honour to make, I shall, as far as possible, confine myself to such facts as may be verified by any observer. I cannot, however, entirely pass over the possible physiological explanations of these facts—a much more difficult and debatable matter, but one the relevancy of which to the questions the committee has set itself if possible to determine, will not be denied.

To start with, we have the concrete fact of the existence of flowers double, and we have to account as best we can for their existence. The attempt will be no empty scholastic exercise, of no value to the cultivator. On the contrary, the experiments and observations made under the superintendence of the committee, if successful, are sure to be of direct practical importance. Proceeding in our quest from the known to the unknown, these questions arise—(1) whether these doubles can originate in the way it is asserted they do? and (2) whether they really do so? To the second question it is beyond my commission to attempt to reply, that must be left to be declared in the final summing up of all the evidence from various quarters and different points of view. To the first question I should be disposed to give an affirmative reply, for reasons which I shall hereafter give. This being so, I shall be immediately asked, How can these things be? and this will at once bring me to the particular part of the work which the committee has entrusted to me—the consideration of the structure of these so-called double flowers.

Before any satisfactory conclusion can be arrived at as to the causes which produce "doubling" in Daffodils, it is therefore requisite to know in what that doubling consists. It is obvious on the most cursory examination that the process is not uniform, but that it presents many diversities. These diversities may be absolute, or they may be merely the result of different degrees of intensity of the same essential condition.

## GROWTH OF THE BULB.

Previous to detailing the specific alterations of floral construction which constitute the double condition, a few generalities may be indulged in, if only for the sake of making what is to follow more clearly intelligible. The general structure and mode of growth of the bulbs, leaves, and flowers of the Daffodils are known to all lovers of these flowers, and need, therefore, not be adverted to here in detail; but there are certain points on which it is desirable to lay special stress with reference to this present inquiry. And first of all as to the bulbs. The bulbs are at once nests in which the young flowers are formed, and nurses by which they are nourished. It is not necessary to describe so well known a bulb as that of the Narcissus, but it is of importance to notice its mode of growth. For a time from its short axis or central stem proceed, on this side and on that, in regular sequence and in definite order, thick

\* This article was prepared at the request of the Daffodil Committee.



fleshy scales, which wrap round and encompass the bulb. Presently these fleshy scales give place to green leaves. These die down, and scales are again produced. The scales are the nursing mothers of the bulb and of its offshoots. In them are stored much of the water, the salts, the other elements which directly or indirectly are required for the maintenance and building up of the plant. The leaves exposed to light wrench from the carbonic acid of the air the carbon the plants require, and generally serve to collect and to manufacture the stores of food, or materials capable of conversion into food, which are stored up in the scales. If the scales of a bulb in full growth be stripped off one by one, it may easily be seen that scales and leaves are continuous, that the one is but a modification of the other, and in spite of their different look no one would say that they were essentially different.

Should any one object that all this is very trite and rudimentary, it may be answered that this is a case where first principles eminently need to be insisted on, and the principles involved so far are these—(1), *primitive uniformity of conformation*; (2), *subsequent differentiation*, one set of leaves being told off to do one duty, another set of leaves being modified to fulfil some other description of work; (3), *alteration in the mode and purposes of growth*, as just explained; and (4), *a period of rest or quiescence* (not absolute, but relative) between the stages, growth manifesting itself in two different methods and to two different ends—and arrest of growth between the acts. Such, in brief, is the regular course of events in the parent bulbs.

But now we have to consider the flower born in that bulb, and that consideration will again introduce some first principles of which further cognisance must be taken in endeavouring to understand the *rationale* of double flowers. Some bulbs there are whose central stem, after having given origin on this side and on that to scales or leaves, or both, winds up its career by the crowning glory of a flower. In such cases scales, leaves, stalks are but as the pedestal on which the floral statue is raised. The Onion and the Tulip have bulbs of this character, in which the central stem of the bulb ends in a flower. Such bulbs are known as "definite" bulbs, because the growth of the stem is limited or defined by the formation of the flower at its extremity. Once the flower completed there is no further development in that direction. Arrest of growth takes place, and under ordinary circumstances that arrest is decisive and permanent.

Other bulbs there are whose manner of growth is different, and the Hyacinth and Narcissus are among them. Here the central stem of the bulb does not end in a flower, but in a growing point. Arrest of growth, indeed, takes place, but only to be resumed after a period of rest, and when circumstances become propitious. Such bulbs are called "indefinite." In such bulbs the flowers are borne from the sides, not the end of the stems, and in the "axils" of the scales.

In the definite bulbs the main stem dies every year, provision being previously made for side growth in the following season. The consequence of this is that in the second season there is little or nothing left of the growth of the first. In the Hyacinth and Narcissus, on the other hand, the main stem, or at least its central growing point, lives on from year to year; its base dies away, and so do the whole side flower stems, provision being made as in the other case for new side growths in the shape of small bulbs or scales. These two classes of bulbs illustrate two great principles of floral development, *permanent arrest of growth and temporary intermission*, and, as a consequence of these, deflection in the current or direction of growth or continuance in the same direction.

#### GROWTH OF THE FLOWER.

It is of course quite unnecessary to occupy time with the description of the parts of a flower in an ordinary Narcissus, but in its development and mode of growth there are several circumstances which may aid us in understanding the way in which double flowers may be brought about. The flower begins as a hemispherical globule or pimple of very minute size, without trace of parts. From its circumference, below the extreme tip, emerge in succession, first three, afterwards three more pimples similar to the one from which they sprang. These six pimples ultimately develop into the six parts or segments of the perianth, which are free at their tops but remain in union below, thus forming a tube pushed up from below during growth, and enclosing and surmounting the ovary.

In the case of the perianth, then, the six segments originate in two sets, three outer and three inner. After the formation of the six parts of the perianth, as above described, three other pimples emerge from the primary dome or pimple—these three emerge all at one time, and are followed by three more which are also developed all together. These are the six stamens, free for great part of their length, but inseparable from the flower-tube beneath. Immediately after the first beginnings of the stamens, or it may be just prior to that period, the little central dome or pimple from which the parts of the flower have proceeded is seen to be depressed in the centre; the depression becomes gradually deeper, so that a tube or cavity, already referred to, is formed. The reason for this introduces us to another peculiarity of growth—its inequality. Here the outer or lower portions of the dome grow faster than the central ones, and the result is the formation of a tube. From the sides of this tube proceed three more little pimples, formed simultaneously, the tips of which alone remain free (as the stigmas), the other portions remaining adherent not only one to another, but to the side of the tube from which they originally sprang. As this lengthens the whole ovary—for such it is—becomes, as it were, imbedded in it; and in the mature flower we have the little green knob below the flower, called, from its position, the "inferior ovary."

It is not necessary to extend this summary account of the mode of growth of the flower further than to mention that the cup, trumpet, or corona (I prefer the latter term, as comprehensive of all the varieties), that the corona is an outgrowth from the top of the flower-tube or extreme base of the flower-segments, that it is not a distinct organ, or set of organs, as was at one time supposed, but is a mere secondary outgrowth, of use probably in directing insects in which way they should go.\*

#### DOUBLE FLOWERS.

It now remains to speak of the different modes of doubling met with in Daffodils. For the purposes of this communication I have been favoured with letters and specimens from a large number of correspondents—specimens so numerous and so varied that I could not undertake to describe the particular variations sent me by each contributor.† The variations admit of being reduced to two or three principal groups, the complications arising from the combination in the same flower of several different conditions.

The doubling of Daffodils is therefore due to—

1. A reduplication of the perianth as a whole.
2. To a multiplication, or increased number of parts in a particular series (polyphyly).
3. To a metamorphosis or permutation of parts.
4. To the isolation or separation of parts generally united.

These exist in different degrees in different flowers, sometimes, but rarely, separately, much more frequently in various degrees of combination in the same flower. And then there is a variation, which has been sent me by more than one correspondent, and which consists merely in the union, more or less complete, of two or more flowers side by side. These illustrations of "synanthi" may fairly be excluded from the category of doubles, as being inconstant, and not necessarily involving any change in the flower itself, and outside the limits of this inquiry.

#### PLEIOTAXY.

1. The *duplication of the perianth* (pleiotaxy) is perhaps the commonest change met with. It consists in the repetition of the perianth-segments without, or generally with, the corona, and without, or generally with, changes in the stamens and styles. The ovary with the contained ovules is usually quite unaffected. In its more perfect state the corona retains its tubular form, particularly the outermost one, as

\* It scarcely comes within the scope of this article to discuss the question of the fertilisation by means of insects of these flowers, but as the question is one of great interest and is not without bearing on the subject immediately under discussion, it would be very desirable if observers would indicate what insects visit the flowers of Narcissus. Müller, the great authority on the subject, says nothing as to the Daffodil, and suggests that *N. tazetta* is fertilised by night-flying insects. The comparative rarity with which seed-pods and perfect seeds are found even in single Daffodils seems to point to the absence at the proper time of the requisite insect, and, if this be really so, to the ultimate extinction of the plant! It is to be feared, however, that peripatetic flower-sellers may contribute even more speedily to their destruction—so even for which the introduction of a *Victoria regia* or *Vanda Sanderiana* would be but a sorry compensation.

† Among these I may mention the Hon. and Rev. J. T. Boscawen, the Rev. C. Wolley Dod, Messrs. Barr, Hartland, Burdige, A. D. Webster, Brockbank, Archer Hind, W. W. Fisher, Frank Miles, Lord Balfour of Burleigh, Hon. Mrs. Boyle.

one sees in double flowers of the variety major of *N. Pseudo-Narcissus*. When the corona is split up we have such forms as *N. Telamonius pleus*, *N. spurius fl.-pl.*, forwarded by Mr. Burdige; *N. obvallaris fl.-pl.*, from Mr. Brockbank; and *Hales' Silver and Gold*, where, owing to the difference in colour of the perianth and of the coronal segments respectively, we have alternating zones of light and deeper yellow. In other cases the diversity of colour is even more striking from the presence of a deep green colour on the edges of the segments, which forms a pretty contrast to the crown and is indicative of a partial reversion of the segments to the state of leaves. It is in these repeatedly duplicated flowers that we find what are called *Rose Daffodils* (forms of the variety major). In these flowers, in addition to the changes already mentioned, the axis or thalamus of the original flower divides into from two to six subdivisions, each of which bears a flower whose perianth is reduplicated as in the primary one. Of course the ovary of the primary flower does not exist in such cases, its place being occupied by the branched axis. These cases are instances of median proliferation.\*

This is hardly the place or time to enter upon the discussion whether or no *N. major* and its double forms are natives to this country; suffice it to say that, among the specimens sent from Devonshire by Mr. Archer Hind, and from Shropshire and Cornwall by another correspondent, and from Bangor by Mr. Webster, there were many, both double and single, and reputed wild, which went far to establish a complete series of links between the ordinary wild Daffodil as I know it in Kent and the Home Counties, and the large forms of major, and even of *Telamonius pleus*. Such a series can readily be found on comparing specimens from different localities? As to their really wild condition, I can say nothing definite or at first-hand.

#### POLYPHYLLY.

2. *Multiplication, or Polyphyly*.—By this is meant a condition in which the perianth is not repeated, but in which the individual members of the single whorl are increased in number. Thus in a specimen of bicolor sent by Mr. Hartland, there were eight perianth segments, four in each row, and as many stamens, the ovary, however, having three cavities as usual. Mr. Brockbank sent a similar specimen in a form of major, but the condition is not frequent and need not detain us long. Seeing that the ovary retains its ternary condition it seems probable that the additional segments here are the result, not of any absolute new growth, but of a subdivision or branching of the primary organs.

#### METAMORPHY.

3. *Petalody*.—The particular form of permutation which is most common, indeed which is all but universal in double Daffodils, is that called petalody, from the fact that the stamens and pistils, some or all, assume more or less completely the guise of petals or perianth segments. If it be complete of course neither pollen nor ovules can be produced, but such complete petalody is rarely met with, generally some of the stamens are present, even if distorted, and half an anther would furnish a considerable number of pollen grains. As to the ovary and ovules it is especially noteworthy that they are, as compared with the stamens, very rarely changed. Even in the most complex combination of pleiotaxy and petalody, it is rare for the ovary and ovules to be affected. The few exceptions will be mentioned in a subsequent paragraph. This affords matter for speculation as to the sexual changes in these flowers, and their possible antecedent and future condition. I must, however, content myself with noting the fact. It has already been mentioned that petalody most frequently accompanies pleiotaxy but not necessarily so, for I have had several double Daffodils in which the outer perianth was not increased, and in which indeed there was no change but that of the stamens and the styles (not the ovary) into petals. (*Gardeners' Chronicle*, Feb. 21, 1885, fig. 46.)

4. *Isolation of Parts*.—This is a very interesting condition, and none the less so, physiologically, because it is usually, but not always, attended by suppression of the stamens and of the ovary. In speaking of the ordinary course of development of the flower it was shown how after the formation of the parts of the flower as separate members (exclusive of the

\* For a coloured figure of this change see C. Morren in *Bull. Acad. Belg.*, t. xx., part 2, p. 272.



pistil), they were united below into a tube, or more correctly speaking, that they ceased to be separated, a tube being thus formed and pushed up from below the lower part of this tube enclosing the ovary, the upper edge bearing the perianth segments. In the class of cases now to be considered neither the flower-tube nor the ovary exists, but the solid flower-stalk, or thalamus gives off from its upper edge row after row of segments, each segment wholly distinct from its neighbour from base to apex. Some of the flowers so constituted have a corona split up into segments, so that each segment of the perianth has its own coronal segment in front of it. This is the condition in Mr. Hartland's "Rip Van Winkle," and when the flowers open perfectly the appearance

however, be considered legitimate to offer a few considerations based upon the known laws of growth as detailed in an earlier part of this paper. It has been shown that, both in the case of the bulb and of the flower, there is primitive uniformity and subsequent change; that in both there are periods of activity and periods of arrest; that the intensity of growth is now in this direction, now in that; that at one time the organs of the flower are formed in one way or order, at another time in another. Thus in the most common form of doubling, by pleiotaxy, continuance of growth in organs which are developed in succession produces a repetition of the perianth segments, while arrest of development (as distinguished from mere growth)

abundant moisture. Stamens, pistils, dry fruits, and especially seeds, are more specially favoured by mineral manures and low diet generally. It may, however, be remarked that no condition of manuring, high or low, has been observed to favour the production of double flowers at Rothamsted in the very numerous and long-continued experiments there conducted under the auspices of Sir John Lawes. But besides these outward and visible causes, account has to be taken of less tangible but more potent inward forces peculiar to the individual plant, such as heredity and natural variation, of differences in the sexual proclivities, and other idiosyncrasies, the only knowledge of which that we possess is that derived from their effects. Into the consideration of these matters, which are for the most part purely speculative, it is better at this time not to enter. *Maxwell T. Masters.*



FIG. 102.—SPRING INSECTS.

is far from unpleasing. (See *Gardeners' Chronicle*, Feb. 21, 1885, fig. 44.) Another instance of the same kind is the form called "eystettensis," or "capax," in which the corona is not present, but in which the whorls of flat segments alternate with such regularity that the segments appear piled one upon the other in six rows—a condition of things to which I have elsewhere alluded at length. (See also *Gardeners' Chronicle*, 1883, vol. xix., p. 412, fig. 62.)

Such, omitting many minor particulars, are the principal conditions met with in double flowered Narcissi. The specimens examined have chiefly been forms of *N. Pseudo-Narcissus*, but the remarks here made will apply equally well to the other species.

As to the causes that produce these changes it were well to say nothing definite till the results of the experimental cultivation now undertaken at Chiswick and Kew furnish more definite evidence. It may,

accounts for the absence of the stamens, or permutation accounts for their partially petal-like appearance. Whatever then be the actual causes producing these changes, they may be expected to act differently, according to the state of activity or of rest in which the plant may happen to be at the time, and especially according to the stage of development arrived at; thus, if the organisation of the flowers were nearly completed at the time of the onset of any exciting cause, little effect would be produced proportionately to what would have occurred at an earlier stage.

Rich nitrogenous food is well known, especially from the results of direct experiment at Rothamsted, to be specially propitious to the development of foliage and cellular structure generally. Mineral food, with less nitrogen, on the other hand, favours the formation of woody matter, tends to early maturity and seed production. The petals of flowers belong of the two rather to the succulent cellular foliage, whose growth is enhanced by nitrogenous manures, rich soil, and

## COMMON GARDEN INSECTS.

To a naturalist a garden is always attractive. Its interest does not cease at the approach of winter, to revive again in spring-time, nor is it entirely dependent on the carefully tended flowers and foliage; indeed, one need be no naturalist to observe how abundant and varied in its insect population is the most commonplace garden, and to what an extent the little creatures affect the condition of the vegetation. Proverbially a garden is above all places the abode of crawling and flying things. Gardeners well know how numerous, and frequently how destructive to the objects of his toil is the small life we are about to describe; and insects play even a larger part in gardening processes than most people are aware. They are not all destructive. The soil is tilled, aerated, manured, and cleansed from impurities by



the direct agency of insects and allied creatures. Some of our favourite flowers are propagated by means of insects, other plants catch and feed upon insects. On the other hand the preventable ravages of insects costs the country many thousands of pounds every year. Yet, notwithstanding the importance of the subject few people interested in gardening matters care to devote adequate attention to it. No outdoor study is more interesting and none more profitable to the gardener, nurseryman, or forester than that of entomology.

The variety of the insect life inhabiting every garden is very great. A history thereof would comprise a history of the garden itself and of every plant it contains. The soil is the abode of centipedes, slaters, spiders, and analogous creatures (which, though not scientifically considered insects, are yet popularly so named), but in the present paper only such things as caterpillars, beetles, &c., are alluded to. The crevices in tree bark abound in insect life, the wood itself is burrowed by beetles and flies, the leaves and branches of fruit and blossoms of trees are the abode of, and often the victims of, a large army of insects, some of which are beneficial, but most of them injurious. Every flower shelters a host of insects, and a large proportion is invariably destroyed by them. Every rubbish heap, as well as every corner and crevice of the best tended garden, is used for the propagation of innumerable insects, which, when the warm season arrives, come forth in countless numbers. Nor do these hosts live and die without leaving their marks; they do not pass their short-spanned lives in idleness, and somewhere or other their work may be traced. Look where we will, and in whatever garden, we shall find no spot, scarcely a leaf or a stone, on which is not impressed the work of some insect. Healthy trees and plants are stripped of their leaves, their tissues are reduced to pulp, which, commingling with the soil, is finally decomposed and forms new soil.

Dead trees are completely eaten up, save a little dust that is quickly dispersed by the wind; new flowers spring up, new trees take root, and old ones disappear; decaying animal and vegetable matter is completely disposed of, and various offensive matters are effectually removed—all through the agency of insects.

The first warm days of spring invariably bring forth an almost incredible number of insects of all kinds. Where they all come from is to most people a puzzle. However hard the winter's frost may have been, they come out in almost as great force as after a mild winter. The disappearance of the vast multitudes of insects as winter comes on, and their unfailing re-appearance the next year, is one of the wonders of entomology.

In winter-time the garden is a quiet place; nothing seems to be stirring, but yet there is abundant life hidden out of sight in a state of torpidity or hibernation, being confined in cells, crevices and corners in and near the ground, under bark, and in such places. Some are protected in snug little chambers or nests by a covering of warm material, such as woollen or silken material. Some exist in the larval, others in the pupal, and many in the perfect state. Thus the well-known cockchafer lives as a larva through three winters in a semitorpid condition; most butterflies and moths survive the winter by existing in the pupa form, whilst many beetles live through the cold months in a fully developed condition.

The most conspicuous of hidden insects that come out early—in fact, before the winter is quite over—are ground beetles and their larvæ or grubs. Fig. 102 represents a few square inches of a garden corner and a group of insects, all drawn the natural size. The central figure is the Violet Ground Beetle (*Carabus violaceus*). The first part of its name, *Carabus*, refers to its carnivorous habits; in the drawing it is pursuing, with threatening jaws, a small beetle. The second part of its name, *violaceus*, has reference to its colour, which is deep blue-violet, with a hollow ridge round its body of deep red-violet. This beetle must be considered a friend of the gardener, as it, both in the larval and perfect states, lives upon small creatures, many of which are injurious to the gardener. It is mostly nocturnal in its habits, and an examination of the garden at night by lamp-light will frequently reveal great numbers in gardens which were supposed to be free of all such pests, busily engaged in devouring smaller fry. When caught in the hand this beetle can inflict pain by biting, and, moreover, possesses

the additional curious protective ability to discharge from its tail or dorsal appendage an irritating fluid of most offensive odour—a provision which effectually repels many of its enemies. Sometimes when stones, &c., are lifted from the ground, white specimens of this and other beetles are found, and which are soft and apparently defenceless; these are individuals which have recently emerged from the pupa state, and have not yet had time to complete their development. When exposed to the light and air they gradually darken and harden until similar in appearance to the older insect.

On the left of *C. violaceus* is portrayed its larva or grub, which is of even more voracious habits than the parent, as may be judged from its large and menacing jaws. It destroys hundreds of small insects in the course of the season. In the left-hand bottom corner of our drawing is seen a handsome beetle, which is of a deep brooze colour, beautifully ornamented on the back in relief. Its name is *Carabus granulatus*, and it does not differ materially in habit from *violaceus*, and is found in similar situations.

In fig. 103 is represented a pretty little beetle named *Suobiner*, or scientifically *Amara obsoleta*, life-size and magnified. This insect is one of the earliest harbingers of spring—the first sunshiny days of March are nearly always certain to bring out these very lively little creatures. They are of a shining coppery lustre, and run with astonishing speed. There are no less than twenty-four species of beetles belonging to the genus *Amara*, which seem never to be so much at home as when basking in the full blaze of sunshine, or flying in its warm rays, for it must not be forgotten that these little creatures have delicate and beautiful wings carefully packed away beneath their hard and glossy backs or elytra. There exists a curious superstition concerning sun-beetles, that it is unlucky to kill one, as by so doing storms may be produced.

## New Garden Plants.

### EPIDENDRUM FALSILOQUUM, n. sp.\*

THIS *Epidendrum*, kindly forwarded by Mr. W. Bull, is a very deceptive plant. At first sight you think it ought to be *Epidendrum verrucosum*, Swartz (not Lindley, later corrected by the illustrious author as *verrucosum*, Lindl.). It is, however, an *Amphiglossum*, as shown by the narrow oblong side lacinia of the lip, which at once distinguish it well from *Epidendrum floribundum*, H. B. K., whose calli it has. The anterior lacinia of the lip has its from its narrow base two diverging linear blunt shanks, just as in *Epidendrum verrucosum*, Sw. The leaves are linear acuminate with purple lines on the sheaths. The dimensions are those of a well-developed *Epidendrum verrucosum*, Sw. The general colour of the paniculate flowers is a whitish-ochre for the sepals and petals; the lip is white with three linear acute depressed mauve keels, the semi-ovate basilar calli being white. There is a single purple spot on each side lacinia of the androclinium. *H. G. Rehb. f.*

### MAXILLARIA PRÆSTANS, n. sp.†

The best thing in the cucullata group, exceeding in size by two-thirds every one of those species. It was sent me in April, 1884, and again this year, by Messrs. H. Low & Co., who received it from Guatemala, where it had been gathered by Mr. J. C. Lehman.

\* *Epidendrum (Amphiglossum) falsiloquum*, n. sp.—Ultra pedale, vaginis foliorum purpureo-livatis; laminis linearibus acuminatis (m. 0.14 : m. 0.05); panicula de foliis distante, vaginis quibusdam inter folia et paucis acuminatis; ramis inflorescentiæ bene floridis; sepalis oblongis margine involutis lateralibus acutis; tepalibus linearibus obtusis; labello trifido, lacinia lateralibus oblongis angustis; lacinia mediana a basi lato lineariter bicorni, cruribus divaricatis linearibus retusis sinu amplo separatis; callis semiovariis duobus in basi parvis, carinis depressis acutis crasse approximatis terius in disco. *H. G. Rehb. f.*

† *Maxillaria præstans*, n. sp.—Affinis *Maxillariæ cucullatæ*, Lindl.; pseudobulbo aciculi utriusque convexo; folio cucullato ligulato obtuse acuto; pedunculo late vaginato; bractea cucullata acuta ovarium non omnino æquanti; sepalis ligulato-trifidis; tepalibus linearibus obtusis; labello trifido, lacinia lateralibus humilibus obtuse acutis, lacinia mediana cucullato oblongo acuta, crassa, callo labelli a basi in basin, lacinia acutæ antice abrupte crasseque obtusato, lateribus argute marginato, callo altero trilobo in basi columnæ. Guatemala. *H. G. Rehb. f.*

The bulb is oblong aciculous, with convex sides, nearly as shining as those of *Odontoglossum citrosolum*. The leaf is of parchment texture, cucullate ligulate, blunt acute. The sheaths of the peduncle are wide and aciculous, as is the bract, which does not quite equal the stalked ovary. Sepals ligulate acute. Tepals narrow, shorter, acuminate, 1884, blunt, acute, 1885. All of a honey colour, yellow, with brown spots on base. Lip trifid, side-lacinia short, blunt triangular, mid-lacinia cucullate oblong acute, very thick brownish-yellow, with very numerous small brown spots, the basilar lacinia are whitish with purple spots. Callus ligulate, blunt in front, margins argute. Columna trigonous, yellow, with many purple spots in front below, and a trilobed orange callus at the base. I had it in April, 1884, without bulb and leaf, and now a second time with those necessary additions, which enable me to describe it finally. *H. G. Rehb. f.*

### IPOMÆA HORSFALLIÆ, et aff.\*

Some year or two ago a very handsome white-flowered *Ipomœa* was introduced to our gardens under the name of *Ipomœa Horsfalliæ* alba. A comparison, however, soon showed that the plant in question could hardly be appropriately referred to *I. Horsfalliæ*, and it was subsequently described and figured in these columns as *Ipomœa Thomsoniana*. In the course of the necessary researches it was ascertained that no wild specimen of *I. Horsfalliæ* existed in the Kew herbarium, and that nothing definite had been added to our knowledge of its native country since Sir William Hooker wrote in 1835 (*Botanical Magazine*, t. 3315) that the plant was introduced from "seeds received by Charles Horsfall, Esq., either from Africa or from the East Indies." So far as Africa is concerned there is no evidence of its occurrence in that continent, and the plant is not mentioned in the recent revision of Indian *Convolvulaceæ*, by Mr. C. C. Clarke in Hooker's *Flora of British India*, nor is it included in Grisebach's *Flora of the West Indian Islands*.

Against this negative evidence I have now to offer the positive testimony of Mr. Hart, who, noting what was said as to the insufficiency of our knowledge of the native country of this species, kindly informed me that *I. Horsfalliæ* was a native of Jamaica, and who has recently been so good as to send specimens from that island in support of his assertion, without, however, specifying the precise locality from which they were obtained. The wild specimens of *I. Horsfalliæ* sent by Mr. Hart agree so closely with the cultivated plant that there is no doubt of their specific identity. The leaves are glabrous, somewhat leathery, ovate orbicular in outline, quinate digitate, the central leaflet largest, all ovate lanceolate, tapering at the base, but not stalked, the apex acute or prolonged into a long acumens. The inflorescence is a many-flowered, relatively dense, fan-shaped or umbellate, dichotomous cyme, with straight, radiating, slender branches. The flowers are about 1½ to 2 inches long, cylindrate-campanulate, purplish-red, with the limb slightly reflected.

### IPOMÆA MACRORHIZA.†

Together with this specimen Mr. Hart sends specimens of *Ipomœa macrorhiza*, R. S., a common Jamaica species, with glabrous, leathery, ovate-orbicular 3-7 foliolate leaves, the leaflets shortly stalked, broadly ovate, acute, or acuminate. The inflorescence is a loose, much-branched, many-flowered cyme, with divaricate, curved, rather thick branches. The flowers are 2½ inches long, red, purple, or white, and broadly funnel-shaped or campanulate, with a spreading limb.

Mr. Hart also sends an *Ipomœa* with blue flowers, which appears from the dried specimens to be merely a form of *I. macrorhiza*, with which it seems to agree in all points except in smaller stature.

\* *Ipomœa Horsfalliæ*, Hook., *Bot. Mag.*, t. 3315 (1835) — Char. auct. glabra; foliis subcoriaceis ovato-orbicularibus quinotidigitatis, foliolis sessilibus ovato-lanceolatis acutis vel acuminatis, basi angustatis; inflorescentia flabellatim acuminata, pedunculis gracilibus rectis radiantibus; floribus ad 2 poll. long, rubro-purpureis cylindrate-campanulatis. — Ex Jamaica, ubi spontanea, misit cl. Hart.

† *Ipomœa macrorhiza*, R. S. ex Grisebach, *Fl. Brit. W. Indies*, p. 471. — Glabra; foliis valde coriaceis ovato-orbicularibus 3-7-foliolatis, foliolis sessilibus vel stipitatis, late ovatis acutis vel abrupte acuminatis; inflorescentia magna pluriflora laxè divaricatum cymosa, pedicellis crassiusculis arcuatis; floribus 2½-3 poll. long, rubris-purpureis vel albis, late infundibuliformi-campanulatis, seminibus pilosis.



## IPOMŒA TERNATA\*

of Jacquin is considered by Grisebach (p. 471), and probably with justice, as a variety of the preceding, with white flowers and ternate leaves. As figured by Jacquin, *Hort. Schönbr.*, t. 37, the leaves have a great resemblance to those of *I. Thomsoniana*, but the leaflets are more nearly sessile, not so broad, much more acuminate; the flowers are smaller, and the peduncles solitary, axillary, one-flowered. Probably this last character is inconstant, otherwise it would be a marked point of difference.

## IPOMŒA THOMSONIANA,†

for garden purposes, may be kept distinct, though botanically it is probably, like *I. ternata*, a mere form of *I. macrorhiza*. Its marked characteristics, well shown in our figure, 817, Dec. 29, 1883, are the thick ternate leaves, the leaflets of which are distinctly stalked, ovate-suborbicular acute, but not acuminate, while the much-branched inflorescence is like that of *I. macrorhiza*, but with larger flowers.

The species of *Ipomœa* vary so greatly in form of leaf, size, and colour of flower, that there is little doubt that for strictly botanical purposes the forms above-named are referable to two species, *I. Horsfallii*, which is, as things go, very distinct, and *I. macrorhiza*. *M. T. M.*

## PLANT PORTRAITS.

ACER HELDREICHII, *Gartenflora*, t. 1185.

ANDERSONIA DEPRESSA, A. CERULEA, A. HOMOLOSTOMA.—Three pretty Epacrids, all three with bluish flowers, figured in the *Gartenflora*, t. 1180.

APHELANDRA FASCINATOR, *Revue de l'Horticulture Belge*, April.

BOMAREA CALDASIANA, Herbert, *Illustration Horticole*, t. 560.

BRUNSVIGIA MAGNIFICA, Lind. et Rodigas; *Illustration Horticole*, t. 562.—Flowers like those of a *Crinum*, segments white, with a central red band.

KOROLKOWIA SEWERZOWI.—A species with tall erect stems, broadly lanceolate leaves and erect racemes of brownish-green flowers, the six segments of which are marked with a triangular blotch at the base. *Gartenflora*, t. 1181.

LILIUM NEILGHERENSE, *Garden*, April 18.

LEPTOSPERMUM ANNE, Stein., *Gartenflora*, t. 1184.

PHILLYREA VILMORINIANA, *Bot. Mag.*, t. 6800; *Gard. Chron.* 1883, p. 494.

## NARCISSUS NAMES.

THERE is one point in connection with the resolution that was passed at the Congress last year which was not expressly considered at the time, and to which I should like now to draw attention, because it is clear from recent discussions that different people understand the matter in different senses.

The resolution, which was passed unanimously, ran as follows, "That in the opinion of this Conference uniformity of nomenclature is most desirable, and that garden varieties of *Narcissi*, whether known hybrids or natural seedlings, should be named and numbered in the manner adopted by florists, and not by botanists;" and upon this basis we proceeded to class out the different types into species, subspecies, varieties, forms, and monstrosities.

The question which arises now, which we did not expressly consider at the Conference, is—how does this resolution bear upon the names of a number of types which have been duly described and characterised under Latin names by botanical authors, but which we do not consider distinct enough to rank even as well-marked varieties? Such are the Scuticus form of *Pseudo-Narcissus*, the spurius and maximus forms of major, the major, media, and minor forms of *Jonquilla*, and the *Campanelli*, *trilobus*, and *rugulosus* forms of odorus. For my own part I never for one moment understood the resolution as implying that such names as these were to be abolished and replaced by vernacular names. All those which I have just cited were employed and defined in Haworth's *Monograph* in 1838. They

have also been adopted and defined in Roemer's *Monograph of the Amaryllidaceæ*, and in Kunth's *Enumeratio*, and without definition in the two editions of Steudel's *Nomenclator*—three books which have been universally circulated amongst botanists. To get rid of them after they have had such a wide circulation, however desirable it might be in the abstract, is in practice perfectly impossible. The only chance there is of getting our resolution carried out is to understand it (as for my own part I understood it at the time of passing) as applying to all forms not distinct enough to be worth regarding as varieties in a botanical sense, which had not already received Latin names, accompanied by a definition, according to the ordinary botanical usage. If we draw the line at this point I think there is a fair and reasonable chance of the resolution being carried out, and that it will set an excellent precedent in the naming of other garden plants. *J. G. Baker.*

## THE RETICULATA GROUP OF IRISES.

THIS new plant from Kharput (see *ante*, p. 470) makes the fifth of five *Irises* all closely related to each other, all very different from other *Irises*, and thus forming a well defined group, which may be fitly called the "reticulata group." Their diagnostic characters are: true bulbs, with netted coats, single flowers, and tetragonal leaves. No other bulbous *Irises* as yet known have netted coats, those of *I. sisyrinchium* not being truly netted,\* and the aberrant *Iris tuberosa*, or *Hermodactylus tuberosus*, the so-called Snake's-head

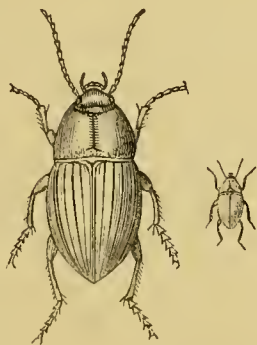


FIG. 103.—ANARA OBSOLETA. (SEE P. 565.)

*Iris*, is the only *Iris*, as far as I know, which has similar tetragonal leaves.

What the purpose of these square cut leaves is I do not know, nor do I understand why each is armed with a sharp point; it is not in order to pierce the soil, for the point becomes sharper and more pointed after it has appeared above the ground. In ignorance of its causation it is impossible to judge of the value of this character as a differential token, and it is consequently impossible to say whether the possession of the same kind of leaf indicates a real affinity between the *reticulata* group and *Iris tuberosa*, or whether this point of resemblance is wholly superficial. The flower of *I. tuberosa* is very different from that of *I. reticulata*, the ovary of the former is singular among *Irises* in being, not three-chambered, but one-chambered (or, rather, three chambers thrown into one), and the resting phase is a tuber, not a bulb. These facts point to an enormous difference between the two forms, and, indeed, the characters of the ovary in *I. tuberosa* have led botanists to make a genus, *Hermodactylus*, out of the single form. I must confess that the splitting, so to speak, of the ovary (or rather the failure of its segments to unite) seems to me a freak of subordinate taxonomic value; and with regard to the tuberous character it must be remembered that *I. tuberosa* is in the first year from seed in superficial appearance a bulb, wholly unlike what it afterwards becomes,

though I cannot say that I have determined its real character by dissection. On the whole I am inclined to think that the affinities of *I. tuberosa* to *I. reticulata* are strong, and the differences not so striking as they at first appear. However, these differences are in any case sufficient to separate the one from the other.

The geographical distribution of the *reticulata* group is limited. Their habitat, as far as is at present known, extends from Palestine through Asia Minor and the Caucasus to Persia, where they seem to die out. They are wholly absent from Europe and North Africa, and among the many new *Irises* from Central Asia with which Russian energy has enriched science no member of this group has yet appeared, *I. Kolpakowskiana* being allied to *I. sisyrinchium*, and not to this group.

The two best known members of this group are (A) the typical *Iris reticulata* of Bieberstein, and (B) the form known as *Iris Krelagei*, or *I. reticulata* var. *Krelagei*. They may be distinguished from each other as follows:—

In A the prevailing colour is a deep blue-purple; in B a red-purple, varying much in degrees of blueness or depth. In A the lateral part of the claw of the fall is of a nearly uniform colour, the veining being indistinct; in B the veins on these parts stand out conspicuously on a paler ground, becoming confluent, however, at the extreme edge.

In A the falls (and the styles) are longer in proportion to their breadth than in B, and a slight constriction or notch at the junction of the claw and blade of the fall is more marked in B than in A. In B also the blade of the fall is rounder and broader, with a greater tendency to be reflexed than in A, in which it is rather more pointed.

In A the tube is exerted, rising above the spathe valves for 1, 2, or even 3 inches, whereas in B it frequently surpasses them by less than an inch; but this is an extremely variable character, and cannot be depended on. As far as I have seen the capsule of A is long and slender, three times as long as broad, and borne up from the ground on a peduncle, whereas that of B is short and broad, and remains half-buried in the ground. A is delightfully fragrant, with an odour somewhat like that of the Violet. B is quite inodorous.

The red-purple or plain colour of B, and the compactness given by its shorter, broader parts enable any one at a glance to distinguish its flowers from the deep blue-purple, slender, more open flowers of A.

In B the flowers vary very much indeed in size and in depth of colour. Some blooms are nearly as large as those of *I. xiphion* (the Spanish *Iris*), while others have falls hardly much more than an inch in length. In some blooms the falls are of a pale miserably washed-out red-purple or "plum" colour; in others the falls have a most beautiful deep rich hue, at times so deep and dark as to be nearly black. The differences thus appearing are, however, too slight and the different forms pass too gradually the one into the other, to permit the use of distinctive names.

The form, however, distributed by Haage & Schmidt two years ago, under the name of *I. reticulata cyanea*, is in many respects a very distinct variety. The flowers, as far as shape, stature, and want of fragrance are concerned, are like the ordinary *Krelagei*, but they are small, and their colour is distinctly blue, the red having almost wholly disappeared. The standards and styles are of a light bright blue, which may perhaps be called cyanic, i.e., a blue intermediate between sky-blue and indigo, though to my eyes it is not quite correctly described by this term. The claw of the fall is of a somewhat darker tint and the lamina of the fall is a much darker blue, nearly an indigo. The pollen instead of being white or bluish-white, or yellow, is in my specimens olive-green. My friend, Mr. Max Leichtlin, however, speaks of his specimens as having yellow pollen. The plant appears to be native in the Caucasus, and is so distinct as to deserve a separate name. The differences in colour appear at first sight to make this kind as distinct from B as B is from A; but the more important resemblances of form seem to me to indicate a close relationship to B. It might be called *I. reticulata Krelagei* var. *cyanea*, or more shortly *I. Krelagei cyanea*.

The typical *I. reticulata*, A, varies much less than does the *Krelagei* form B, as far as my experience goes. The late Mr. Nelson raised some seedlings having all the characters of the type, including the fragrance, except that the prevailing tone of colour is a light blue,

\* *Ipomœa macrorhizavar. ternata* (= *I. ternata*, Jacquin).—Folius ternatis, foliolis subsessilibus, pedunculo axillari solitario r-fiori.

† *Ipomœa macrorhiza* var. *Thomsoniana*, Mast.—Glabra; foliis valde coriaceis ternatis, foliolis suborbicularibus acutis, valde petiolulatis; inflorescentia ut in typo. Mast., in *Gard. Chron.*, Dec. 29, 1883, p. 817, c. icon.

\* Each of the many coats of a bulb of *I. sisyrinchium* presents a lattice-work, the secondary veins passing from the primary veins obliquely, leatherwise, and joining the neighbouring veins, but not crossing each other. In the truly netted coats of the *reticulata* group the secondary veins cross over and join each other in many directions, forming a network, with irregular but elongate rhomboidal meshes.



some being lighter than others. These plants are very beautiful, but they do not seem to be sufficiently distinct to warrant other than trivial names being allotted to them. The same may be said of another of Mr. Nelson's seedlings, called by him *I. reticulata* major, distinguished by its size, and especially by its tallness as well as by the more spreading character of the fall; it also has rather more blue in its purple than has the type.

My friend Mr. Max Leichtlin has very kindly sent me seedlings of his raising, which appear, like some seedlings of my own, to be the offspring of both A and B; at least they combine certain characters of both. They are as tall as A, the shape of the flowers partakes rather more of B than of A, and the colour, though variable, seems to run towards a red-purple; one of them is so dark, however, as to appear nearly black; and he has others which I have not seen. These also, I think, should receive trivial names only.

The name *reticulata* was first used by M. von Bieberstein (*Cent. Pl. Kar. Ross. i., t. 11.*), and Regel states that the plant which Bieberstein described was of the form A; this name should, therefore, be kept for this form. The form B Krelagei was first described by Regel (*Animad.*, 15; also *Gartenflora*, xxii., p. 354), his attention having been drawn to the differences between it and the type by Mr. Krelage. Regel states that A is found in Iberia, Cachetia, and Palestine; whereas B is found in the Caucasus, Transcaucasus, and Persia, the plants near Tiflis seeming to be all of this form. The plant figured in Loddiges' *Bot. Cab.*, t. 1829, said to have come from Iberia, is the form B Krelagei, as is also the figure in Sweet, *Brit. Fl. G.*, 2d ser. ii., t. 189, from a plant said to have been brought from the Crimea (?). It is difficult to be quite sure which form is represented in *Bot. Mag.*, t. 5577, the plant figured coming from Persia, but it is probably B Krelagei. *Gartenflora*, t. 779a, represents A, and B of the same plate represents B. The plant originally described by Bieberstein is said to have come from Georgia. In all probability the two forms have no absolutely distinct geographical areas, and it is also possible that intermediate forms corresponding to the seedlings spoken of above may prove to exist in a wild state.

In respect to beauty, A must always hold the front rank, the light blue Nelson seedling, called by him *coerulea*, being, perhaps, no less lovely than the type. The larger deeper coloured Krelagei forms are also very beautiful, but the smaller and lighter coloured ones are very inferior. The variety *cyanea* is particularly charming, and all the Krelagei forms have this merit, that they flower some weeks, or at least, many days, before the type A, the variety *cyanea* being especially precocious, as far as two years' experience will enable me to judge.

c. *I. Histrio* differs from the above in the following points:—The spathe-valves are nearly colourless instead of being green. The leaves shoot up to a greater height before the bud appears and are taller at flowering time, being sometimes nearly a foot or more high, whereas those of *I. reticulata* are at that time generally about 6 or 8 inches or even less, though after flowering they become as tall as those of *I. Histrio*. The flower is larger and broader in its parts than even *I. Krelagei*, the falls being especially broad, and the constriction between the claw and blade well marked, and the lamina is perhaps rather more pointed. The crests of the style are perhaps larger and longer than those of *I. reticulata*; but this cannot be insisted on, for the crests of the latter vary in size and form a good deal in different individuals. The style is more triangular, that is, narrowed at the base. The colour is a light blue with conspicuous blue-purple blotches or spots on the creamy-white ground of the lamina of the fall. It is not fragrant, and flowers before either *I. reticulata* or *I. Krelagei*, often blooming before Christmas in the open in favoured places in England. In all other respects, including the characters of the bulb, *I. Histrio* does not seem to me to differ from *I. reticulata*, though I cannot speak as to the capsule, which I have not seen. The colour is undoubtedly strikingly different, but colour is admittedly an unsafe differential feature; and if this be put on one side, *I. Histrio* is, it seems to me, less removed from *I. Krelagei* than is *I. Krelagei* from the type. And indeed Regel has described it (*Gartenflora*, t. 797) as *I. reticulata*  $\gamma$  *cyanea*.\*

\* This might be an objection to giving the name *cyanea* to the Haage and Schmidt's form described, but no difficulty will arise if the word Krelagei be always used in speaking of this form.

d. The new form, which I have described at p. 470 under the name of *sophenensis*, differs from the foregoing, in its low stature, in the appearance of flowers while the leaves are as yet hardly visible, in the flower being more spreading, less turbinate, and smaller, in the very long narrow claw and obtuse blade of the fall, in the presence of a slight crest on the claw of the fall, and in colour.

e. The form which I have described at p. 438 as *I. Vartan* differs from all the above in the bulb being a more elongated oval, in the contrast presented in the fall between the narrow claw and the much broader lanceolate blade, in the fairly conspicuous ridge or crest on the claw of the fall, in the remarkably long and pointed crests of the style, in colour, and (probably) in the time of flowering. M. Foster.

(To be continued.)

## GERMINATION OF VICTORIA REGIA.

THE accompanying sketch (fig. 104) shows the gradual development of parts in the course of germination. If allowed to drop naturally into the tank where grown, the seeds will germinate in from two to four months, if the water be kept at 80° Fahr. The water at the bottom of a tank is generally, if not always, perceptibly colder than at the top; it is, therefore, obvious that the seeds germinate, though slowly, at a lower temperature than the above-mentioned. A in the figure represents a vertical section of the seed magnified. The greater bulk of the interior is occupied by a floury perisperm, generally called albumen, and consists for the greater part of starch, for which reason the seeds have been used as food. At B the little embryo is shown, surrounded by the endosperm, filling the embryo sac. This latter character is far from being common amongst seeds. At C the two cotyledons are removed from the seed. Naturally, however, they remain in the testa till all the reserve material has been used up, and the radicle at R (which never develops to any size), and the first internode at D, all decay. Adventitious roots are freely produced at the second node, E, where the first true leaf arises, constituting the base of the persistent rootstock or rhizome of the plant. The figures refer to the order of development of the leaves. The fourth leaf is the first one that becomes peltate, showing a remarkable advance on the first, which is merely a naked petiole. This shield-like leaf will be thrown to the surface of the water, even should it be 1 or 2 feet deep. After a few more gradations the leaf produced will assume the adult round form. F.

## FORESTRY.

### WHY DO OUR WOODS NOT PAY?

BECAUSE the different species of trees are not grown in groups or masses by themselves, and do not grow fast enough and long enough to attain their size and natural perfection. Some of the most valuable crops of Oak timber I have ever seen, or known, have been grown in groups or masses by themselves.

Possibly one of the greatest evils attending the culture of Oak timber is that of overcrowding the trees in their young state, either by standing too close to one another, or, what is more common, and usually more fatal, by confining them amongst other species, as Spruce, Scotch Fir, and others by way of what is termed nursing. The term "nurse" is a very kindly one, and possesses a sort of natural charm, even the very sound has music in it. With the term "nurse," however, we find no fault, but the practice of growing Oak timber amongst thickly branched and densely foliated trees, either of its own or other species, so as to interfere with their proper development, is a practice that cannot be too severely reprobated. Before pronouncing judgment, however, it will probably be the wiser course to pass the subject in review and bring all available evidence to bear upon it, so as to make it perfectly clear. About thirty years ago I had for some time the management of a piece of Oak plantation of about 3 acres on the Buckhurst Park estate in Sussex, which had been most judiciously and successfully managed from its earliest growth. When I first knew it, it was about thirty years old, and the trees were in every respect in splendid condition and standing about 15 feet apart, or about 190 trees to

the acre. They were not mixed with any other species, but consisted entirely of Oak. The trees were all well branched, and their girth and height duly proportioned in every way. When at full maturity at 150 years' growth the crop may consist of about 100 trees to the acre, and there is strong presumptive evidence that each tree at 150 years old will contain about 60 cubic feet on an average—equal to 9000 feet at 1s. 6d. per foot = £675. My unqualified opinion is that no money value should be put upon the thinnings during the growth of the plantation, because during the greater part of that time there are considerable expenses entailed in maintaining the plantation, and the value of the thinnings, which should not be great if properly managed, may well be allowed to stand as an offset against such expense. Oak plantations grown as this was require very little personal attention at any time except thinning and a little pruning, consisting of removing, by means of the pruning chisel, any branch projecting from the main stem at so small an angle that the two surfaces of the bark are so compressed that a very serious defect is thereby ultimately produced in the tree, which either induces the limbs to divide and split off by storms, or so to grow that when the tree is cut into planks or otherwise it is so seriously defective at that part as to be of little value. Another example of an opposite character of an Oak plantation which I once had charge of in the South of Scotland may be cited as an example of the common but to my mind quite a wrong system of management. It was planted with the original intention of making it an ideal Oak plantation. The Oaks were originally planted about 10 to 12 feet apart, and the intervening space made up to 4½ feet with a mixture of Ash, Elm, Spanish Chestnut, Larch, and Norway Spruce. The plantation, which is mostly upon a sloping bank of good soil, had been very well attended to by way of thinning from its earliest years, and the Oaks especially had every possible attention paid them at every stage of their growth throughout. The plantation is now about sixty years old, may be regarded as faultless in every respect except perhaps one, namely, of far too little money value. The twofold defect is, that the trees are individually too thin of branches, consequently too small of size, and too few of them upon the ground. They were uniformly sufficiently thinned at all stages of growth, that is to say, kept as far distant from each other as young Oak trees should be. Neither were the Spruce, Larch, or others growing amongst them, as nurses, ever allowed to approach, much less to touch the tenderly and duly cared for Oaks. In spite, however, of all kindnesses and attentions bestowed, failure, rather than success, has been the certain result. By this time (sixty years) the trees should individually have been making about 1 cubic foot annually, whereas the best of them are scarcely making over one-third of that quantity; and, taking the plantation all over, the average yearly growth of the whole trees can scarcely be said to exceed one-fourth of a cubic foot. The number of trees as they now stand upon the ground is about 75 per acre, whereas there should have been at least 100. These facts speak for themselves, and it is wisdom to listen to their voice. There is, in the first place, in point of numbers, a loss to the extent of one-quarter, and in point of individual growth a loss of three-quarters. To make this still more plain, I will assume the value of the trees to have been 20s. each under proper treatment = £100, and the annual increase of each tree, 1 cubic foot, at 1s. 6d. per foot, equal to £7 10s. per acre annual growth. The plantation, however, as already shown, comprehends only seventy-five trees to the acre, instead of a hundred, as above, and therefore the annual growth per acre would only be worth £3 12s. 6d. The annual growth, however, instead of being 1 cubic foot, as above computed, is only a quarter of a foot, equal to only £1 17s. 6d. per annum.

Now had this plantation been composed of Oak alone, instead of being mixed with Spruce, Larch, &c. (the so-called nurses), it would have been of such increased value as to constitute it a very paying and profitable subject, instead of one of comparative loss and failure. The trees at no time of their history had ever such sufficiency of branches upon them as to enable them to grow as fast as was necessary for them in order to make them a paying and profitable crop. What is to be seen in this plantation is unfortunately to be witnessed in by far the larger number all over the country.



If Oak and all others as well were grown in such a way as to attain at once their proper size, age, and maturity, it would fill many with much surprise, and prove a benefit and blessing alike to landed proprietors and the whole nation. Individual giant Oak trees have from time to time commanded prices quite marvellous. Mr. Stening, an extensive timber merchant in East Grinstead, Sussex, told the writer many years ago he had paid as much as £50 for a single tree; adding, "others have doubtless paid much higher prices than that." However much is paid for a single tree, it by no means follows that such monarchs actually pay the grower better than a crop of much smaller trees. I attended a timber sale of Oak at Pens Rocks, near Tunbridge Wells, in Sussex, on April 20, 1854. The lot consisted of a hundred trees, and the sum at which they were sold was £1000. I examined the trees very carefully the day preceding the sale, and found that rather more than that number would have grown upon an acre. They were fine trees certainly, and well grown, but none of them of large size, few exceeding 60 cubic feet, and a few below 30 feet. Counting the rings indicating the annual growths, they were about 150

every arrangement made to commence work as soon as the bark will "run." Where convenient, portable drying sheds, or, failing these, tarpaulins, are of the greatest value in wet seasons; indeed even in ordinary seasons a first-class sample of bark cannot easily be produced without them. As each district has its peculiarities as regards the stripping and harvesting of bark, as well indeed as tools in use, elaborate directions regarding such are unnecessary. Previous to felling the trees we may, however, state that it is well to remove a few feet of the body bark, not only for greater convenience in stripping, but to prevent unnecessary damage and waste. The larger trees should be peeled where they fall, but it will be found convenient to have the smaller carried out to the stacking ground and stripped, while one end rests upon a large piece of timber or horse specially constructed for the purpose. In removing the bark the ordinary hammering or beating should, as much as possible, be avoided, as such a process lessens its value very materially, and also adds to the risk of successful harvesting. The body bark should be removed in not less than 3 feet lengths, and that on the branches in any sizes found most convenient.

Keep the boys constantly going in the borders as the weeds begin to grow, the important but oft neglected point being never to allow a weed to go to seed. Early weeding is especially necessary in young seed beds, for when the weeds gain strength and attain full size, their removal interferes materially with the young plants. Pay attention to recent grafts, and never allow the clay to become cracked and fall off. Remove suckers or shoots from the stock, should such put in an appearance.

Coniferous seeds, if not already sown, should at once be committed to the ground, and the surface of early sown beds should be loosened by means of a light roller. Refuse materials for forming compost heaps may be collected as opportunity offers. Where ditch scourings, mud or road scrapings are used, lime should be freely mixed in the composition, as such raw materials are unfitted for nursery work without the addition of some such active quickening power as that of ordinary lime or chalk. Look over newly planted ground and firm any of the trees that have become loosened by the wind. The stakes and moorings of large transplants will also require attention, so that all damages may be rectified at once. Large trees or evergreens in the nursery borders that are ultimately intended to stand singly or as specimen plants should have ample room provided previous to their final shift, so as to induce a well balanced head and also to harden them. *A. D. Webster, Penryn Castle, North Wales.*

## PRIMROSES.

(Concluded from p. 53.)

In the section of Primroses which are not thoroughly terrestrial nor completely rock-loving, and for which *P. viscosa* may be given as a type, we find:—

*P. Clusiana*, Tausch, the most beautiful of all the Tyrolean species. The flowers are of a very bright rose colour, large and brilliant. They produce a charming effect as much by their numbers as by the size and colour of their corollas. This plant likes lime, and does not mind exposure to the sun. However it is as well to let it have, like all alpine Primulas, an eastern aspect.

*P. carniolica*, Jacquin.—This pretty little plant grows in the dry and sunny territories of the Alps of Carinthia and Carniola. It has a beautiful foliage, and deep lilac flowers with a centre of pure white. It flowers in May or June.

*P. calycina*, Daby.—Southern Alps. Has large flowers of a clear lilac and glossy foliage. It resembles the preceding species, but is stiffer in habit, and differs also in colour. May to June.

*P. Muretiana*, Moritz, is a beautiful species, from the high Alps. It is perhaps a hybrid between *P. viscosa* and *P. integrifolia*. This plant is very vigorous, easy to cultivate in deep light soil, and in a cool position. We have some beautiful specimens in the gardens which are covered with buds. This plant supports Darwin's theory, that hybrids are more vigorous than their parents.

*P. viscosa*, Allioni.—A native of the granitic Alps. This is especially a rock-loving species, and is found more often in shaded clefts of rocks than on grassy slopes. It is, next to *P. Auricula*, the species which is most widely distributed in the Swiss Alps. It forms sometimes a regular carpet of purple flowers, which produce a fine effect. To succeed well it must be planted in a well-drained soil, rich in humus, not very deep, or in the fissures of rocks looking to the east or west. It flowers well in cultivation, and with *P. Auricula* makes hybrids. With us it flowers in April or May. There is a variety with pure white flowers.

*P. villosa*, Wulfen, is a species perfectly distinct from the preceding, with which it is often confounded. The true *P. villosa* is not found in the Central Alps; it is only met with in Carinthia and in the districts where crystalline limestone predominates. The flower is twice as large as that of *P. viscosa*, of a deep purple-rose, with a white centre, and an orange-yellow eye at the top of the tube. It is a very fine plant, requiring, in order to flower it well, a cool position and a stony soil. I add a little sphagnum to the soil, and it succeeds well. Under cultivation it flowers in April.

*P. hirsuta*, Allioni.—This is a still larger species than the preceding. The flowers are of a pale lilac colour, with a centre still paler. Its foliage is downy. It is found in Eastern Switzerland and in Tyrol at



FIG. 104.—GERMINATION OF THE SEED OF VICTORIA REGIA. (SEE P. 568.)

years old. The ground they grew upon was natural pasture, worth in its natural state about 10s. per acre for grazing. *C. Y. Michie, Cullen House, Cullen, Banffshire, March 26.*

(To be continued.)

## BARKING.

THE genial nature of the past season has enabled all forestry operations to be carried on with despatch, and foresters should now be well prepared for the bark stripping season, which in most districts will commence about the middle of the present month. In many of our Oak plantations the sap is already showing signs of activity, and as the richest and best bark, for which the highest price can be obtained, is stripped from the trees immediately after the sap commences to flow freely, not a day should be lost in commencing operations, and continuing them with the utmost expedition till the intended fall is completed, or the season ends.

In our variable climate the securing of first-rate bark and the highest market price is no easy task, and the forester, to be really successful in obtaining these, should not only be well supplied with all the necessary tools and appliances for saving the bark, but

Branches down to 1 inch in diameter may be peeled. As soon as stripped, the bark should be removed to the drying ground and carefully arranged on the stages with the fleshy side always downwards. The drying stages, it is almost unnecessary to state, should be erected in an open, airy part of the wood—a southern or western exposure is preferable, and as close to clearance roads as possible.

## DRYING THE BARK.

With careful stacking, and during an ordinary season, little or no turning will be necessary, but should unfavourable weather intervene it may be found desirable to rearrange the bark on the stages during a fine day. About fourteen days in stack, with ordinary fine weather, will put the bark in order for delivery, when it should be of a bright creamy-white, a brownish hue indicating little tanning matter, or injury from exposure to rain.

## NURSERY WORK

should still be prosecuted with unabated vigour, and all transplanting finished as soon as possible. It is a good plan to add to the ordinary nursery hands a few extra men and boys, so that the general routine of early May work may be speedily accomplished.



an elevation of 6500 feet. Culture same as for the preceding species. May to June.

*P. oinensis*, Thomasini.—A native of Tyrol, and of the Eastern Swiss Alps. It grows at a height of from 6500 to 9800 feet. It is a very pretty plant, of small size, and with large pale rose coloured flowers, with a white centre. The same culture as for the preceding. May to June.

*P. pubescens*, Jacquin.—A very pretty species from Tyrol, which is met with at an elevation of 6500 feet; it is of modest dimensions, bearing few flowers, but of a very bright and brilliant rose colour, with a centre of golden-yellow, borne on a slender and graceful stem.

*P. alpina*, Schleicher, has large flowers of a very brilliant violet-purple. It is found at from 6500 to 9800 feet in the Grisons, and bears large and beautiful flowers. These two species may be hybrids between *viscosa* and *Auricula*; they are brilliant in colour, but of very small size. They require a porous soil mixed with sphagnum.

*P. commutata*, Schott.—Eastern Alps. A rare and very pretty species, which is only found in the porphyritic region. May to June. It is a vigorous species, which requires a sunny position but porous soil, furnished with sphagnum, rich in humus, and well drained. It has large and pretty bright rose-coloured flowers.

*P. ciliata*, Schrank.—Tyrol. A species with purple flowers, with broad petals and very hairy. May.

*P. confinis*, Reichenbach.—Piedmont. This species approaches the former, but is larger and more vigorous, and possesses flowers of such a deep rose colour as to pass sometimes into brown. The blooms are much ciliated. May to June.

*P. pedemontana*, Thomasini.—Piedmont. Limb of the corolla borne on an elongated tube, and of a bright rose colour, sometimes pale lilac with a yellow centre. May to June.

#### SECTION IV.

In the fourth section, including Primroses with rhizomes, we find:—

*P. cortusoides*, Linnaeus, with all its varieties. I mention this species because it is the type of this section, although it is not alpine, and strictly should not figure in this list. The cultivation is easy. There is no need to speak of it here. But with it I will mention the *Cortusas* which belong to our alpine ranges, and which are closely allied to the Primulas.

*Cortusa Mathioli*, Linnaeus.—Tyrolean and Austrian Alps. It is met with also in the Grisons in Switzerland. It has a pretty little flower of a bright rose colour, borne on a red hairy stem and framed in fine and bright foliage. From twelve to fifteen flowers spring from the same stem, and form very handsome little tufts. It likes a cool and slightly shaded position in a well-drained and porous soil. May to June. There is a variety with large flowers which bloomed very abundantly last year in the Garden of Acclimatization.

*Cortusa pubens* of the Eastern Alps is an elegant species, smaller than *C. Mathioli*; it needs the same cultivation.

We are growing in the Garden of Acclimatization a certain quantity of alpine Primroses which have not yet flowered, and of which I can only say that all are in good health, and promise a successful result. I will give an account of them at a future time. They are:—*P. Berninae*, Kerner (*hirsuta* × *viscosa*), Tyrol; *P. biflora*, Hüter (*Flörkiana* × *minima*), Tyrol; *P. Kitaibeliana*, Schott, Tyrol; *P. Portae*, Hüter, Tyrol; *P. stricta*, Horner, Tyrol; *P. arcuata*, Kerner (*Auricula* × *hirsuta*); *P. Hüeri*, Kerner (*Flörkeana* × *glutinosus*), Tyrol.

The geographical distribution of Primulas is very curious to note. Whilst the Eastern and Tyrolean Alps are singularly rich in species and hybrids the Western Alps, on the contrary, have but very few species, and only include one (*P. marginata*) absolutely peculiar to them. I have not been able, in spite of many searches, to find a hybrid in our Western Swiss Alps. Why is that? Can it be because we possess fewer of those fertilising insects needed for hybridising species? According to H. Müller Primroses are for the most part diurnal flowers, i.e., those in which the fertilisation takes place during the day. It would be very easy to study and observe the cause of hybridisation in the course of alpine excursions. I may add that Primulas spread themselves easily by means of seed in a compost of one third peat, one-third

sphagnum (sifted), one-third sand. They germinate in about four or five months. *Henry Correvon, Geneva.*

## Orchid Notes and Gleanings.

### DENDROBIUM NOBILE.

THIS is one of the most useful and beautiful plants we have; it is very easily managed, and with careful treatment can be kept in bloom four or five months of the year, so that no garden should be without it. Also it is useful for the drawing-rooms and the conservatory, where it will keep in perfection for three or four weeks. The first of my plants to bloom come in about the 1st of January, and keep up a succession until April, and could be kept much longer if required. I grow about thirty plants in 5-inch, 8-inch, and 9-inch pots. I find the most successful treatment is to grow them on in heat. As soon as they have done flowering they should be placed on a shelf in a hot-house or Pine-stove, where they flourish capitally, and make shoots  $2\frac{1}{2}$  to 3 feet long by the end of August, and some will have formed their flower-buds; many of them three parts the length of their bulbs are covered by the small dots, which can easily be seen on each side of the bulbs. They then should be removed to a cool, dry, airy house, such as one of the early vineries where the Grapes have been cut, and the house is thrown open day and night, and only shut up to exclude frost. The plants are kept very dry, with only sufficient water to keep the bulbs from shrivelling.

The plants are kept there till the end of November, when those with the most prominent flower-buds are chosen, and placed in the Pine-stove. They receive good watering, and syringing every fine day, and about a month from the time of placing them in heat they are in full bloom. The night heat is kept at 65°, the day at 70°. When nearly in full bloom the plants are removed to the conservatory or wherever they are required.

They keep longer in bloom in the conservatory if kept rather dry, which also tends to prevent them from losing their bloom by damp. They will succeed well in baskets treated in the same way, and I find them much more suitable for mixing with other plants, and for placing in vases in the drawing-rooms, &c. There are many more species of this beautiful genus that succeed almost equally well under the same treatment; such are *D. densiflorum*, *D. fimbriatum*, *D. chrysanthum*, &c.

Propagation is done by detaching one or more of the bulbs when in a dormant state, taking care when dividing them to injure the roots as little as possible. They should then be potted into good turfy peat and charcoal, raised above the edge of the pot, and mossed over, then placed in a strong moist heat of from 70° to 75°, and well supplied with water and syringed every day till they finish their growth, then placed under cold treatment as recommended above. *Wm. Smythe, Basing Park, Alton.*

### LÆLIA PERRINI NIVEA.

A beautiful evergreen variety, with flowers 6 inches across, flat, with a projecting lip; sepals oblong, petals oblong ovate, lip sheathing at the base, white, with a flattish ovate crenulate pink disc, and a whitish throat. The plant is a native of Brazil. *Orchid Album*, t. 181.

### PHALÆNOPSIS VIOLACEA.

A compact species with broad strap-shaped leaves and oblong flowers,  $2\frac{1}{2}$  by 2 inches, segments oblong, creamy-white, the two lower ones striped with purple; "lip clawed, three-lobed, the lateral lobes small, bifid, yellow, tipped with red, and with a golden-yellow callus—the front lobe clawed, obovate, oblong apiculate, deep reddish-purple; column deep purple, projected over the lip." A native of Singapore. *Orchid Album*, t. 182.

### ONCIDIUM JONESIANUM.

One of the section with quill-like foliage and long many-flowered racemes. The individual flowers are flattish oblong, 2 by  $1\frac{1}{4}$  inch, the segments roundish oblong, greenish, with bright chocolate spots, and a lip the front portion of which is transversely oblong, white. A native of Paraguay. It should be grown on a block suspended from the roof, with just suffi-

cient water to keep the bulbs and foliage in a plump condition. *Orchid Album*, t. 183.

### CATTLEYA BRYMERIANA.

Flowers  $5\frac{1}{2}$  inches across, sepals linear-oblong, rosy-lilac, like the oblong ovate petals; lip projecting, sheathing at the base, expanding in front into a rounded two-lobed magenta-coloured disc; throat golden-yellow. A native of Brazil. It flowers in September. The plants require all the light they can have. *Orchid Album*, t. 184.

## CAMELLIAS AT WALTON LEA, WARRINGTON.

At the gardens of J. Crossfield, Esq., a house is entirely devoted to the culture of this beautiful genus of plants, and at the present time there is such a magnificent show of bloom that many interested in gardening in Liverpool, Manchester, and the neighbourhood, daily make excursions thence. I had opportunity to inspect the plants last year, and lately in company with a gardening friend I had again the pleasure of viewing some thousands of Camellia blooms, set off by foliage of a rich dark green colour. The plants, of which there are about two dozen, are planted in the borders; a path traversing the centre of the house, and the house having a hip-span, one side is of necessity a little higher at the back than in the front. The plants along the front side, perfect pyramids with leaves down to the border, and flowers almost as low, are about 10 feet high by about 4 feet in breadth, and they have grown so that they have almost touched each other, so that they have been trained upwards rather than sideways. The first plant seen on entering is candidissima, a finely flowered plant, pure white; Duc de Bretagne, bright rose; fimbriata, beautifully fringed; Hendersoni, Lady Hume's Blush, Napoleon III., Jenny Lind, Comtesse Lavinia Maggi, and Jubilee. On the border at the back the plants are larger, and eight plants only are accommodated, but such models of perfect growth and flowering and wonderfully free. Hundreds of blooms are open on each, for all the sorts seem to succeed equally. On this side are Alba-plea, in several varieties; next to this is one that has rather interested me since seeing the gardening papers of Saturday, the 15th inst., viz., Commendatore Betti, a plant 12 feet by 5 feet, covered with flowers; ochroleuca, imbricata, Chandleri elegans, De la Reine. These plants are from 11 feet to 12 feet high by 5 feet in width, and are mostly perfect in shape. On a trellis at the back and end of the house are trained plants that are blooming equally well. One of reticulata covers a large space, its immense blooms, of a bright rose, and yellow stamens, being very remarkable. Mathotiana, also on a trellis, is blooming finely. Mr. W. Kippis, the gardener, has tended these and brought them to a state of perfection that deserves the highest praise. *W. Swan, Fallowfield.*

## FRUIT NOTES.

**WATERLOO PEACH.**—An early American variety, with kidney-shaped glands, medium-sized fruits, with a prominent nipple. The skin deep red on the sunny side flaked and spotted with brown. The flesh is free, white-reddish, with a good flavour. It is figured in the *Revue Horticole*.

### APPLE KING OF THE PIPPINS.

A Yorkshire correspondent expresses surprise at King of the Pippins having had most votes at the Apple Congress. He says:—"In this soil and climate it is our most useful dessert Apple, both for appearance and as a good bearer. It ripens well, keeps good to the end of December, and has a pleasant flavour. Cox's Orange Pippin never ripened well till last year. We still have Orange Pippin, Allen's Everlasting, Nonpareil, Claygate Pearmain, Northern Spy, Alfriston, and Dutch Mignonne, of which I found out the name at Chiswick in 1883, and was told it was a poor Apple. Anise is very good, both for table and kitchen, and the best bearer in the gardens. Alfriston is now a rich yellow colour, and has excellent flavour for dessert. Mother and Northern Spy are two of our richest flavoured Apples after Cornish Gilliflower. Blenheim Orange, rich with some sharpness. Dumelow's Seedling and Kirke's Lord Nelson the richest flavoured baking Apples. Elevation 340 feet above sea, soil rather light loam resting on



Danstone, a trap rock, soft in some places, hard in others, and porous. Ground can be worked readily three days after continuous heavy rain. A hill between this and the sea, no land as high as this between us and Dartmoor to the north-east. A King of the Pippins which I grafted on Ribston Pippin is richer coloured and more red striped than on the free stock." *H. R. R. N.*

## The Arboretum.

### NEW CONIFER: PICEA BREWERIANA.

MR. SERENO WATSON thus describes a new Californian Conifer:—Branches slender, often elongated and pendent, puberulent: leaves 5 to 12 lines long,  $\frac{1}{2}$  to nearly 1 line wide, strictly sessile upon the slender base, obtuse, smooth and rounded or slightly carinate above, stomatose beneath on each side of the slightly prominent mid-nerve; cones 3 inches long, narrowly cylindrical, attenuate at base; bracts linear-oblong (2 lines long), a fourth of the length of the puberulent scale, which is obovate, with the rounded thickish summit entire; seed  $1\frac{1}{2}$  line long, the wing 4 lines long by  $2\frac{1}{2}$  broad. This unusually distinct species has been found (by Thomas Howell, in June, 1884), only at high elevations in the Sierran Mountains, California, on the head waters of the Illinois river, in rather dry rocky ground. It grows to a height of from 100 to 150 feet, and a diameter of 1 to 3 feet. Bark reddish. The specific name is given in compliment to Professor W. H. Brewer, who in connection with the California State Geological Survey had so much to do with the botany of the State, both in the field and in the after disposal of the collections of the Survey. As he took special interest in the trees of the coast, and collected a large amount of material for their study, it is fitting thus to connect his name with the forest trees of California." *Proceedings of the American Academy*, 1884, p. 378.

### LARGE MOUNTAIN ASH.

Seldom indeed is it that one sees the above approaching what may be called tree size, the usual dimensions being from say 12 feet to 20 feet in height, with a stem of perhaps a foot in diameter. That it does, however, in a few cases exceed these, its prescribed dimensions, was forcibly brought under my notice some days since, when in a rather out-of-the-way corner I came across a specimen which measured as follows:—The stem girth at a yard up is 7 feet 8 inches, and the spread of branches covers a space of 42 feet in diameter. It is in perfect health, with a large well-balanced head, and must when in flower during summer be a very conspicuous ornament of the rather inconspicuous corner it so nobly fills. *A. D. Webster.*

## SAWDUST.

It not unfrequently happens on estates where steam or water power is employed that there are large accumulations of sawdust. In many cases, however, materials from the stables and homesteads, and the gatherings and sweepings of woodlands, lawns, and walks are so plentiful and readily available that there is no need to resort to the use of the apparently harsh and implacable residuum of the sawyard. But even in such exceptional instances, if the soil happen to be a clay or tenacious loam, a liberal admixture and incorporation of sawdust improves the texture of the soil very considerably.

It is not everywhere, however, that the gardener can direct his subordinates to the stable-yard or a huge wall of top spit of meadow or mound of leaf-mould for the means of restoring fertility to the soil. It may not, therefore, be without its uses to revert to some of the applications of sawdust for various purposes connected with the garden which have borne the test of practical experience.

The subject suggested itself to me lately while passing a neighbour's garden. Adjoining the garden, the soil of which consisted of the ordinary adhesive loam, with subsoil of clay, characteristic of the Thames Valley, was a vacant plot until lately occupied by a sawpit. The timber most frequently sawn was Elm, for coffin-boards. Ninety per cent. probably of the material in and around this old pit consisted of Elm

sawdust. There was enough to form a coating 18 inches deep on a space 20 yards by 10. My neighbour, a somewhat lazy gardener I fear, simply thrust in half a bushel of Magnum Bonum Potatoes, without taking the trouble even to fork over the soil. The material was pure Elm sawdust, some of it black with age, some of a rich amber, some of a snuff colour. The texture of the darkest was light, smooth, and silky to the touch, and would have formed, with the admixture of some silver-sand, admirable stuff for potting Heaths. Last September he lifted the crop, simply by taking hold of the haulm, and the Potatoes were a remarkably good crop of handsome tubers. Tyros like myself are so apt to forget, in preparing the beds for Potatoes, that the tuber can only grow in its normal shape by displacing the earth around it, and the more friable, soft, and yielding this is the better the chance of a shapely tuber.

Sawdust is not unfrequently used as bedding for horses and pigs. It is valuable as an absorbent for liquid manures, and especially in the case when applied to light porous soils, where these liquids would pass away too rapidly. It is chiefly valuable, however, when applied to heavy soils, which it tends to make porous and light. An objection has been urged against its use in a fresh condition, as it is liable to engender fungus, and on this account charring has been recommended previous to its application as a mulching or manure. Thoroughly incorporated with excrement from the farmyard, however, or saturated with liquid-manure, it forms a valuable dressing for ordinary farm and garden crops. Mixed with horse-droppings it has been found excellent material for Mushroom and Cucumber beds, and when used fresh furnishes a mild but lasting bottom-heat for plunging. Care must be taken to keep the drainage clear, as the sawdust is liable to clog and harden beneath the pot. There is no doubt that well decomposed sawdust, mixed with a bushel of common salt and a third of a bushel of lime per cubic yard, forms an excellent manure for fruit trees and Roses. *T. W. Harrow.*

## The Flower Garden.

### THE ROSE GARDEN.

ROSES are looking most promising this spring, after so mild a winter, and give great promise for the coming season. All pruning and tying should now be finished, and the beds well dressed with rich dung, which will invigorate the plants, and greatly tend to prolong the flowering season.

### THE SPRING GARDEN

is now looking well, although very late. *Myosotis dissitiflora* and *M. d. alba* are very gay, flowering abundantly, and not the least injured by the late frost. Climbers are looking well. Clematis and *Maréchal Niel* Rose are uninjured here on the south wall, and look promising.

### SUBTROPICAL PLANTS.

should be removed into a cool-house or cold pit. *Wm. Smythe, The Gardens, Basing Park, Alton.*

## FRUITS UNDER GLASS.

### PINES: FRUITERS.

If the plants that started into fruit about last February are in a satisfactory state of health, the fruit will swell off fairly well under any reasonable treatment; but at the same time it should be borne in mind, that plants which are subjected to the most congenial conditions, will in the end far exceed others; for this reason no efforts in the way of giving them proper treatment should be relaxed in any way.

### WATERING.

This, which, in my opinion, is the most important matter, and requires more experience to perform it properly than any other operation connected with Pine culture, must be seen to regularly. Every plant in a large pot should be examined by hand once a week at this period of the year. It may appear to some a tedious and troublesome process, but it is most essential, for as a rule more Pine plants are brought into a sickly state of health by injudicious watering than from any other cause; let, this matter, therefore, have the attention it deserves. Give diluted guano-water at a temperature of 80° to 90° to

every well-rooted plant plentifully when it needs it, and pour it into the centre around the fruit-stems of fruiting plants, so that the axils of the leaves may be well moistened and retain some of it afterwards.

### SUCKERS.

Assuming that one sucker has been left on each plant to perpetuate the stock, others which may appear should be screwed out by hand, otherwise they would take much nourishment away from the fruit.

### THE FRUIT.

As this increases in size and weight it must be supported in an erect position. I use for this purpose two sharp-pointed stakes which are carefully driven into the ball of earth in the pot on either side of the plant. A piece of moderately sized soft string is fastened to one stake and then twisted so as to inclose the fruit beneath the crown and tied to the other, which keeps the fruit and crown upright, and thereby enhances its appearance and value.

### TEMPERATURE.

Enough artificial heat should be supplied to keep the temperature required uniformly in the bed at 85° or 90°, the house at 75° at night and 80° in the daytime whenever unless weather prevails; on the contrary, slightly ventilate at 80°, and ventilate according to circumstances subsequently so as to maintain 90° or 95° when the place is fully opened. A proper course of airing is very essential in the fruit department in order to keep the subjects from becoming unduly tender and rendering them fit to withstand solar influences, unshaded; too much sunshine cannot be had in this climate to develop and perfect both the growth and fruit.

### SYRINGING, &c.

At the time of closing the house for the day, which with sun-heat should be at 90°, moisten all available parts of it and syringe the plants overhead with clear tepid water. Some growers incline to the course of syringing the surface of the bed between the plants. I disapprove of this practice because, unless it is most carefully done the soil about the collars of the plants will in the course of time become saturated, unwholesome, and thereby injurious. In suitable places, where the supply of moisture is inadequate, it is far better to sacrifice a row of plants in front of the place, and keep this space for saturation alone.

### SUCCESSIONS.

The successional batch of fruiting plants should be treated identically, except in the case of any that may be in flower, when perhaps the most prudent course is to avoid wetting the fruit until after this process is over. Plants which were started a short time ago, after being disrooted and repotted, will by this time have made new roots. These plants should now be watered in the usual way, and be shifted into pots 2 inches larger before the roots in the present pots are too much matted together. The chief point to aim at at the present time is to make them sturdy in habit; for this purpose they should be placed near the glass, and not too thickly together. Give them about 80° at the roots, a night temperature of 60° or 65°, and 70° in the day, with 5° or 10° more by sunshine; ventilate at 75° slightly, and increase it as the heat rises to 85°, when plenty of it should be admitted until closing time, which on sunny days will be at about 3 to 4 o'clock. As soon as the plants are sufficiently rooted to enable them to withstand sunshine, discontinue shading at once. *G. T. Miles, Wycombe Abbey.*

## The Kitchen Garden.

### FORCING DEPARTMENT: IN FRAMES WITHOUT HOT WATER.

POTATOES are turning out well. The tubers should be dug a day or two before they are required for use, previously allowing the soil in the frame to become rather dry, for the purpose of giving firmness and flavour to the tubers. As frames become vacant by the removal of such crops no time should be lost in starting a successional one.

Vegetable Marrows may be planted, and if syringed and closed with sun-heat Marrows may be had long before obtainable from outdoor plants started under handlights.

Similar remarks may be applied to French Beans.

Water the Turnips and Carrots freely, and keep the beds free from weeds. Our Early Milan Turnips are now ready to pull.

Advancing crops of French Beans should be kept well mulched in land that is very light. *G. H. Richards, Sonerley Gardens, Ringwood, Hants.*



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	May 4	Sale at Caversham Park, Reading, of the Collection of Plants formed by the late Mrs. Crawshaw, by Mr. Stevens (two days).
WEDNESDAY,	May 6	Sale of Carnations Picotees, &c., at Protheroe & Morris' Rooms. Meeting of the Linnean Society.
THURSDAY,	May 7	Sale of Imported and Established Orchids, at Stevens' Rooms.
FRIDAY,	May 8	Sale of Leasehold Property, known as Hill's Nursery, Fulham, by Protheroe & Morris. Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms.

IN compliance with the wish of the Daffodil Committee an account is given in another column of the principal morphological changes which occur in what are called DOUBLE DAFFODILS. It is clear that several different changes are vaguely lumped together under the term "double," and it is probable that the conditions for their production may be correspondingly different. On this part of the subject, however, it is perhaps best to reserve any expression of opinion, especially one that would in any way savour of dogmatism. Certain facts are well established, others are not so. There is plenty of work to be done in the attempt to lessen the latter category, and when the task is completed we shall be in a position to draw sounder inferences. It is enough to say at present that, so far as the alleged change of single to double Daffodils under certain circumstances is concerned, there is, *within necessary limitations*, no structural reasons why it should not be. All depends upon the particular time and the stage of development of the embryo flower at which the change in condition occurs. The interest attaching to these double flowers on the part of the morphologist is very great, as an instance we may cite the case of the petaloid development of the ovules in *Dianella* figured in the present issue, p. 576—the first case of the kind, so far as we know, on record. To gardeners the production of double flowers has always been a matter of interest, but to the Daffodil Committee must be assigned the credit of being the first to endeavour to solve the matter by practical experiments.

But in the summer season events march fast, and long before the Daffodil mystery can be thrashed out the members of the Horticultural Press will have to be thinking of Orchid Conferences. Each flower has its turn, and the Royal Horticultural Society, very wisely as we think, affords an opportunity to the lovers of each to bring forward their favourites in their turn and to invite discussion thereon. On May 12 the ORCHID CONFERENCE at South Kensington will be opened, and in all probability a grand show will be got together. The subjects for discussion have already been announced.

In order to keep touch with a movement in which the conductors of this journal are, and have ever been, so peculiarly interested, we propose during the next two or three weeks to devote a large share of our space to the subject of Orchids. Next week, in anticipation of the Conference, we propose to present our readers with a lithographed map, prepared by Mr. F. W. BURBIDGE, and representing the geographical distribution of Orchids over the surface of the globe in relation to temperature and rainfall. In the same issue we hope to give an eight-page Supplement, containing a complete alphabetical list of all the genera of Orchids, compiled from BENTHAM and HOOKER's *Genera Plantarum*, and annotated by Mr. F. W. BURBIDGE. It is hoped that much information of a character likely to be useful to all Orchid growers will thus be supplied, together with references to illustrations, and especially to the copious literature and numerous illustrations given in these columns during the last forty years. Other matters of great interest to Orchid lovers will be adverted to in the two or three following numbers, such as the production of double Orchids, the most approved methods of cultivation, and other matters.

— THE ORCHID DINNER.—We are requested to state that the members of the Orchid Conference propose to dine together at the "Albion" Tavern, Aldersgate Street, on Tuesday, May 12, at 6.30, under the Presidency of Sir TREVOR LAWRENCE, Bart., Pres. R.H.S. It is expected that a large and influential gathering of the principal Orchid growers will take place. The tickets for the dinner (inclusive of wine) are priced at 25s. Gentlemen proposing to be present should communicate without delay to WM. LEE, Esq., Downside, Leatherhead.

— SACCOLABIUM BLUMEI.—Originally introduced from Java just fifty years ago, and since that time frequently received from various parts of India, the plant has always been well represented in collections, and from its free growth and floriferous habit it has been a general favourite. *S. Blumei* succeeds best in baskets in a very light situation on the stage, or suspended near the glass in an intermediate-house, ranging in temperature from 65° to 70° by day, with an extra 10° or more when the sun-heat gives it, the temperature being allowed to fall to near 60° at night, as nothing is more injurious to *Saccolabiums* than a high night temperature. The illustration (fig. 105) was taken from a plant grown by Mr. A. SIMPSON, gardener to the Right Hon. Lady ASHBURTON, Melchet Court, Romsey. Mr. SIMPSON says, "The plant photographed is growing in a basket 16 inches wide and 12 inches deep, suspended in a light airy position, within 2 feet of the glass, which is slightly shaded during summer. Our mode of treatment is very simple. About the end of February we pick out all the sphagnum moss and peat, without removing the large pieces of charcoal and crocks, as the thick fleshy roots are so easily damaged; we then top-dress with sphagnum moss and a little peat. During summer the basket and air roots are well supplied with moisture, but in winter less is required." Other fine *Saccolabiums* of the same section doing well with and under treatment similar to that given to *S. Blumei* are *S. guttatum* and its varieties, *S. præmorsum*, *S. giganteum*, *S. retusum*, *S. Harrisonianum*, and *S. violaceum*.

— PROFESSOR RODIGAS.—On Sunday, May 3, at Ghent, a presentation banquet in honour of Professor RODIGAS will be given, when a portrait by M. LÉON HERBO will be presented to him, together with an album containing the photographs of the subscribers to the picture.

— INTERNATIONAL INVENTIONS EXHIBITION.—A railway guide and route book has been published (to be had of Messrs. CLOWES, and at the railway book-stalls), which shows how the Exhibition may be reached and quitted from any station within 25 miles of London without need of waterproof or umbrella. The attractions for the public seem as great or greater than before. We observe with some surprise that nothing is said as to the series of shows to be held by the Royal Horticultural Society during the period of the Exhibition.

— MR. BULL'S ORCHID EXHIBITION.—Mr. BULL has issued invitations for his Orchid exhibition, available on Tuesdays, Thursdays, and Saturdays during May, June, and July.

— "PLANT LIFE."—An American edition of Dr. MASTERS' work on this subject, treating on vegetable physiology as applied to the cultivation of plants, has been published, and a French version is appearing in the *Belgique Horticole*.

— BOTANICAL LECTURES.—Mr. J. G. BAKER will deliver a course of twelve lectures on Botany on Saturdays in May, June, and July, at 3 P.M. The lectures will be delivered in the garden of the Apothecaries' Society at Chelsea, and are open not only to medical students, but to other gentlemen, on application for tickets to be had of the Bedell, Apothecaries' Hall, Blackfriars, E.C.

— SEEDS AS WEIGHTS.—In many provinces of India the seeds of *Abrus precatorius* are used as weights, the unit of weight or seed being called the "retti," the latter term applying especially to the weight. The weight, as appears from an article by Mr. CHUBB in the *Pharmaceutical Journal*, varies from 1.92 grains to 1.979 grains. *Mucuna capitata* is the seed which is the origin of the "massa" = 8 "retti."

— PARIS HORTICULTURAL CONGRESS.—This Congress will be held from May 21 to 23 inclusive, at the rooms of the Society, 84, Rue de Grenelle. The questions proposed for consideration have reference to the following matters:—Railway tariffs, nomenclature of hybrids, influence of electric light and of moonlight on plants; the effect (if any) of the age of seeds on the nature of the seedling; the possibility of ascertaining by an examination of the seed of a dioecious plant the sex of the seedling plant; the possibility of ascertaining by an examination of the seed whether flowers derived from it will be double or striped; the explanation that the ovary of an Orchid will swell to full size although not fertilised and producing no seed; the relation between the changes in flowers effected by cultivation and those produced in the other organs of the plant; the utility of watering plants with water of a temperature higher than that of the air; the causes of variegation; the explanation of the fact that some *Caladiums* grow well although they contain no chlorophyll; the utility of bottom-heat and the limits to which it may be carried; what foundation there is for the theory of VAN MONS, according to which fruits of indifferent quality are obtained before those of better qualities; what grounds there are in support of the opinion of LOUIS VILMORIN that a striped flower is not produced until after a pure white flower has been produced; the best method of sowing Orchids; the use of charcoal in Orchid culture, &c. The Secretary is Mr. ERNEST BERGMAN, the President M. DUCHARTRE.

— DISEASES OF PLANTS.—Dr. ZIMMERMANN, of Halle, has published the first number of an *Atlas der Pflanzenkrankheiten*, devoted to the illustration and description of the fungi which cause disease in plants. The plates are photographs from the microscope, and represent various Puccinias and *Æcidia*. The book is published for the special benefit of agriculturists, foresters, and gardeners, to whom indeed it may prove very useful.

— "LETTS' POPULAR ATLAS."—In these days a good Atlas is almost indispensable. Unfortunately hitherto such productions have been costly; such cannot be said of the present series of maps, which are very clearly printed, and which are published at a low price.

— KÖHLER'S "MEDIZINAL PFLANZEN."—The coloured plates of this periodical maintain their accustomed excellence. Although mainly confined to medicinal plants, yet many of the plants figured are, of course, of interest to gardeners.

— "THE HORTICULTURAL DIRECTORY OF THE UNITED STATES."—This is a list of florists and nurserymen following their calling in the several States and Territories of the United States. It is compiled by Mr. C. F. EVANS, of "BENNETT Pedigree Rose" repute, and cannot fail to be of great utility to all who have business relations with our cousins over the water. Merely to turn over the pages affords much information as to the social condition of the people in the various States; thus in Alaska there are no nurserymen, in Wyoming one, in Massachusetts the list extends to some seven 8vo pages, in Pennsylvania to ten, in New York State to fifteen. The publisher is Mr. ISAAC D. SAILER, of Philadelphia.

— MR. BOWIE, OF CHILLINGHAM CASTLE.—It will be with much pleasure that the friends of this much-respected gardener will hear that he has been given a pension for the rest of his days by the Earl of TANKERVILLE. The family of BOWIE has been settled on the borders of Scotland and England for generations, and the subject of the present notice was gardener at Chillingham for a great many years, and for some time he held the appointment of steward on the estate.

— THE COLORADO POTATO BEETLE.—"It is," writes Prof. RILEY, "an interesting fact (as showing how a new habit may be acquired under favourable circumstances) that last summer this insect was positively found feeding upon the Cabbage, which is botanically so very distinct from the Nightshade family. It would be sad indeed if so all-important an esculent should in the future be doomed to suffer, with the Potato, from the insatiate appetite of such a pest, and I have no idea that Cabbage raisers need fear anything of the sort; yet stranger





FIG. 105.—SACCOLABIUM BLUMEL. (SEE P. 572.)

things have happened, and certain it is that it was found devouring Cabbages by Mr. H. H. MCAFEE, Superintendent of the Wisconsin University Experimental Farm, while Miss MARV E. MURTFELDT, of Kirkwood—in whose testimony I can place the utmost reliance—found that in parts of Northern Illinois it did considerable injury to growing Cabbages, and was even breeding in great numbers upon them.”

— PRIMULA SIEBOLDI.—This species is now being developed rapidly in the hands of a few special growers into many varieties, in some of which

brighter colours than the original Sieboldi are seen, and others are pure white, or have intermediate shades of colour. For pot culture, or on rockeries, the species is a very desirable one, flowering early, and usually abundantly. We received lately a pretty lot of *P. Sieboldi* hybrids from Mr. T. WARE, Tottenham.

— ANTWERP BOTANICAL CONGRESS. — The committee of the Congress has, we are officially informed, determined to devote a portion of the discussion, which will take place on that occasion to the question of the exploration of the valley of the Congo,

in which, as it is well known, His Majesty the KING of the BELGIANS has taken so munificent and enlightened a part. With this view the committee of the Congress have addressed to the settlers on the different stations along the Congo a series of questions, as follows :—

1. What is the composition of the soil of the regions which you have hitherto explored ?
2. What is the altitude of the district which you describe ? What are the minimum, maximum and mean temperatures of these regions ?
3. What are the climatal conditions of these regions ?
4. What are the natural advantages and inconveniences which these regions present with respect to cultivation ?



5. What are the vegetable products of these regions, e.g., alimentary, medicinal, poisonous, or industrial.

6. What is the character of the flora of these countries which you have explored?

7. What resources does Central Africa offer to botanists for the study of tropical and physiological botany? Have you yet met with plants which can throw light on certain botanical questions, or which will augment the value of our collections of growing plants?

8. How can vegetable culture be established along the Congo?

9. What from a cultural point of view are the principal injurious elements—(a) animal, (b) vegetable.

10. To what degree can European botanists and horticulturists be useful to the explorers of the Congo, with respect to experiments in cultivation and acclimatisation, or in any other way?

The general questions proposed for discussion at the horticultural Congress are the following:—

1. The function and organisation of botanical laboratories.

2. The best method of preparing monographs of genera with numerous species.

3. Since the Parisian Congress of 1878, what botanical progress has been realised in the principal countries of the world? Botanical establishments, museums, laboratories, &c. What is at present, in these same countries, the influence of botanical studies on the progress of horticulture?

4. What is the best method to adopt for instruction in botany in various grades of teaching?

5. Describe the best methods of teaching theoretical and practical botany in the schools of horticulture and agriculture? Mention what should be included in this teaching.

6. What prominence should be given to a course of vegetable pathology in the schools of horticulture and agriculture.

7. To what extent is it desirable to develop instruction in botany and horticulture in middle-class schools?

8. What steps should be taken to diffuse instruction in horticulture in rural centres? What are the best methods for encouraging gardening among the working classes?

9. On the employment of artificial manures for the cultivation of plants in conservatories, apartments, and gardens.

10. The utilisation of the sewage of our large towns. What results have been obtained in different countries? What steps should be taken to generalise this practice?

11. What is the best system of labels (a) for botanic gardens, (b) for public parks, (c) for private gardens, (d) for greenhouses?

12. Advantage of uniformity of thermometric scales. Method of securing the general adoption of the Centigrade system.

13. What are the fruits and vegetables the cultivation of which can be extended and made advantageous for internal consumption and for exportation? Establishment of markets.

14. Are our methods of cultivating fruit trees capable of being improved?

15. What is the best method of teaching elementary vegetable physiology by means of popular lectures?

16. Can the cultivation of useful fungi be extended? A list is required of edible species which are most common, and the poisonous species which most resemble them.

17. What remedies have hitherto been employed against the ravages of aphids, and what results have been obtained?

18. What remedies have hitherto been employed against Phylloxera, and with what results?

19. On the desirability of creating benefit societies in horticultural centres for the advantage of gardeners and their families.

20. International Phylloxera Congress at Berne. Provision for securing uniformity of action in all countries.

21. Tariffs and transport of plants by railway.

The reports sent in on these subjects will, we understand, be published in a separate volume at the conclusion of the Congress. The Congress will open on August 1.

— THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, CHISWICK.—The various fruit-houses, including the large conservatory, give every evidence of satisfactory results in due season. A small house looks very gay with a massive bank of intermixed varieties of Caladium; on the front stage is a nice lot of Gloxinias in flower, and up the stay-rafters are trained fine pieces of Asparagus plumosus nanus. Other houses are gay with large quantities of small Azaleas for decorative purposes at South Kensington; also a nice well-grown batch of Caladium argyreum. The prickly-stalked Cape Pelargonium echinatum, and three varieties, Compton, Ariel,

and Rosy Morn, are blooming freely. What sweetly pretty flowers these are! and yet one seldom observes them in places where they would be most useful for a variety of purposes, and contrast well with their larger brethren. In the succession-houses large quantities of nice young decorative plants, such as Fuchsias, Pelargoniums, &c., are looking exceedingly well, having nice dwarf, clean, stocky foliage, and strong short-jointed shoots. A very fine batch of tuberous-rooted Begonias are also in the very pink of condition, and will shortly make a gorgeous display.

— THE SEASON ON THE WEST COAST OF SCOTLAND.—Rhododendrons, Violas, and Pansies, are now in full flower, and the earlier sorts of Rhododendrons are flowering in perfection.

— CASTANEA PUMILA.—This bush-like species of Chestnut was described by the older arboriculturists, BORCHMEIER, DUROC, and others, but is yet rarely to be met with in our gardens. It is therefore time to call attention of the lovers of pretty flowering shrubs to this useful member of the Chestnut tribe.

— THE SHROPSHIRE HORTICULTURAL SOCIETY.—We are informed that this Society will hold a summer show on August 19 and 20, at Shrewsbury.

— BEGONIA MIRA ×.—This is said to be a hybrid between B. diadema, out of B. gogoensis. B. Mira resembles the former in habit, and the female parent in the coloration of the leaf. B. diadema is a Bornean species, while B. gogoensis is a native of Sumatra. The leaves of the present plant are obliquely ovate, sharply lobed, green, with irregular milk-white blotches above and purple beneath. It is figured in the April number of the *Revue de l'Horticulture Belge*.

— HEMEROCALLIS FULVA, VAR. LONGITUBA.—This is a new Japanese variety of the old well-known species remarkable for the long tube to the flower. It is figured in t. 1187 of the *Gartenflora*.

— CORYDALIS GORTSCHAKOWII, SCHRENK.—A species from the mountains of Turkestan, with deeply cut, Parsley-like leaves, and terminal clusters of yellow flowers.

— NEW COMMERCIAL PLANTS AND DRUGS.—Mr. T. CHRISTY has published the eighth part of his publication on these subjects, comprising a history of the Kola Nut, together with remarks on gutta percha, the tuberous Solanums, the genus Myristica, Cuca (Erythroxylon Coca), Cuprea barks, and other matters. A paste made from the seeds of Kola acuminata, it appears, can be used with advantage to mix with inferior cocoa. "Chocolate made with Kola paste is ten times more nutritious than chocolate made with cocoa . . . and a workman can, on a single cup taken at breakfast time, go on with his work through the day without feeling fatigued." Such statements are likely to be received with incredulity save by travellers and botanists who have long been aware of the composition and effects of these seeds, though it is only now that public attention is being drawn to them. It is many years since Dr. DANIELL published an account of the plant, and his statements have formed the staple of what has been given to the world since up to quite recent times. The good effects of the Kola appear to depend upon the large amount of proteid (nitrogenous matter) and of caffeine. The fatty matter of cocoa is here replaced by a large quantity of starchy material, which, of course, adds to its nutritive properties. The male or Bitter Kola is a seed produced from a species of *Garcinia* or some allied genus, of which a figure and description were given by Dr. MASTERS in the *Journal of Botany* for March, 1875. The description given by Messrs. HECKEL and SCHLAGDENHAUFEN adds nothing to the account given in the work cited, which appears to have been overlooked by the two writers cited by Mr. CHRISTY. The planting of the true Kola tree in low damp situations in the Tropics is counselled by Mr. CHRISTY, and doubtless he has good reasons for so doing, for the good qualities attributable to the true Kola are by no means mythical. We say the true Kola (*Kola acuminata*, R. BROWN, MASTERS in OLIVER, *Flora Trop. Africa*, i., 220), because the Bitter Cola is probably less valuable and devoid of the caffeine which renders the true sterculiaceous Kola so valuable. Mr. CHRISTY also recommends the planting in our colonies of the Cuca (Erythroxylon Coca), which in addition to its

properties as a stimulant and restorative has lately come into use as a local anæsthetic. It may be well to say that the name Cuca has been proposed and adopted to avoid the confusion arising between Coca, Cocoa, and Cocoa-nut, all three referring to different things. The Papaw and its derivative papaine also comes under notice, and here again the valuable results already obtained suggest the culture of the plant on an extensive scale in suitable localities. A similar remark may be made about the Simaba cedron, the seed of which is useful in the treatment of fevers. It will be seen from these remarks that Mr. CHRISTY is doing good service in introducing to the knowledge of commercial men and practical cultivators a number of plants whose good qualities have, at least in many cases, been well known to and published by botanists. But practical men would no more think of looking into such books as the *Flora of Tropical Africa* for the special information they required than botanists would consult the trade lists of the merchants to ascertain the names and descriptions of commercial plants. Mr. CHRISTY's publication is a medium between the two, and a very serviceable one.

— BOTANIC GARDEN, JAMAICA.—In a review of the public services of Jamaica, Governor Sir HENRY NORMAN, K.C.B., C.I.E., speaks as follows of the botanical department in that island:—"The Royal Commissioners fully admit the necessity that exists in a country like Jamaica for a well organised department of gardens and plantations; they acknowledge the good work that has been effected by the department, and give credit to Mr. MORRIS, the Director, for his able management. In the views thus expressed I most heartily concur. The department is, to use the Commissioners' own word, 'invaluable.' It has effected much good, and not only does Mr. MORRIS manage the department with much zeal and ability, but he is ever ready to aid individuals and the public with assistance and advice in the various matters of which he has special knowledge. Indeed, Mr. MORRIS is untiring in endeavouring to induce persons to commence new industries calculated to develop the resources of the island, and to bring about a condition of prosperity which would go far to counterbalance the depression under which the sugar industry of Jamaica now labours."

— ENGLISH versus AMERICAN GROWN PEAS.—Among the trials to be carried out at Chiswick during the coming summer will be one that will test the relative growth and character of certain varieties of English and American grown Peas, and especially of one-year-old seed. For this purpose a collection has been forwarded by Mr. JOHN T. BURNELL, of the Ilop Exchange, Southwark Street. It is contended that American grown Peas, being invariably harvested in such excellent condition, it follows that any shrinkage through picking does not exceed 5 to 7 per cent., and that one-year-old seeds keep much better, and maintain a much higher percentage of growth, than do English grown varieties. The invariable character of the American climate in the great Pea-growing districts of Cape Vincent enables the Peas to be harvested in perfect condition, thoroughly ripened, and without latent moisture. Of late years the English summers, up to and inclusive of 1883, proved wet, and samples were not only indifferently, but required a considerable outlay in the matter of picking, and consequent waste. The samples of American grown Peas seen this season, both round and wrinkled, are very fine, and it is said that in consequence of good development, and change of seed from a place so far distant, better crops are borne. Thus this trial will prove one of special importance.

— PROTEINOPHALLUS RIVIERI.—In the Begonia-house at Kew several specimens of this highly ornamental foliaged plant have lately been flowering. This is not of frequent occurrence except in freshly imported tubers, although the present instance amply demonstrates there is no reason they should not flower. Like bulbs or anything else of similar habit, flowering must be preceded by inducing a free growth. This must be done the season previous, so that a good supply of reserve material may be stored up in the tuber. One leaf only is developed each season with a long petiole simulating a stem, and a ternately divided much branched limb. It is this character, common to many other allied Aroids that constitutes their value as decorative plants. The inflorescence precedes the leaf, and consists of a large trumpet-like spathe of a deep chocolate-brown, except at the base



externally, with a long projecting spadix of the same colour, at the base of which the male and female flowers are seated. The odour emitted during the shedding of the pollen is rather disagreeable at close quarters. The plant is figured in the *Botanical Magazine*, t. 6195, and is included by the *Genera Plantarum* under *Amorphophallus*, from which it differs by having an elongated stalk to the inflorescence and a broadly funnel-shaped oblique spathe. An excellent representation will be found in our columns, May 3, 1873, p. 610.

— VIOLET LADY HUME CAMPBELL. — As grown by Mr. J. GOUGH, at Harefield Grove, this Violet is not only distinct from *devoniensis* in regard to the colour of the flowers, but is in every respect a much better grower. It came into the possession of Mr. G. J. BRUSH of High Grove Gardens, having been sent from Italy; and finding it to be quite distinct from *devoniensis*, was named by him Lady Hume Campbell, and distributed by Mr. C. TURNER. At Harefield Grove the two are growing in the same frame, and the manifest difference both in the colour of the flowers and vigour of growth and habit can be at once seen. Somehow or the other it does not appear to have found its way into general cultivation.

— PASSIFLORA CONSTANCE ELIOTT. — Messrs. LUCOMBE, PINE & CO., of the Exeter Nursery, have sent us some very pretty flowers of their hardy white Passionflower (*Passiflora Constance Elliott*), figured and described in these columns, p. 701, vol. xxi., 1884: they are very chaste and delightfully fragrant. It will be remembered that this lovely variety was awarded the First-class Certificate of the Royal Horticultural Society of London last May. All the parts of the bloom excepting the styles are white, the fringe or hairy appendage of the corona and the petals being of ivory whiteness. The plant is as hardy as the common Passionflower, with the same beautiful foliage; and these features will doubtless make it one of the most popular of recently introduced plants.

— CERASUS MAHALEB. — Among early flowering trees this is an excellent companion for the Almond. The latter can always be seen in full bloom in the suburbs of London during the spring months, being prominent in forecourt gardens, but how seldom one sees *C. Mahaleb*. It is perhaps earlier if anything than the Almond, it has an elegant habit of growth, is wonderfully free of bloom, and its white flowers are pleasantly fragrant. Every year appears to see it flowering profusely, a conspicuous object against a background of naked branches of deciduous trees. Perhaps it is because it is in so much demand for stock that it is so seldom planted in shrubberies.

— MAGNOLIA CONSPICUA. — The fine specimen of this at Gunnersbury House, Acton, though not so free of flowers as last year, is now in the finest condition, unharmed and unstained by the spring frosts that last year so grievously affected it. It shows how the tree was affected by them in that on the sides exposed to the north and north-east there are patches naked of flowers. The tree is now to be seen in all the beauty of its snowy purity. It may not be generally known that half-developed flowers, if cut from the tree, will enlarge and open in water, and be an attractive object in a sitting-room for many days.

— PEAR TREE BLOSSOM. — As all the leading Pears are flowering this season with such marvellous freedom it seems almost invidious to select any one for its wealth of blossoms; but from what we have seen we should award the palm to the Jargonelle. Large standard trees of this Pear are literally wreathed in blossom, the clusters of bloom are enormous, and continued all along the branches, and where grown as a standard it appears always to flower well. Then *Bon Chrétien* and *Louise Bonne* of Jersey are very rich in blossom also, so is *Beurré Clairgeau*. In a garden that we know of is a comparatively young standard tree of *Chaumontel*, with a head 5 feet in diameter—a mass of the purest white. It invariably bears well, but, except in such a season as last year, rarely fully matures its fruit, though they reach a good size.

— GARDENING APPOINTMENT. — CHARLES GRANT, late General Foreman at Benham Park Garden, has been appointed Head Gardener to G. A. FULLER, Esq., The Rookery, near Dorking, Surrey.

## THE PROPAGATOR.

### THE PROPAGATION AND CULTURE OF DIPLADENIAS.

IN the propagation of these beautiful climbing plants it is absolutely necessary that the wood selected for cuttings should be quite ripe, and the foliage well developed and hard. To put in soft wood as cuttings would only be a loss of time and labour. Each cutting should have two leaves, and  $1\frac{1}{2}$  inch of the main stem attached, the base of the latter being made level with a sharp knife. It is not necessary to make the cuttings at a joint, although where there is a joint to spare use should be made of it. They can be potted each into a long thumb-pot, taking care that the soil is firmly pressed around each cutting, the eye of which should be placed just below the level of the soil. After having watered them they should be allowed to stand a short time (until the soil becomes rather dry) before they are put into the cutting frame, which should be a shallow one, and situated upon a good bottom-heat. The cuttings should be watered as they become dry, and should be shaded from the sun.

For ventilation the lights of the case should be taken off for an hour night and morning, but after five days the lights, instead of being taken off for an hour, can be raised an inch, and allowed to remain so day and night. Immediately the cuttings have rooted they should be turned out upon the open bottom-heat, because they are liable to rot off if left in the cutting case long after they have rooted. At the end of four or five days the plants should be potted into large 60's, which should be well drained. The soil should be firmly pressed around each plant; a stick, 1 foot in length, should also be fixed in the soil for the purpose of loosely tying up the shoots. After having been watered they can be replaced upon the open bottom-heat.

Dipladenias must be watered carefully; too much water will, as a rule, rot the root-tubers which these produce in such numbers, and thus destroy the plant. They should now be syringed twice a day, and shaded from the strong rays of the sun. They should also be allowed a good supply of air upon every fine day. When they have well rooted through their present pots they can be potted into large 48's, placing to each a stick 2 feet in length, to which the plant should be securely tied, and when they have been lightly watered with a rose-pot they should again be placed upon the open bottom-heat, but as soon as they have grown into strong and well-developed plants they can be taken to a house of intermediate temperature, and placed upon a cold bottom.

Should large plants be required they can again be potted into large 24's and trained around a trellis. For ordinary purposes this can be made of six Bamboo-canes, or other suitable rods, 4 feet in length, placed at equal distances around the edge of the pot, the tops of the sticks being secured by a piece of strong wire, and it will hardly be necessary to say the shoots should all be trained in one direction. The plants should not be watered for a week after they have been potted in 24's, and after that time the gardener must be very careful in watering them.

Dipladenias can also be rooted from single eyes; that is, taking a strong piece of the plant consisting of  $1\frac{1}{2}$  inch of the main stem having two leaves attached, and cutting the main stem down the centre, thus making, as it were, two cuttings of one, each having a leaf attached, and putting these in as cuttings. They can be treated in the same way as the ordinary cuttings, with this addition, that immediately the cutting is put in a small stake should be fixed beside it, to which the one leaf of the cutting should be loosely tied up.

The gardener should be on the look-out for a small fungus to which the plants are subject. It is not unlike a spider's-web, and spreads over the pots, cuttings, and surface of the soil, and if not noticed in time will destroy every cutting. The best way to check this pest is to wash the cuttings and to dredge a small quantity of sulphur both on the surface and underneath the leaves. Besides this they should be shaken out of the soil and potted into fresh pots, keeping them dry for three or four days, and then treating them as before stated.

The soil to be used for the cuttings should consist of half good peat, one-fourth loam, and one-fourth

sand, as well as some finely broken potsherds, and a small quantity of broken charcoal. This soil should be well mixed together, and rubbed through a  $\frac{1}{4}$ -inch sieve before it is used. When the cuttings are potted into 60's the following soil should be used, viz., half good turfy fibrous loam, one-fourth peat, and one-fourth sand, well mixed with small quantities of ballast and charcoal broken into pieces of Walnut size. If the soil is too dry it should be sprinkled with water before it is used, which can be done as it is being turned over in mixing.

The following are the principal varieties, and which deserve the attention of the gardener, viz., *D. amabilis*, *D. Brearleyana*, *D. hybrida*, *D. Williamsii*, *D. boliviensis*, *D. amœna*, *D. profusa*, *D. insignis*, *D. splendens*, *D. atropurpurea*, *D. crassinoda*, and *D. Houtteana*. The colours of the flowers are light pink, crimson, white with yellow throat, dark purple, and yellow.

In conclusion, we may say it is an erroneous idea that *Dipladenias* can only be grown in high temperatures, and upon strong bottom-heat, for as a matter of fact they grow very well in an ordinary stove or intermediate-house, and keep much cleaner. T. O. B.

### SOME WEST INDIAN FIBRE PLANTS.

IN the celebrated Lace-bark of Jamaica (*Lagetta lintearia*), an arboreal *Daphne*, we have a bast or inner bark-fibre which is found enclosing the stem, and consisting of numerous concentric layers, which interlace in all directions, presenting in a great degree, and especially when well prepared, a resemblance to the finest lace.

The purposes to which this lace is applied in the island—for the manufacture of doyleys and light fancy articles—are well known. Formerly, when more abundant than it is now, it was manufactured into ropes, whips, and other articles. It can, however, even at the best, be hardly included amongst fibre-plants likely to be useful on a commercial scale. A similar remark would apply to the bast or inner bark fibre of the Mahoe (*Paritium elatum*), known in commerce—from the fact of its having been exported from the neighbouring island—as Cuba bast; as also fibres yielded by such trees as Spanish Elm (*Cordia gerascanthus*), the Down Tree (*Ochroma lagopus*), the Trumpet Tree (*Cecropia peltata*), the Burn-nose Tree (*Daphne tinifolia*), the Screw Tree (*Helicteres jamaicensis*). All these yield fibres of certain qualities, samples of which, prepared by the late Mr. Nathaniel Wilson, are still to be seen in the Museum of the Institute of Jamaica.

Of plants belonging to the natural order *Malvaceæ* there are numerous species besides the Mahoe belonging to the genera *Paritium*, *Sida*, *Abutilon*, *Hibiscus*, and *Pavonia*, which are remarkable as affording the everyday fibre-plants of the West Indies used by Europeans and natives alike for tying up produce, and indeed for all purposes when a convenient and cheap material is required for securing and binding.

The fibre contained in the Sugar-bark of the mountains (*Malvaviscus arboreus*) possesses wonderful strength and tenacity, and probably ranks next in these respects to the bast fibre of the Lace-bark Tree (*Lagetta lintearia*).

Amongst obscure and little known plants which yield fibrous material, mention might be made of *Anthurium* (*Pothos*) *violaceum*, which is described by Mr. Wilson in the following words:—"Where strength and lustre of appearance is an object, this plait will be found equal, if not superior, to the best Leghorn plait Italy ever produced. This plant, though an epiphyte, and growing plentifully at the roots and on the tops of the highest trees, at an elevation not under 1000 feet, may readily be cultivated in woodland and moist places to any extent. The part of the plant made use of is the petiole, or foot-stalk of the leaf, which grows from 18 inches to 2 feet long, and is readily divided into strips of any dimensions, and contains a strong fibre not existing in the common plat of the Fan-Palm. It has a durable colour."

Remarkable and valuable, however, as the fibre yielded by these plants may be in a rural sense, they are not likely, at least at present, to be rendered of commercial value; and I refer to them only for the purpose of supplying a general review of plants capable at all of yielding fibre and for the purpose of bringing into notice what may be termed the possible



ultimate resources of the West Indies as regards fibre-plants. From a lecture by D. Morris, M.A., Director of Public Gardens and Plantations, Jamaica.

## GUNNERSBURY HOUSE, ACTON.

THIS well managed little place is looking very gay and neat, considering the busy time of the year, when everything seems to demand attention at once, and during which season gardeners have to draw upon their ingenuity in no slight degree to overcome obstacles, which are always surmounted by them in a quiet unobtrusive manner, and with an address that generally ensures complete success. The Peach and Nectarine trees here are carrying a good crop of nice fruit, and the trees are clean and healthy; the Vines, too, are very promising. A rather curious occurrence may be seen in one of the vineries here. A strong root from a Black Hamburgh has forced its way into a tank of water inside the house, and in it formed a large mass of roots, which we were informed continue to grow the best part of the year. The most interesting part is that the water is icy cold always, but it does not seem to affect the health of the Vine in any way. The Muscats are looking very well. In the plant department a nice, clean, well grown lot of decorative stuff is to be seen. Crotons well grown and coloured, &c., some fine pieces of well done Anthurium Scherzerianum, a fine type of Vanda tricolor, a very large healthy specimen of Asparagus plumosus nanus, a fine piece of Davallia bullata, and Gleichenia Mendelii, a fine batch of Gloxinias showing large quantities of bloom. A pleasing feature in one of the plant-houses is a wall splendidly covered with Adiantum Capillus-Veneris. The conservatory is tastefully decorated with Azaleas, Eupatoriums, Camellias, Choysia ternata, Deutzias, &c., and some splendid specimens of the lovely Sparmannia africana. We must not omit to mention the forced Strawberries, which are very fine indeed.

## Florists' Flowers.

### LACED AURICULAS.

THIS is just the section of Auriculas which young amateur growers should take in hand first. They are very beautiful—I think almost more so than are any of the other kinds—and they are easily cultivated; they also seed freely, and reproduce their best features and some improvements. I have a large batch from last spring's sowing blooming delightfully. They were planted up thickly in a soil bed in a cool-house, whilst in another part of the bed a batch of seedlings from a sowing early in March are just showing rough leaf. These youthful plants when a little bigger will be dibbled up into shallow boxes for the summer, and be kept in a shady place, where they will make good growth for Auriculas, and in the autumn will be dibbled out in the house, as were last autumn the batch now blooming. As there are in the seedlings variations of quality, I can thus select the very best as they bloom, and pot them, whilst the remainder will go into the open air. I think it is fortunate that the strain throws up also some remarkably fine showy border forms. The pure florist, who has eyes only for points of refinement, would not regard these coarser but very showy forms with pleasure, but the lovers of hardy flowers do, and having them to bloom in the open ground, as they will henceforth, are delighted with the wondrous beauty which a packet of seed has produced.

Some day, perhaps, the National Auricula Society will give special encouragement to the growth of laced Auriculas by granting to them a class or division; at present laced forms are so far tolerated that they are permitted to appear in the fancy class, where their beautiful markings count for nothing. It is true that they are practically alpine, and as such may be shown in the alpine classes, but the best laced forms do not produce big flowers, and therefore cannot compete with the larger and bolder self and shaded alpine. There can be no doubt but that one of the strongest features of a good alpine—viz., a golden centre—should be found in any good laced flower. The ground may be of any shade or colour, and the edging also, provided it be clear and well defined. Some have such broad margins that they differ little from shaded flowers, although the transition from ground to shading is perhaps too abrupt. I cannot too strongly recommend to Auricula lovers these laced forms. A. D.

## DIANELLA: PETALODY OF THE OVULES.

OVULAR changes of any kind are very uncommon among monocotyledons. Why it should be so it is difficult, nay impossible, to say. The discovery of petaloid ovules, in some double flowered ovules of Dianella cerulea is, therefore, of interest. The ordinary flowers are replaced by globose collections of petaloid scales, as shown in the illustration, offering various intermediate conditions between stamens and pistils and petaloid scales. It is not necessary here to detail all the changes that were observed; suffice it to note that the most remarkable consisted in the continued separation of the carpels in the presence of bluish-purple petaloid outgrowths from the placentas, and of similar petaloid ovules as shown in the illustration (fig. 106). The ovules consisted solely of rather thick petal-like plates, with no trace of nucellus. The specimens were sent by Baron Ferd. Von Mueller, and are interesting as agreeing with

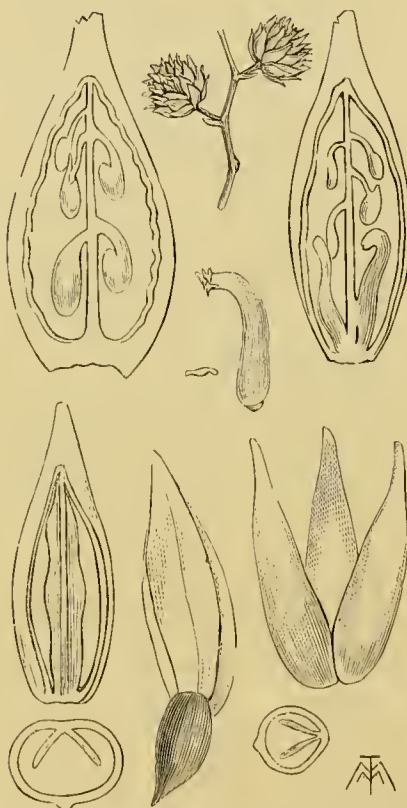


FIG. 106.—DIANELLA CERULEA, VAR. CONGESTA.

Above, in the centre, are shown two of the globose collections of scales, replacing the flowers, natural size. The other figures represent the ovaries of different flowers, enlarged and showing the purple petal-like ovules, and the petaloid outgrowths from the placentas.

D. congesta of R. Brown, which is thus shown to be merely a malformed variety. M. T. M.

## Notices of Books.

Landwirthschaftliche Samenkunde. ("Description of Agricultural Seeds.") Von Dr. C. Harz. Berlin: Paul Parey.

This is another of those now very numerous German publications which inspire us with a feeling of shame and apprehension—shame that we have nothing at all comparable to it, apprehension at the probable results of the marvellous activity in the promotion of science and its application to industrial and agricultural purposes shown by Germany, the United States, and other countries, and our own sluggishness in this matter. What English botanist is there who would draw up a volume of over 1300 pages devoted entirely to the anatomy, chemical composition and agricultural qualities of seeds? What publisher would be so insane as to issue it if he did so? And

yet we have here before us such a book, comprising, first, a general account of the seed-vessel and of the seed—of the method of fertilisation—of the microscopical appearances and chemical composition of the several parts; and next, a detailed account of the seeds of the principal plants of economic importance, including weeds treated with equal fulness. The plants are arranged on a system not familiar to English readers, and one to which objection might easily be raised; but that is quite a minor matter in a work of this character, as an alphabetical index enables the student to find what he wants with facility. The work, moreover, is illustrated with a large number of woodcuts, and comprises by far the fullest account of the seed that we are acquainted with.

### Tree Gossip. (Field & Tuer.)

Mr. F. G. Heath must have some other standard by which he wishes the book recently issued under this title judged than that by which critics are likely to be bound. He would argue that the title "gossip" shows that the writer had no serious intention; but it is a serious matter to take up time and labour, and it is unsatisfactory to find such a discrepancy between the time so well spent by printer and publisher and that by the author of the present publication. As gossip is often mischievous, so we submit the circulation of ill-authenticated statements, given as if they were records of actual facts, is not less injurious. What grounds are there, for instance, for assigning a height of 150 feet to the female, and one of 50 feet only to the male trees of Araucaria imbricata? or how could even a gossip pen such an extraordinary paragraph as that on spiral growth? Surely before publishing his work the author should have secured the assistance of some botanical friend.

### The Asclepiad. (Loogmans.)

This publication is mainly addressed to medical men, but it is written in such a style that it may be perused with interest and profit by intelligent laymen. The article on the hygienic treatment of pulmonary consumption is full of sound practical sense, free from taint of quackery so rampant, when the ear of the general public is to be gained. The sketch of the life and labours of Vesalius is a capital instance of Dr. Richardson's clear and brisk style.

Class Book of Commercial Correspondence, French and English By A. E. Ragon. (Hachette.)

Many persons who can read French fairly well find a difficulty in writing a French letter, and especially so if it is to be one of a commercial character. The mode of addressing letters, of beginning and ending them properly, to say nothing of the main subject-matter, often present difficulties to the inexperienced—difficulties which the present little book is well calculated to remove. Numerous forms suitable to the varied exigences of commercial intercourse are given, and a very useful vocabulary of commercial terms.

## WINTER GARDEN AT FOLKESTONE.

MANY are the travellers who have cause to be thankful for the comforts offered by the "Pavilion at Folkestone." Those who are weather-bound, or who purpose taking up their residence for a time, will now find the resources of the establishment enhanced by the recent erection of a winter garden by Messrs. Weeks & Co. (fig. 107). It consists of a central nave with lantern 43 feet high, and six aisles, three on either side of the central one, the whole having a frontage of about 168 feet, and a width of 51 feet. All the roofs are hipped back at each end, and an iron cresting runs along the ridges, finished at the ends with an ornamental finial. The front and one end consist of moulded pilasters, with moulded transome and cornice. The transome is broken out at each pilaster, forming a cap, and a shaped console is planted on each mullion between the cornice and the transome. The bottom portion is filled with sashes sliding on brass rollers, and the top with fanlights. The back and one end are built in brickwork up to cornice line, and finished in cement. The building stands on brickwork 1 foot above floor line, and at the end, built in brickwork, is a boiler-house and potting-shed constructed of wood and glass to within 2 feet 6 inches of the floor, with a door in the centre and the roof hipped back to match the rest of the building. The winter



garden has three entrances, each of which has a vestibule, one being connected to the hotel by a glass corridor, enabling visitors to enter the winter garden from the hotel without exposure to the weather. The cross gutters are supported by ornamental columns on stone bases. A bed for plants, with moulded edging, runs all round the building. In front of the bed and through the centre of the building are hot-water pipes laid in four brick chambers covered with ornamental gratings. In each of these chambers there are six 4 inch pipes, running the whole length of the building and across the two ends. These pipes are heated by two of J. Weeks & Co.'s patent duplex upright tubular boilers, set in the boiler-house at the end of the building, and the apparatus is so arranged that the heat can be regulated at pleasure, thus enabling an even temperature to be maintained in any weather. About 110 tons of prepared wood, glass, and ironwork, have been used in its construction.

Appended are a few interesting details as to dimensions, &c.:—Height of transome from floor, 9 feet 3 inches; height of main cornice, 11 feet; height of cornice in centre span, 14 feet 6 inches; height of ridge in centre span, 25 feet; width of centre span,

grand primæval forests, and New Zealand will be suffering under worse difficulties than if she had never possessed a tree.

Somehow or other the bulk of the people do not seem to understand or grasp the vast importance of arboriculture. Subjects of no importance compared with this engage the master minds of the world, perplex statesmen, agitate nations, and sway thousands of people, as if their very existence and that of the whole world depended upon them. Royal Commissions are issued, millions of pounds are spent, and thousands of lives lost in advocating and carrying out projects which (compared with what lies hidden under the term arboriculture) are of very little importance to the future welfare of men, nations, and the world. Persons who have never considered nor given attention to the matter of tree planting and timber cultivation are always inclined to look upon the whole thing as a fad, and stamp those who occasionally call attention to the subject as "hobby riders." But whoever will look at the economical, social, commercial, and climatic side of the science of arboriculture, will be convinced of its importance, and the beneficial results

awful in their results. However, it would be a waste of space to give an account of my experience in such affairs, for I know full well that the evil consequences of forest destruction have been often and often brought before the readers of the *Gardeners' Chronicle* by abler pens than mine, and that many of my readers know more than I do about the subject. Still to any who doubt or think lightly of arboriculture and forest conservation, I would say, Go to the dry, treeless tracts of South Africa, now subject to innumerable drawbacks, and almost valueless for the want of those trees which once covered extensive strips; to Palestine, now dry and parched, but once a land flowing with milk and honey; to South Australia, once the best grain growing part of the universe, now worn out and on the decline as a farming country because her forests have fallen before the hand of the settler; to Cyprus, several of the West Indian Islands, India, and then come to this country, where the effects are just beginning to show themselves. All who have viewed the subject in a fair light are unanimous in accepting the following conclusions as facts:—That arboreal vegetation acts beneficially upon the atmo-

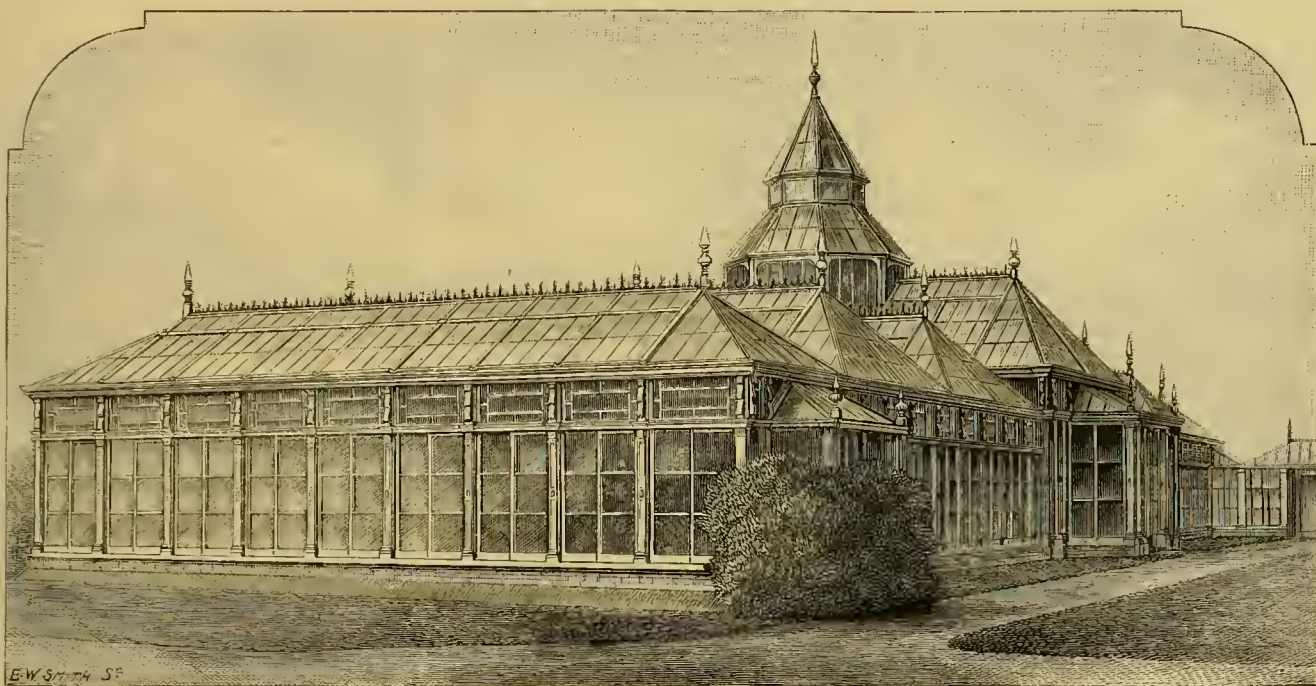


FIG. 107.—THE FOLKESTONE WINTER GARDEN. (SEE P. 576.)

30 feet; height to top of lantern, 43 feet; width of span in middle spans, 22 feet; height of ridge, 18 feet 6 inches; width of end spans, 16 feet; height of ridge in end spans, 17 feet; extreme length of building, 168 feet; length of stokehole front, 18 feet; total width of building, 51 feet.

## COLONIAL NOTES.

NEW ZEALAND.—Before commencing the pleasant task of penning what I know and have seen about the plants worthy of cultivation and a place in every British garden which are indigenous to this colony, I must devote a little time to what is of more importance to New Zealand, and perhaps of greater consequence to commercial England—I mean the timber-producing trees of these forests. New Zealand certainly stands first in quality and variety of timber trees, and, considering the small area of these islands, first in quantity. This speaks well for the colony, but when I have to state that she also stands first in negligence of forests and backwardness in arboriculture, the fact of possessing the above advantages counts for nothing, because in a few years' time, unless the present rate of annihilation be brought to an end, there will be little left to tell the tale of these

accruing from a prosecution of its mandates and teachings.

Follow the footsteps of races of men throughout all ages, and the same warning footprint meets our gaze on every hand. Mountain slopes once covered with nutritive herbage and belts of forest, now bare, rugged, and disintegrated by rushing torrents of water, which, unchecked, roll on and unite in inundating the valleys, once the home of busy husbandmen, their flocks, and crops; countries once smiling under the regularity of seasons, now subject to periods of drought, or long continuations of rainfall, scouring and cutting up the face of the land; mountain valleys once beautiful with the glistening dash of running water, now parched and valueless, because the source from which the flocks obtained the means to quench their thirst is dried up. Districts depopulated, lands rendered useless, sources of revenue destroyed, and a thousand other evils lie in the wake of ruthless men, who, heedless of the future, make all things subservient to themselves, and never think that there is such a thing as economy in Nature. I could enumerate many instances of evil wrought by the destruction of forest, which have been impressed upon my mind during the many sojourns I have made in all quarters of the globe, some of them remarkable in the quickness of their effects and

sphere, weakens the power of strong winds, checks storms, increases the temperature, protects springs of water and originates streams, retains moisture in the earth and causes rain to sink deeper, adds fertility to the soil and gives shelter to cattle and materials to man without which he could not exist.

In the face of these assertions which are now beyond the reach of controversy it seems incredible that any body of men holding the future of a country in their hands, should never give even as much as a thought towards that science which is destined to turn the most barren parts of the earth's surface into spots of fertility. That we in this favoured land of the South, now enjoying the cup of plenty and dwelling under the influence of all that Nature can furnish, are slowly but surely sapping and destroying the very roots and source from whence the bulk of our advantages originate; that we are, for purposes of present gain, working out the certain ruin of one of the best and fairest of lands this world can boast of. Now in drawing attention to the almost total absence of forest conservation and timber cultivation in this colony, I am in strong hopes that some abler pen than mine will take the matter up and so attract the notice of British arboriculturists to the extensive field for operation which awaits them here. There is a grand



future for the science of arboriculture, millions of square miles, at present worthless or nearly so, only want the arboriculturist to render them habitable and capable of supporting millions of people. The societies in England and Scotland must extend their influence and operations to British possessions, where their labours could be on a gigantic scale, and bear results which would be universal in their effects. Nothing of great importance will ever be done in the direction of forestry in these and other colonies until those who are supposed to know all about the matter, take the initiative step, give the start, and set an example. Once let authorities on forestry commence operations in these colonies, and timber cultivation will become a recognised established pursuit, and not, as it now is, a fad, hobby, or myth, only to be thought of and written about. However, putting all this surmising on one side, something must be done towards preventing some of the most valuable trees Nature has bestowed upon man from being lost to the world. In the following brief glance at some of New Zealand's forest trees I will for want of time and space limit my remarks to those generally known. Flat-leaved Conifers occupy the principal place amongst the timber-producing trees of these forests. They are unique in their appearance, of great variety, and in some districts form extensive forests in themselves. *Chris. Mudd, Plant Collector.* [We think our correspondent is not fully aware of the steps that have been taken by the New Zealand Government, at any rate we have reason to know that the subject has not been so entirely ignored as our correspondent seems to think. ED.]

(To be continued.)

## HOME CORRESPONDENCE.

**Pruning of Dendrobiums.**—I have been much interested and amused with the discussion on this subject, and fearing the matter may get shelved in an unsatisfactory manner I am tempted to give my experience on the pruning system. Sixteen years ago I took a plant of *Dendrobium nobile* to regulate the young growths, and while arranging them to best advantage, that light might play upon the foliage, I asked myself the question, Why leave in all these old growths? They have bloomed, lost their foliage, and are shrivelling; they are crowding out the light, are unsightly and in the way—cut them out. Therefore all the old leafless growths were cut away. Just a year after, in the month of June, this same *Dendrobium* was exhibited in a class of six stove and greenhouse plants in bloom; one of the judges, who was a gardener from London, specially complimented me at the show for the clean, well flowered, healthy plant. The pruning has been carried on every year in the same way, and the same plant was exhibited every year, special mention being made of it in the pages of the *Gardeners' Chronicle* at the time. I had said nothing about the pruning to any one, but one grower of Orchids, who came to look round sometimes, once told me that he could not understand how it was that our plants were always so richly clothed with foliage and so free to bloom; and then he asked how it was he could never see any old bare growths—did I cut them out? "Yes." "Ah," he said, "I should have been afraid to do that." But, to return, this same specimen behaved so well that a note in its praise was recorded in the *Gardeners' Chronicle* on January 29, 1881. Growing freely it soon became a large mass, and last year (1884) I shook it out, divided it, and repotted it, making out of it two fair specimens; and as I wanted one of them retarded so as to bloom in August, I put it into the coolest place which I had. My object was attained; it was exhibited in August well flowered, but the season had so far advanced that the growths made after flowering were both fewer and weaker than usual—the result of the retarding, not of the pruning. But notwithstanding these drawbacks I would not be ashamed to send it to the Conference in May; but I cannot see that any useful purpose could be served thereby, for the critics would be able to see nothing that would satisfy them that the plant had been pruned every year for the past fifteen years. I have a small basket with a plant in it now in fine condition, but the colour will be faded by May 12, and therefore unfit for exhibition; but if any persons are desirous of satisfying themselves on the point of pruning they may come here, and I will prune this

plant before them, just as I prune all the others. They may set their mark upon it, and call again next year to see the result. That I think should be the plan to adopt. I prune them, but not in the way "T. B." mentions he did years ago, and failed; for to prune or divide for the purpose of increasing stock is one thing, and to prune away useless wood is something quite different. Then David Walker must have made some great mistake, and his failure should count for nothing as against the system; but as "A. D.'s" note and questions seem to me the most sensible of all the correspondence on the subject I will try to answer him. He asks "If the old bulbs throw vigour into the new?" I answer—yes, for a certain time, for the young growth draws its sustenance from the back growths wholly until it makes roots, and then continues to get some benefit from the old for some months—for, it may be, a year more or less according to circumstances; and if we prune too close we should do damage. But all that has been urged on the point is to cut away the three or four years' old growth. And why cut these out?—because they have done all the good they can do. They have bloomed, lost their foliage, are shrivelling, crowding out the light, and unsightly. Having yielded all the support to their offshoots they possess, they settle down to a long but certain death, therefore cut them out. But when? I always prune mine when the new growths are from 6 to 10 inches high, and are making roots freely. They then require regulating, and one or more back bulbs of every crown are cut away; this makes room for the foliage to develop, and get a greater share of light—a very important matter this. I have only been speaking of *Dendrobium nobile*, of which we have eight specimens, all obtained from a few small pieces got in exchange for some bedding *Pelargoniums* seventeen years ago. All are treated as described, and all flower very freely every year. This season one was in flower at Christmas with 200 blooms. This plant grew in a pan 4 inches deep and 10 inches in diameter; another of the same size had 230 blooms, and came into bloom in February; one in a basket is in fine condition with 180 blooms, and one just opening, but recently potted; and so they succeed each other till all have bloomed. If interesting, I will speak of varieties and species that must not be pruned by-and-bye. [Yes, certainly. ED.] *E. Blandford, Moor Hill, Westend, Southampton.*

**Calanthe veratrifolia.**—This pretty commonly grown Orchid is to be found in great perfection at Ardgowan Gardens, Inverkip, Wemyss Bay. The pure white flowers which are produced very freely are invaluable for cutting purposes. It succeeds well under the treatment the gardener, Mr. Lunt, gives it. There is always something interesting at this fine place, and should any of our Southern friends be this way they will receive a hearty welcome from Mr. Lunt, and I will assure them they will be well repaid for a visit. *A. O.*

**Rhododendrons at Castle Freke.**—Being precluded by ill health from visiting much and thus comparing floral varieties, I write to describe in your columns the *Rhododendrons* at Castle Freke (Lord Carberry's residence in the south-west of the county of Cork), as I was very much struck by their proportions but do not know whether they are exceeded in size in our isles, though I am aware that in variety the collection of Mr. Crawford, of Lakelands, far excels any other I have seen. Of the deep scarlet I took three approximate measurements. Two measured 18 feet in height, one about 50, the other nearly 70 feet in circumference. Both these are more of the growth of trees with naked stems, but the heads umbrella-shaped, and one mass of flowers. I think John Waterer is the name. The third is a beautifully grown circular bush of about 90 feet in circumference at 4 feet from the ground, and about 18 feet in height, and will also shortly be one mass of bloom but of a softer rosy shade, more like Lady A. Cathcart, as far as my memory helps me. *Leopold Shaldham.*

**Daffodils Doubling.**—Being rather interested in the different articles that have appeared in the *Gardeners' Chronicle* for some time back I have made a minute examination of our collection. We have planted them very extensively for some years past, but about ten years ago we planted several hundreds of the single *Daffodil* in one part of the grounds, and a few hundreds more of the double in another, but a good way separate from one another. But among

all our collection of single I cannot find one attempt to change from that state to the double. It is possible that doubles may come up from seedlings where soil and climate are suitable for the ripening of seed, but I cannot see that we have any seedlings amongst our lot. No doubt they have increased very much from the bulbs, for they are now large clumps, having been planted single bulbs. Had these been seedlings they would be spread round about instead of compact clumps, as they are. I noticed a week or two ago that the neighbourhood of Alloa was one of the places where the single *Daffodil* had come double. I have made enquiry, and am unable to hear of a case. I may add that I am writing from a place distant 3 miles from Alloa. I send you specimens of *Daffodils* now in flower here in the open air. *J. Lamont.*

—Permit me to remark that the circumstance referred to by "E. V. B.," p. 511, is not uncommon. Last year I sent to the office of your contemporary, *The Garden*, a bunch of *Narcissus Incomparabilis* in all stages, from perfect singles to perfect doubles, gathered in the lawn attached to Mr. Gough's residence, Birdhill, near this town, and this year I have just sent Mr. Burbidge, to whom all *Narcissophils* are so much indebted, a similar bunch, singles with a few stamens becoming petaloid, semi-double, and perfectly double, which he considered very interesting. All were growing together in the same clump. *W. J. Murphy, Clonmel.*

**Magnolia alba.**—Although this tree succeeds well as a specimen on a lawn, yet the prevalence of late spring frosts and boisterous weather soon mar, or possibly utterly destroy, the flowers. To reap the full benefits of its beauty it should be planted and trained against a south or west wall, and protected (when coming into flower) in adverse weather. It will amply repay a little attention bestowed upon it. There is one growing on the terrace-wall here, and is at present a beautiful object to behold, and gratifying to the olfactory sense, emitting a delicious odour suggestive of Orange blossoms. *W. J., Hafodunos, North Wales.*

**Melon Canker.**—In reference to this subject I beg briefly to say, that if due allowance is made in forming the hillocks, after the plants have been set therein at the same depth in the soil as they were in the pots, and soil has been added afterwards to cover the roots as they push through the sides of the hillocks, and 3 inches higher than the soil surrounding them to prevent water lodging about the stems, "canker" will be prevented from attacking them. Moreover the soil should be made very firm about the roots, as well as all over the bed at the time of planting, and at each of the subsequent soiling up of the roots. Many practical fruit growers are agreed that the soil getting too wet about the stems of the plants is the cause of canker, inasmuch as the plants show the injury at the point of contact with the wet soil. This being so, what remedy more natural or simple than that indicated above? the adoption of which I have often advocated in your columns. In conclusion, I need hardly say that the plants should not be watered about the stems, and that the fact of their being elevated a few inches on mounds (which should slope sharply towards the surface of the bed on which they are formed) will not prevent sufficient water from reaching every root of the plants. In short, I opine that canker is caused by the plants being set out too deeply, and the mould becoming too wet around the stems, gainsay it who can. *H. W. W.*

**Magnolia Campbellsii.**—As the sender of the blooms of the above named magnificent Himalayan flowering tree which were shown (I fear in a somewhat mangled condition) at the last meeting of the Floral Committee at South Kensington (which I forwarded at the request of my friend, Mr. W. Crawford, who is now absent from home in London), I have read with considerable interest the remarks you make on this most interesting if, alas! imperfect exhibit, on page 542 of your last issue, and should like with your permission to make a few additional remarks. It seems quite evident to me after closely comparing one of the Lakelands flowers with the splendid portrait of this fine plant in Cathcart and Hooker's fine work that either Mr. Crawford's tree must be an altogether different and paler flowered variety of this magnificent species to what is figured in the above-named work, or if (as is still just possible) they are one and the same, then I fear that if after the exceptionally hot summer and mild winter of last



year, the tree, which is apparently in most vigorous and robust health, will only produce these pale and perfectly unicolor flowers such as it is now opening, then we can never hope to see this grand species in its full beauty in these temperate climes. Any one looking at Cathcart and Hooker's plate will at once see that the inside colour of the petals as there depicted is of a pale rosy-flesh colour, while that of the outside petal is a fine deep carmine, whereas the flowers of Mr. Crawford's plant are entirely unicolor, of the palest shade of rosy-flesh colour on both sides of petal, and without even the slightest trace of the deep carmine outer colouring as shown on the plate. The impression I know prevails that this fine tree has bloomed annually for some years past on the banks of the Lago Maggiore, in Italy, in the gardens of Messrs. Rovelli, but I have every reason for believing that this is not the case, and that the Magnolia which was mistaken for it by persons unacquainted with the real plant, was in reality *M. Lennei*, a variety of somewhat similar colouring, but of much smaller size. Messrs. Rovelli possess a specimen of *M. Campbelli*, and hope to bloom it soon. I regret to say that the flowers of *M. Campbelli* do not keep fresh in water; the bloom that I got simultaneously with those sent to London, though most carefully brought down in a tin box with moist moss and placed in water some four hours after being cut, was quite withered next morning. *W. E. Gumbleton.*

**Fat Tommy.**—In 1872 you did our cat the honour to figure him with his wire and tub in the *Gardeners' Chronicle*; since that time "Fat Tommy" has been a favourite with all the neighbourhood, being always happy and good-tempered; he has come to an untimely end; having been badly bitten by Sir Wm. Topham's dog, he had to be killed recently. He was so well known in the gardening world that you may, perhaps, insert this notice. We have an excellent portrait of him, painted by Couldery. *George F. Wilson, Heatherbank, Weybridge.*

**Chemists and Grocers as Seedsmen.**—I venture to address your readers and the trade in particular on what is now taking place in the seed trade of this country. For some time past I have observed in the windows of chemists and small grocers, &c., cards to which are attached packets of flower seeds at 1d. each. This is surely an innovation, that chemists and grocers should turn seedsmen; and I should much like to know if any of your numerous readers can inform me who is guilty of supplying these packets to the above retailers, for I feel assured that the trade in general will unite with me in saying that we will do our utmost to discountenance the firm or firms who supply them by reserving all orders for those who stick to the trade only. I shall be glad to have this matter thoroughly ventilated. *E. Wilson Serpell.*

**Narcissus Disease.**—Can any one tell about a disease from which I lose many Daffodils every year? The flower comes prematurely, and stunted, and the half-grown leaves are withered in the upper part. On digging them up no roots have been formed, but the base from which the roots ought to grow is found to be rotten. The coats of the bulbs are loose, and the intervals filled with water. The double *N. moschat* is most liable to it; then comes the single *N. moschat*, and next to these *N. maximus*. I first attributed it to wet soil, but bulbs seem equally liable to it on raised beds with dry soil. I enclose specimens [reserved for examination]. *C. Walley Dod, Edge Hall, April 24.*

**Proposed Gardeners' and Foresters' Benevolent Institution for Scotland.**—When this was first proposed in your columns public opinion was at the same time invited for or against the Institution. I gave mine freely and conscientiously against the formation of a second society, and in last week's number of the *Gardeners' Chronicle*, p. 544, a correspondent signing himself "J. M. L.," says, that "gardeners in Scotland are not inclined to take any interest in the London Institution." In this he is quite mistaken [We think so too, Ed.], for I have had several private letters from the North approving of what I had said, and it will make "J. M. L.," I think, open his eyes when I tell him that one gardener in Scotland wrote and told me that he, last winter, collected £105 towards the London Gardeners' Benevolent Institution. This looks

like taking an interest in the concern, so that your correspondent errs in this, and also I think in not seeing that both Mr. Grieve and myself were influenced by the purest of motives, viz., the welfare of our brother gardeners north of the Tweed; and also I think from his offhand letter he does not know that we both hail from the North, and are naturally interested in our country and countrymen. The brotherly love which prompted the Scotch nobleman (when he met his countryman in London) to say, "Come awa, Sandy; we maun aye help ane anither," is not quite dead yet [And we trust never will be! Ed.]. *J. Rust, Eridge Castle.*

**Imported Orchids.**—Referring to my letter on p. 544, I state, at the request of my gardener and Orchid grower, Sidney Cooke, that the reading public must not imagine I attend solely to my Orchid collection of over 1500 plants. He and I are together agreed on every point mentioned in that letter. Had I not done so to the plants therein mentioned he would have done the same thing. The "dipping in a tub" is such an uncommon practice (most people recommend sparing and careful syringing only) that I put to it the words "with my own hand," to back up this statement most emphatically as being true and not nonsense as some might fancy. For his satisfaction, I state the plants after their "bath" have been entirely attended to by him. The word "my" attached to "result" meant I, as owner, and having paid "value" for plants, was quite satisfied with my investment of fifty white *Lælia* acceps at 4s. 9d. each. The last sentence admits of a doubt on the part of the public who know nought of either of us. "We put all Cattleyas and *Lælias* into their permanent quarters and heat at once," would seem better explained the *finale* of the treatment. The public can now see, if they did not know it before, how much I value my man, *De B. Crawshaw.*

**Primroses and Polyanthus.**—"A. D.," writing on the above at p. 535 of your issue of April 25, criticises the different strains of these most beautiful spring flowers. In doing so he appears to have rather overstepped the bounds of fair criticism by introducing Mr. Waterer's name, particularly so as the remarks are detrimental to Mr. Waterer, and considerably to his own advantage. Mr. Waterer is not the only grower of the so-called fancy Primroses and Polyanthus, and if he were he has never presumed to try to please the florist. His object has been to please the general public, who care but little whether their plants have thrum or pin-eyes. In this respect it may be said he has succeeded to his heart's content. As far as he is concerned it is a hundred to one against the florists' flowers. Letters innumerable are being received bearing testimony to the satisfaction the Knap Hill Primroses are giving. *G. T.*

**Horticultural Education.**—In your issue of March 7 you give the letter of a fellow-worker in the field of horticulture, emphasising the good done by the examinations held by the Horticultural Society and the Society of Arts in former years, and quoting his own experience as an example. A few known to me—now in India—must have passed with your correspondent, who are now drawing salaries of from £200 to £600 per annum, and I dare say there are many more not known to me; but such examples should incite the young gardeners of to-day to study and qualify themselves for such positions. Allow me, through the medium of your widely-read paper, to inform the young gardeners of to-day, that the men now holding these appointments were not frequenters of the village ale-house, nor did they spend their evenings at the "big house" (as it is known among us gardeners)—time so spent never leads up to much. They had not even the pay of to-day to assist them, but by studying in season and out of season, and under many difficulties, such as sitting in front of the furnace when attending to the fires in the long winter nights, and finding out secluded spots in the summer evenings, where they made their private study. In the same issue another correspondent, a Scotch gardener, touches a point which appears to me to be at the root, if not the cause, of much that is radically wrong in the present system, viz., that of nurserymen supplying gardeners to gentlemen, and under-gardeners to gardeners. Take an example. Two under-gardeners about the same age, No. 1 the son of the gardener to the Duke of —, but of no ability; No. 2 a young man of ability, well up in his profession, but with no

previous connection in the gardening fraternity. Watch the different places the two young men get. No. 1 gets the best place available, while No. 2 is shunted off into any place. Nurserymen are not to blame in this—they have nothing to guide them but their own interests; whereas, if all young men were graduated as to qualifications, then nurserymen would know what they were doing, and gentlemen would be certain that their valuable collections of plants and gardens were being intrusted to men qualified to look after them, and the man of ability would get his proper position, wages would rise, and the unfit would be weeded out; gentlemen would value their gardeners, and find in them companions, and not, as now, often only servants. How to bring about this appears to be the problem. I do not think there is much difficulty in the matter. We have an efficient staff of examiners in our various botanical establishments who, I am certain, would only be too glad for a small remuneration to examine all papers sent to them. The next question is text-books; these, I think, are also available, if the Government would publish a list of them for the benefit of those willing to go up for examination. "Last, but not least," we have to enlist the services of employers on our behalf, get them to see and learn and understand that men passing through such examinations are more qualified to take charge of large establishments than those who have only a labourer's knowledge of the profession. I regret to say my experience has been on the other side. I know myself what my early studies and my sojourn in the Royal Gardens of Kew have done for me, although my certificates have scarcely seen the light of day since I got them; but I am at this time reaping my reward, like your correspondent, in an enhanced salary. I think he is a little hard on nurserymen; many a nurseryman would be glad to be free of the trouble of exchange in gardeners, and of finding them employment, it may be at a time when he has little work for them, and many of us must be as useless as a common labourer in a nursery; but custom demands that he should employ him, or trade would leave him. If the present system is to be changed, some kind of a trade union would be necessary, paying gardeners a small amount when out of employ; the nurserymen find them employment now, which is equivalent, and gentlemen have to pay enhanced prices for their plants and seeds. As the present gardener is not a free agent, he feels himself under a certain obligation to the nurseryman who got him the situation, therefore he purchases plants and seeds from him. The whole system is rotten to the core. *Hortus, Bengal.*

**Does Fruit Farming Pay?**—This subject has been so often mentioned in the *Gardeners' Chronicle* that it might appear rather out of place at the present time; but I am not asking for information for myself, only simply to give to your readers a few facts that have come under my notice for several seasons past. There are very few growers who care to acknowledge the paying part, but plenty who will do the grumbling part. Two questions arise out of this subject as proofs in point—first, if it does not pay, why do the growers keep planting, as many acres have been planted of different kinds again this season? Secondly, when plantations are for sale by auction or treaty, what induces so many buyers and fruit salesmen to offer such high prices if there are no profits? Last season's was considered generally as a slack crop, but a great quantity of fruit was grown in many plantations, realising high prices, damaged Apples selling at 4s. per bushel, which prevented cider-making at that price. Damsons, the Cluster, are being largely planted (the best kind for market); a cottager last season, with only a fair sized garden, grew twenty-two half sieves, worth 10s. a sieve, besides a quantity of soft fruit, and more vegetables than his family could consume, also abundance of flowers; in another plantation one tree—an old one of the same kind—produced fourteen half sieves; and some few years since a plantation of 4 acres, young trees, not all Damsons, being mixed with some Plums and Black Currants between, produced 700 bushels of Damsons. Cobs carry a heavy crop sometimes when planted with Plums or Apples or both between them. I have known a mixed plantation of this kind to produce one ton of nuts per acre before the trees were fairly grown. In 1824 an Apple orchard with a few Plums, under 7 acres, sold for £175 at an auction sale. One tree of Graham's Russets produced 30 bushels. The same orchard in 1883 sold at £160



with a larger crop of fruit—about 2000 bushels. In 1855 the same sold at £65, set at 1100 bushels; again in 1853 it realised £100, the crop being about 2000 bushels. In the years of 1854 and 1856 the crops were very slight, and fetched only about £50; but then it should be borne in mind it is good pasture land, with plenty of food for sheep the whole season, excepting when the fruit is fit for use, the greater part being late kinds. The outlay also being very small, generally, surely no one would say this is not paying its own way as a profitable crop. Of this I am quite satisfied on my own part, having lived in the centre of fruit districts for more than thirty years, and seen the working. *A Looker-on.*



STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, APRIL 29, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6TH EDITION.	WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 18 years.	Highest.	Lowest.	Range.	Mean for Day.			
April	In.	In.	°	°	°	°	°		In.
23	29.46	-0.30	62.0	47.5	14.5	52.0	+ 4.0	S.W.	0.10
24	29.38	-0.39	61.2	41.5	19.7	51.4	+ 3.2	S.W.	0.07
25	29.23	-0.54	62.5	47.0	15.5	53.8	+ 5.5	S.W.	0.00
26	29.43	-0.34	63.2	46.2	17.0	53.7	+ 5.2	S.W.	0.02
27	29.55	-0.22	65.0	42.0	23.0	53.4	+ 4.7	E. N.E.	0.00
28	29.52	-0.26	69.5	42.5	27.0	56.0	+ 7.1	E. S.E.	0.07
29	29.55	-0.23	62.0	47.0	15.0	52.4	+ 3.3	S.W. W.N.W.	0.40
Mean	29.45	-0.33	63.6	44.8	18.8	53.2	+ 4.7	S.W.	0.66

April 23.—Showers of rain. Dull day and night.

— 24.—Dull day; gleams of sunshine at times.

— 25.—Dull day; strong wind.

— 26.—Fine day.

— 27.—Very fine till 9 A.M.; dull afterwards.

— 28.—Very fine day; rain falling about 8 P.M.

— 29.—Heavy rain in early morning. Fine day, dull at times; very fine night.

LONDON: *Atmospheric Pressure.*—During the week ending April 25, the reading of the barometer at the level of the sea increased from 30.16 inches at the beginning of the week to 30.32 inches by 9 A.M., decreased to 30.29 inches by 1 P.M., increased to 30.33 inches by 5 P.M. on the 19th, decreased to 29.60 inches by 1 P.M. on the 23d, increased to 29.66 by 9 A.M. on the 24th, decreased to 29.37 inches by 9 A.M. on the 25th, increased to 29.44 inches by 1 P.M. on the same day, and was 29.41 inches by the end of the week.

The mean reading of the barometer for the week was 29.87 inches, being 0.04 inch lower than last week, and 0.07 inch below the average of the week.

*Temperature.*—The highest temperature was 72° 5, on the 20th; the highest on the 24th was 61° 2. The mean of the seven high day temperatures was 66° 2.

The lowest temperature was 39° 5, on the 19th; on the 22d and 23d the lowest temperature was 47° 5. The mean of the seven low night temperatures was 43° 8.

The greatest range of temperature in one day was 32°, on the 20th; the smallest was 14° 5, on the 23d. The mean of the seven daily ranges was 22° 4.

The mean temperatures were—on the 19th, 51° 8; on the 20th, 56° 3; on the 21st, 56° 6; on the 22d, 57° 2; on the 23d, 52°; on the 24th, 51° 4; and on the 25th, 53° 8; and these were all above their averages by 4° 6, 8° 9, 9°, 9° 4, 4°, 3° 2, and 5° 5 respectively.

The mean temperature of the week was 54° 2, being 8° 9 higher than last week, and 6° 4 higher than the average of the week.

The highest reading of a thermometer with black-

ened bulb in vacuo placed in the full rays of the sun was 142°, on the 19th. The mean of the seven readings was 118° 5.

The lowest reading of a minimum thermometer placed on grass was 29° 2 on the 19th. The mean of the seven readings was 36° 2.

*Rain.*—Rain fell on the 23d and 24th, to the amount of 0.17 inch.

ENGLAND: *Temperature.*—During the week ending April 25, the highest temperatures were 74°, at Cambridge, 72° 5 at Blackheath, 69° 8 at Nottingham; the highest temperature at Newcastle was 58°, at Preston 61°, at Liverpool 61° 9. The general mean was 66° 6.

The lowest temperatures were—at Hull, 32°, at Truro, Cambridge, and Sheffield, 34°; the lowest at Liverpool was 40° 4, at Newcastle 40°, at Bristol and Blackheath 39° 5. The general mean was 36° 5.

The greatest ranges were 40° at Cambridge, 39° at Hull, 35° at Truro; the smallest ranges were 18° at Newcastle, 21° 5 at Liverpool, 23° at Preston. The general mean was 30° 1.

The mean of the seven high day temperatures was highest at Cambridge, 67° 8, at Blackheath 66° 2, at Nottingham 64° 3; and was lowest at Newcastle, 55° 6, at Sunderland 56° 1, at Preston, 57° 1. The general mean was 60° 7.

The mean of the seven low night temperatures was highest at Liverpool, 45° 9, at Brighton and Preston 44° 9; and was lowest at Wolverhampton, 40° 4, at Bolton 40° 5, at Cambridge 41° 5. The general mean was 43° 2.

The mean daily range was greatest at Cambridge, 26° 3, at Wolverhampton and Hull 22° 5; and was least at Liverpool, 11° 8, at Newcastle 12° 1, at Preston 12° 2. The general mean was 17° 5.

The mean temperature was highest at Blackheath, 54° 2, at Cambridge 53°, at Nottingham 52° 5; and was lowest at Bolton, 47° 4, Newcastle, 48°, at Sunderland 48° 1. The general mean was 50° 4.

*Rain.*—The largest falls were 1.61 inch at Truro, 1.06 inch at Plymouth, 0.61 inch at Preston; the smallest fall was 0.06 inch at Leeds, 0.07 inch at Nottingham and Bradford. The general mean fall was 0.43 inch.

SCOTLAND: *Temperature.*—During the week ending April 25, the highest temperature was 66° 3, at Leith; at Greenock the highest temperature was 60°. The general mean was 62° 9.

The lowest temperature in the week was, Dundee, 34°; at Paisley the lowest temperature was 40° 3. The general mean was 37°.

The mean temperature was highest at Edinburgh, 51° 2; and lowest at Greenock, 49°. The general mean was 50°.

*Rain.*—The largest fall was 2.82 inches at Greenock; the smallest fall was 0.45 inch, at Glasgow. The general mean fall was 1.05 inch.

JAMES GLAISHER, F.R.S.

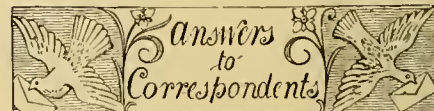
SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, April 27, 1885; issued by the Meteorological Office, 116, Victoria Street, London, S.W.:—The weather has been generally dull and rainy in the west and north-west, but in most other parts of the kingdom the sky has been comparatively clear, and the falls of rain less frequent and heavy. At many of the English and Irish stations thunderstorms were experienced—chiefly on the 25th or 26th.

The *Temperature* has continued a little below the mean in "England, S.W.," and "Ireland, S.," while in "England, N.W.," and "Ireland, N.," it has been about equal to its normal value; but in all other districts an excess is shown, the amount over the north-east and east of England being as much as 4°. The maxima, which were generally registered on the 21st, varied from 55° in "Scotland, N.," and 59° in "Scotland, W.," and "Ireland, S.," to 72° or 73° over central, southern, and eastern England. The minima, which were recorded in most places on the 27th, ranged from 31° in the "Midland Counties" to 37° in "England, E.," and to 44° in the "Channel Islands."

The *Rainfall* has been about equal to the mean in "England, E.," and a little less in "England, S.," but more in all other districts, the excess in "Ireland, S.," being very considerable.

*Bright Sunshine* has been less prevalent than it was last week. The percentages of the possible duration varied from 20 in "England, N.E.," and between 22 and 24 over Ireland to 47 in "England, S.," and 52 in "England, E.," and the "Channel Islands."

*Depressions observed.*—During nearly the whole of this period, depressions—some of which have been large—have passed in a north-east direction outside our western and northern coasts, while several shallow subsidiary disturbances have moved in a similar direction over our islands. South-westerly to southerly winds have consequently been more prevalent, and, although moderate or fresh generally, they reached the force of a gale on almost all our coasts on the 25th. At the end of the period a small depression had appeared over France, causing the wind on our southern coasts to shift to the northward or north-eastward.



ACERS: *E. C. C. D.* The shoots in flower are those of *Acer platanoides*, and the others are possibly varieties of that species—perhaps *A. p. palmatum*, or *A. p. dissectum*—but not enough developed for us to say which. — *Barr & Son.* One of the innumerable varieties of Japanese Maple.

BERRIES OF SNOWBERRY AND AUCUBA: *Diss.* The seeds of each, if not absolutely poisonous, are unwholesome.

COMMON PRIMROSES PLANTED ROOT UPPERMOST: *H. W.* We have no experience.

CORRIGENDA — *MONSTERA DELICIOSA.* — Mr. De B. Crawshaw wishes to say that this plant (see p. 544) did not bloom at his place, as his note seems to infer, but at his mother's, Bradbourne Hall.

ELECTRIC LIGHT AND FRUIT: *Newcastle.* See pp. 404, 407, and 436 of *Gardeners' Chronicle*, vol. xvi., 1881.

FUNGUS ON JUNIPER: *H. M. T.* 1. The tree is a *Juniperus*, probably *J. sinensis*. 2. The fungus is *Podisma juniperi*, which also attacks the Hawthorn in one stage of its existence, and then assumes the totally different appearance characteristic of *Ræstelia lacerata*. The fungus deforms the *Juniper* branches, and also the Hawthorn, and therefore the affected branches should be at once cut out and burnt. For our own part, the interest is so great and the damage so little, that we should put up with the latter for the sake of the former. By some the connection of the two fungi is doubted.

MULLEIN: *R. H. B.* Yes, *Verbascum Thapsus*; but we earnestly caution you not to place implicit credence in any alleged "cure" for consumption. The plant has medicinal properties which may be useful in some cases, but it is a dangerous plant in the hands of the inexperienced.

MUSHROOMS: *J. H. R.* An uncommonly fine sample—and for which you unkindly fined us 1s. for carriage hither.

NAMES OF PLANTS: *Enys.* A Pear, not a Crab. The shrub is *Staphylea pinnata*. — *D. M. C. K.* *Weigela rosea variegata*. — *Cooper.* 3. *Pteris serrulata*; 5. *Lastrea aristata variegata*. — *X.* 1. *Sanguinaria canadensis*; 2. *Fumaria solida*; 3. *Omphalodes verna*; 4. *Sedum album*. — *Enquirer.* *Ornithogalum nutans*. — *W. J. M.* 1. *Lamium album*; 2. *L. purpureum*; 3. *Kleinia*; 4. *Narcissus Pseudo-Narcissus*; 5. *N. incomparabilis* (Butter and Eggs); 6. *N. major*. — *Cooper.* 4. *Charies* (formerly *Kaulfussia*) *ameloides*, sometimes called Blue Marguerite. The other specimens, however good when you sent them, were utterly unrecognisable when they reached us. — *W. M. C. D.* Varieties of *C. barbatus*. — *J. Prece.* *Selaginella filicina*. — *W. H.* *Epidendrum equitans*. — *Camjee.* *Cypripedium hirsutissimum*. — *F. R.* The blooms of *Nuttallia* are male; the other plant sent is not a *Eucalyptus*, but we will endeavour to answer the question shortly.

NIPHETOS: *X.* The proper pronunciation is Niph'etos, the *e* being short. The word signifies snow.

PEACH LEAVES: *John Layton.* The brown spots are caused by drip and exposure to the sun when the leaves are wet. — *J. K. W. D.* The cause seems to be identical with the foregoing.

PLANTS FOR A DRY BANK WHERE ARE RABBITS: *H. C.* Single and double Gorse; white and yellow Brooms; Thorns in variety; *Berberis dulcis*, *B. Aquifolium*, *B. Darwini*, *B. stenophylla*; double-flowered Cherries; *Spiræa* in many varieties; some kinds of Firs, as *Pinus maritima*, *P. sylvestris*, *P. Cembra*, *P. Mugho*; *Juniperus communis*, *J. prostrata*, *J. tamariscifolia*, *J. Sabina*; *Clematis flammula*, *C. florida*, *C. cœrulea*, *C. viticella*, and *C. montana*. These last named plants to be allowed to climb over rocks or roots, or to form natural clumps.

PLANTS FOR EXHIBITION: *M. B.* *Asparagus tenuissimus* may be shown in the class for decorative plants or as a foliage plant.



**PRUNING OF DENDROBIUMS.**—We have received a large amount of correspondence on this subject, much of which, in view of the success attained by Mr. Prinsep, as seen at the last meeting of the Royal Horticultural Society, has now no further value, and which for want of space cannot be published. Those of our correspondents who too literally understood Mr. Prinsep's challenge to show his plant only if some one would pay the cost of its transit to South Kensington, must accept this statement of ours as final.

**SOOT: N. Y. Z.** It is an excellent manure for Peas, Onions, and Carrots. It can be applied to plants in pots as a liquid manure if mixed with rain-water in the proportion of one tablespoonful of soot to 1 quart of water, and should be given when clear. It is good for bulbs, and must not be given to plants in their resting state. Its beneficial properties are due to the salts of potash and soda, 24, and salts of ammonia, 426, in 1000 parts, which it contains.

**FOREIGN SUBSCRIBERS** sending Post-Office Orders are requested to send them to the Publisher of this journal, 41, Wellington Street, Covent Garden, and to make them payable to William Richards, at the Post-Office, Drury Lane, London, W.C.

### CATALOGUES RECEIVED.

**LAMBERT & REITER**, Trier, Rhenish Prussia—Rose Novelties for 1885.

**PAUL & SONS**, The Old Nurseries, Cheshunt—Hardy Herbaceous Plants, New Roses, Dahlias, &c.

**H. LANE & SONS**—Catalogue of Trees and Shrubs.

**COMMUNICATIONS RECEIVED**—J. Blackburn (next week).—B. T. L.—W. T. D.—Alfred O.—H. W. W.—J. S.—B. S. W.—S. Davis—Newcastle.—W. Miller.—J. V. & Sons.—Paddy.—H. L. & C.—R. D.—E. J. T. W.—T. B.—H. E. V. B.—J. R. J.—E. B.—J. D.—G. D.—De Mar.—Sir J. D. H.—Jas. West.—W. Troughon.—J. D. D.—T. S. Ware.—W. Bull.—E. Haynes.

## Markets.

### COVENT GARDEN, April 30.

[THE subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. Eo.]

**HOTHOUSE** goods are reaching us in increased quantities. Prices lower all round. Large consignments of foreign vegetables realising low values. Business as last week. *James Webber, Wholesale Apple Market.*

### FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 1/2-sieve	1 6-5 0	Lemons, per case	9 0-15 0
— Nova Scotia and		Pine-apples, Eng., lb.	1 0-2 0
— Canadian, barrel	12 0-21 0	— St. Michael, each	2 6-8 0
Grapes, new, per lb.	5 0-8 0	Strawberries, per lb.	4 0-8 0
— old, per lb.	5 0-7 0		

### VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Lettuces, Cab., doz.	1 6-..
per doz.	4 0-6 0	— French Cos, each	6-..
Asparagus, English,		Mint, green, bunch..	0 6-1 0
per bundle	3 6-10 0	Mushrooms, p. basket	1 0-2 6
— French, bundle	4 0-8 0	Onions, per bushel	4 0-..
— Perpignan, nat.,		— Spring, per bun.	6-..
per bundle	2 0-..	Parsley, per bunch..	0 6-..
Beans, Eng., per 100	2 0-..	Peas, per lb.	1 0-..
Beet, per doz.	1 0-..	Potatoes, new, per lb.	0 6-1 0
Cabbages, per doz.	1 6-2 0	Radishes, per doz.	1 0-2 0
Carrots, per bun.	0 6-..	Rhubarb, bundle	0 6-..
Cauliflowers, Eng.,		Salsify, per bundle	1 0-..
per doz.	2 0-4 0	Seakale, per punnet	2 0-2 6
Celeriac, per root	0 4-..	Small saladings, per	
Celery, per bundle..	1 6-2 6	punnet	0 4-..
Cucumbers, each	0 9-1 6	Spinach, per bushel	3 6-..
Endive, per dozen	2 0-..	Tomatoes, per lb.	2 0-2 6
Garlic, per lb.	0 6-..	Turnips, bun.	0 5-..
Herbs, per bunch	0 2-0 4	— new, per bunch	1 3-..
Horse Radish, bun.	3 0-4 0		

**POTATOES.**—All markets 5s. to 10s. per ton lower, with a bad trade.

### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldii, doz.	6 0-24 0	Ferns, in variety, per	
Arbor-vitæ (golden),		dozen	4 0-18 0
per dozen	6 0-18 0	Ficus elastica, each	1 0-2 0
— (common), dozen	6 0-12 0	Foliage Plants, vari-	
Arum Lilies, dozen	9 0-15 0	ous, each	2 0-10 0
Azaleas, per dozen..	18 0-42 0	Fuchsias, per dozen	9 0-12 0
— Ghent, per doz	12 0-24 0	Genista, 12 pots	6 0-18 0
Begonias, per doz.	6 0-12 0	Hydrangeas, doz.	12 0-18 0
Bouvardia, dozen	9 0-18 0	Lily-of-the-Valley, 12	
Calceolarias, doz.	6 0-12 0	pots	12 0-18 0
Cinerarias, per doz.	8 0-12 0	Marguerite Daisy,	
Cyclamens, per doz.	9 0-24 0	per dozen	8 0-15 0
Cyperus, per dozen	0 12 0	Musk, per dozen	3 0-4 0
Dracena terminalis,		Myrtles, per doz.	6 0-12 0
per dozen	30 0-60 0	Narcissus, 12 pots	12 0-18 0
— viridis, per doz.	12 0-24 0	Palms in variety,	
Erica, various, doz.	9 0-18 0	each	2 0-21 0
— Cavendishii, doz.	30 0-48 0	Pelargoniums, per	
— ventricosa, doz.	36 0-60 0	dozen	9 0-18 0
Euoymy in var., doz.	6 0-18 0	— scarlet, dozen	4 0-9 0
Evergreens, in var.,		Spiraea, per dozen..	9 0-18 0
per dozen	6 0-24 0		

### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0-4 0	Lily-of-Val, 12 sprays	0 9-1 6
Anemone, 12 bunch.	1 6-4 0	Marguerites, 12 bun.	3 0-6 0
Arum Lilies, 12 blms.	3 0-6 0	Mignonne, 12 bun.	3 0-9 0
Bluebells, 12 bunch.	0 6-2 0	Narcissus, various,	
Bluebells, 12 bunch.	1 0-2 6	12 bunches	2 0-4 0
Bouvardias, per bun.	1 0-1 6	— French, 12 bun.	6 0-12 0
Camellias, per doz.	1 0-1 6	Pelargonium, per 12	
Caranations, 12 blms.	1 0-2 0	sprays	0 9-1 0
Cinerarias, per bun.	0 6-1 0	— scarlet, 12 sprays	4 0-9 0
Cyclamen, 12 blooms	2 0-4 0	Primro-ces, 12 bunch.	0 4-0 9
Daffodils, 12 bunch.	3 0-6 0	— double, 12 bun.	1 0-2 0
Eucharis, per doz.	4 0-6 0	Primula, double, bun.	0 9-1 0
Euphorbia jacquini-		Roses (indoor), doz.	1 0-4 0
flora, 12 sprays	3 0-6 0	— coloured, doz.	2 0-6 0
Gardenias, 12 blms.	2 0-4 0	— French, per doz.	4 0-6 0
Heliotropes, 12 sp.	0 6-1 0	Spiraea, 12 bunches.	6 0-12 0
Hyacinths, Roman,		Stephanotis, 12 spr.	2 6-4 0
12 large bunches..	12 0-24 0	Tripoleum, 12 bun.	1 0-2 0
— mixed, per box	1 6-3 0	Tulips, 12 blooms	0 4-0 6
Jonquils, 12 bunches	2 0-4 0	Violets, 12 bun.	0 4-0 9
Lapageria, white, 12		— Parme, French,	
blooms	2 0-3 0	per bunch	3 0-5 0
— red, 12		Wallflower, 12 bun.	2 0-4 0
blooms	1 0-2 0	White Jasmine, bun.	0 6-1 0

### SEEDS.

**LONDON: April 29.** There is still some sowing demand for Clover and other seeds; but overshadowing this a considerable speculative inquiry has lately sprung up for holding over, under the influence of which rates all round have substantially advanced. Several lots of American red Clover seed, not only from England, but also from the Continent, have recently been reshipped to the United States. Italian Rye-grass is again dearer. There is a better demand for white Mustard. Rape seed is firmer. There is no change in bird seeds. Blue Peas have been in improved request. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

### CORN.

At Mark Lane on Monday prices of Wheat were about 1s. above those of Monday's night. Flour was but slightly dearer on the week, and met a dull sale. Barley showed 6d. advance from the previous Monday, but moved off slowly. Beans were in moderate supply, and 6d. to 1s. dearer, and Peas were firm at full values. Oats did not move off very readily, but maintained a rise of 3d. to 6d. Wednesday's trade was slow, but prices continue to harden as events apparently drift towards war. Business in Wheat was limited, but in some cases 1s. advance was reported to have been obtained. Flour was quiet, and not apparently altered in value. Barley, Beans, and Peas were firm, and tended against buyers. Flat Maize showed 6d. advance. Oats were held firmly; buyers, however, operated with more reserve, and the market was quiet.—Average prices of corn for the week ending April 25:—Wheat, 36s. 8d.; Barley, 32s. 6d.; Oats, 22s. 6d. For the corresponding period last year:—Wheat, 37s. 2d.; Barley, 31s. 2d.; Oats, 20s.

### CATTLE.

At Copenhagen Fields on Monday the beast market was rather firmer, but not to any quotable extent. The sheep trade was firmer and more cheerful. Fat sheep and ewes were not better in price, but wethers of handy weights in some cases realised rather more mooney. Our quotations are now for clipped sheep. Lambs sold decidedly dearer, and calves at about steady value. No pigs were on offer, and quotations nominal.—Quotations:—Beasts, 3s. 4d. to 4s. 6d., and 4s. 8d. to 5s.; calves, 3s. 8d. to 5s. 4d.; sheep, 4s. 2d. to 4s. 6d., and 4s. 8d. to 5s. 2d.; lambs, 7s. 8d. to 8s.; pigs, 4s. to 4s. 6d.—Thursday's cattle trade was quiet and featureless. There was nothing doing in beasts, and prices were nominally the same as last week. Sheep were in fair demand, particularly for small breeds, for which full prices were paid. Lambs were quieter, and calves and pigs about the same.

### HAY.

Tuesday's Whitechapel market report states that there was a very dull trade with a fall in the top price of Clover and hay, which was reduced to 105s. and 98s. respectively. Quotations:—Clover, prime, 85s. to 110s.; prime second cut, 80s. to 105s.; inferior, 46s. to 75s.; hay, prime, 76s. to 102s. 6d.; inferior, 25s. to 60s.; and straw, 22s. to 35s. per load.—On Thursday there was a large supply, and the trade was dull, with lower prices for the best hay.—Cumberland Market quotations:—Clover, best, 90s. to 105s.; inferior, 60s. to 84s.; meadow hay, best, 84s. to 95s.; inferior, 45s. to 75s.; and straw, 30s. to 34s. per load.

### POTATOES.

The Borough and Spitalfields Markets reports state that there were good supplies and moderate demand at the following quotations:—Scotch Regents, 80s. to 95s.; Kent ditto, 70s. to 85s.; Champions, 40s. to 50s.; Magnum Bonum, 50s. to 60s.; and Victorias, 70s. to 90s. per ton.—The imports into London last week consisted of 10 bags from Hamburg, and 637 boxes 47 packages from Malta.

**Government Stock.**—Consols closed on Monday at 95½ to 95¼ for both delivery and the account. Tuesday's figures were 95½ to 95¼ for both transactions. The closing prices of Wednesday were 94½ to 95¼ for delivery and the account. Thursday's closing prices for both delivery and the account were 94½ to 95¼.

### 12-oz. Sample Packets, free by post, 12 stamps.

**FIBROUS PEAT FOR ORCHIDS, &c.**—**BROWN FIBROUS PEAT**, best quality for Orchids, Stove Plants, &c., £66s. per Truck. **BLACK FIBROUS PEAT**, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bag, 5s.; 5 Bags, 22s. 6d.; 10 Bags, 45s. Bags included. Fresh SPAGNUM, 10s. 6d. per Bag. **SILVER SAND**, Coarse or Fine, 55s. per Truck of 4 tons. **WALKER AND CO.**, Farnborough Station, Haats.

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The best and most effectual yet introduced.

**FOWLER'S LAWN SAND**, for destroying Daisies, Dandelions, Plantains, Ribbed Grass, Thistles, and other weeds on Lawns, Croquet Grounds, Bowling Greens, Parks, &c.; at the same time acting as a fertiliser, and improving the growth and colour of the grass. Price in tins, 1s., 2s. 6d., and 5s.; kegs, 20 lb., 10s.; 56 lb., 19s.; 112 lb., 36s.

**GARDENER'S INSECTICIDE**, for destroying all the various insects infesting plants and trees. It is easily applied either by dipping, syringing, or spooning; will not injure the most delicate flower, fruit, foliage, or root. In jars, 1s. 6d., 3s., 5s. 6d., and 10s. each; and in kegs, 28 lb., 21s.; 56 lb., 42s.; 112 lb., 84s. each.

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The 10s. 6d. Tins serve as a strong substantial receptacle to refill from the 1 cwt. bags.

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Testimonials from the Rev. Canon Hole, and most of the leading Gardeners, free on application.

Pure Crushed Unbaked BONES, any size, for Vine Borders, &c.

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Price, carriage paid, on receipt of Post-office Order: 28 lb., 6s. 6d.; 66 lb., 10s. 6d.; 1½ cwt., 20s.; 2 cwt., 30s.; 5 cwt., 60s. Bags free.

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BY THE USE OF

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One Gallon of this Fluid, diluted with water according to directions, and applied with an ordinary watering-can,

Effectually Removes all Weeds, Moss, Worms, and Insects on Gravel Walks, Lawns, &c.

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**EPSS'S SELECTED PEAT.**—Forty sacks, 2s. 6d. per sack; 30 ditto, 2s. 9d.; 20 ditto, 3s. 6d.; 10 ditto, 4s. 6d.; sacks 57 each. In trucks of 14 cubic yards, 11s. per yard. For Rhododendrons and common purposes, 14s. per ton, not less than four tons; sample sack, 2s. 6d.  
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 See Special List, also for the Trade. Ringwood, Hants.

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**GISHURSTINE** keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s., from the Trade. Wholesale from **PRICE'S PATENT CANDLE COMPANY** (Limited), London.

**ORCHID BASKETS, RAFTS, BOATS, &c.**, including Copper Pans and Wires, 3 inches, 4s. 6d.; 3½ inches, 5s.; 4 inches, 5s. 6d.; 4½ inches, 6s. 6d.; 5 inches, 7s. 6d.; 6 inches, 8s. 6d.; 7 inches, 10s. 6d.; 8 inches, 12s. 6d.; 9 inches, 14s. 6d.; 10 inches, 17s. 6d.; 11 inches, 21s. 6d.; 12 inches, 24s. 6d. Rafts 1d., Boats 1½d., Cylinders 2d. per inch run. Sample of 12 Baskets, Raft, Boat, and Cylinder, 14s. 6d.

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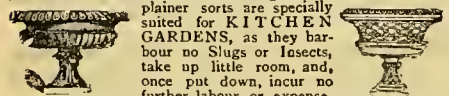
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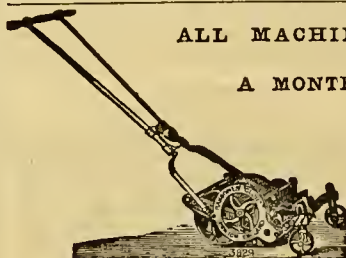
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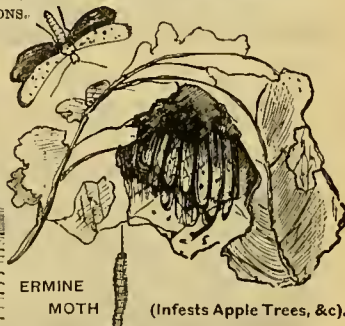
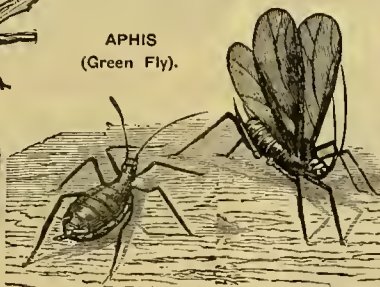
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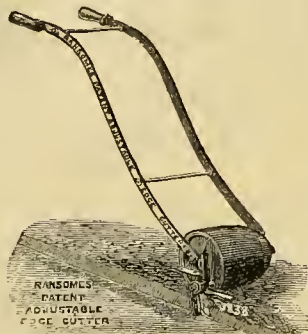
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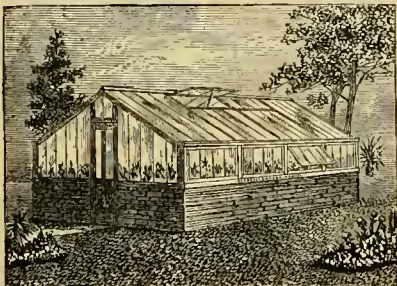
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HEATING APPARATUS.—This consists of a Loughborough Hot-water Apparatus, complete with syphon, flue-pipe, and a double row of 4 inch pipe along one side of the houses under 12 feet wide one side and one end of houses 12 feet to 16 feet wide, and both sides and one end of houses above this width, all fixed, studded, painted, and left in proper working order.

Length.	Width.	Price of House.	Heating Apparatus.
11 ft. . . . .	8 ft. . . . .	£20 0	£5 15
15 ft. . . . .	9 ft. . . . .	£30 0	£6 5
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30 ft. . . . .	15 ft. . . . .	£71 0	£12 5
35 ft. . . . .	16 ft. . . . .	£89 10	£13 5
40 ft. . . . .	17 ft. . . . .	£111 0	£14 0
50 ft. . . . .	18 ft. . . . .	£146 10	£26 10
60 ft. . . . .	20 ft. . . . .	£196 0	£29 0

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As above, but with Hot-water Pipes from end to end only, in all sizes.

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20 ft. . . . .	12 ft. . . . .	£40 0	£6 15
25 ft. . . . .	12 ft. . . . .	£53 0	£7 10
30 ft. . . . .	13 ft. . . . .	£66 0	£8 10
35 ft. . . . .	14 ft. . . . .	£83 0	£10 10
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SURVEYS MADE IN ANY PART OF THE COUNTRY, FREE OF CHARGE. Ladies and Gentlemen waited upon at their Residences, and DESIGNS and ESTIMATES for Conservatories, Greenhouses, and Horticultural Buildings of every description PREPARED and FURNISHED FREE. ILLUSTRATED SHEETS of Conservatories, Greenhouses, &c., with Prices for Erecting and Heating, FREE ON APPLICATION.

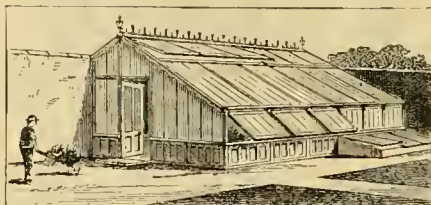
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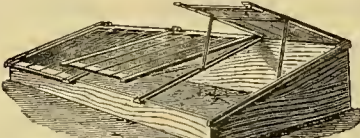
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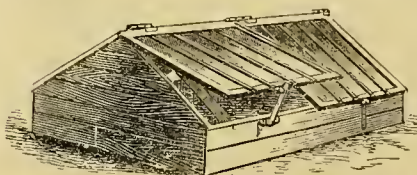
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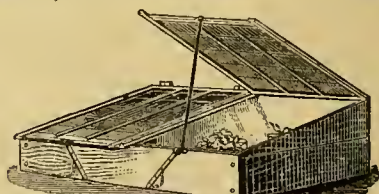
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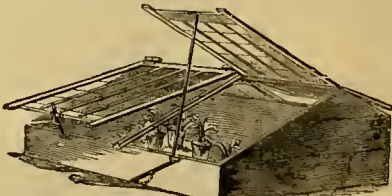
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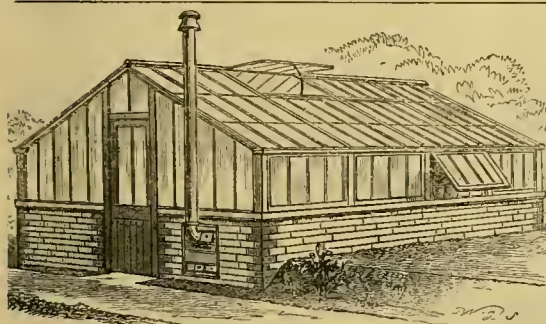
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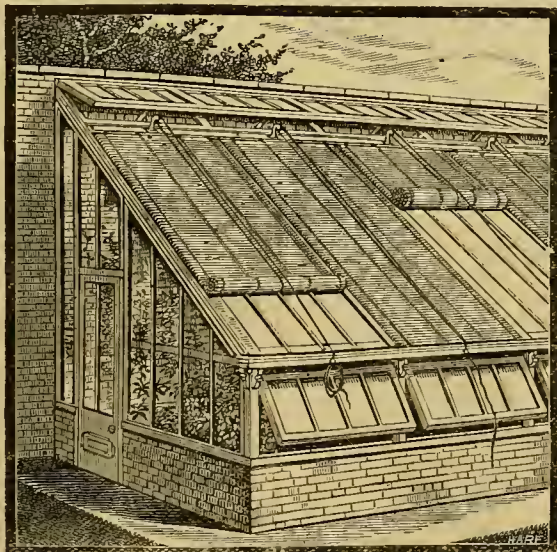
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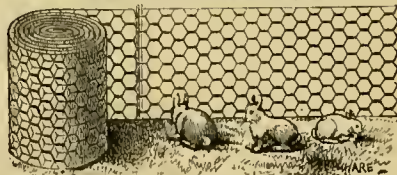
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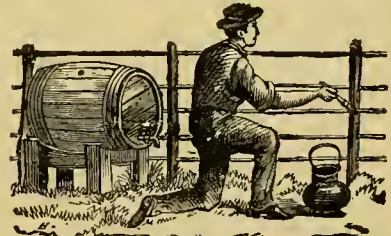
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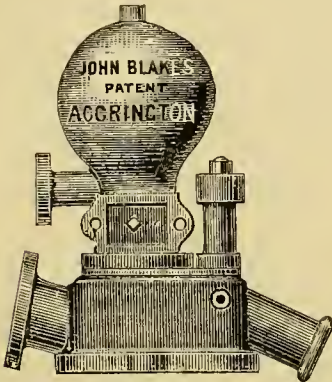
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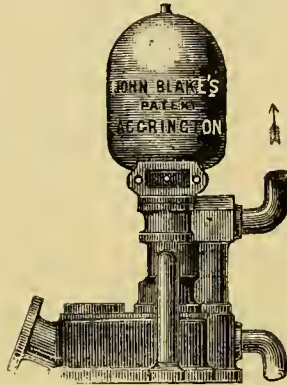
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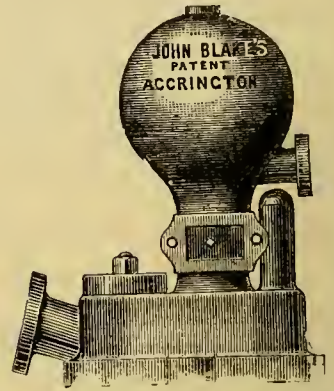
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## SUPPLEMENT TO THE GARDENERS' CHRONICLE.

## ORCHIDS.

## GEOGRAPHICAL DISTRIBUTION.

(WITH MAP.)



HE geographical distribution of Orchids is an interesting study, and one to which the amateur and cultivator may devote some little attention with advantage. Generally speaking, Orchids are very widely distributed, being found in

all but the most arid or the most frigid of climates. As a rule, we find the terrestrial species in the more temperate regions, while the more showy epiphytal kinds mainly exist between the isothermal lines of  $70^{\circ}$  on either side the Equator, forming, as it were, a comparatively narrow zone or belt around the earth. I need scarcely say here that all Orchids, however rare and valuable at home in our gardens, are found growing in a perfectly wild state in their respective natural habitats, and a glance at the sketch map, and the accompanying list of the principal genera of Orchids, will show their natural distribution better than any written description could possibly do.

There are one or two points of interest which present themselves to our notice with regard to particular genera. Thus, *Cypripedium* is found in three out of the four quarters of the globe, stretching from the American continent, through Britain and Northern Europe, and then away through India, as far north as Japan. Even a solitary species may puzzle the *savans*—to wit, *Spiranthes Romanzoviana*, which is found in a wet, rushy meadow in Co. Cork (Ireland), and nowhere else in Europe, although in North America it extends from the Atlantic to the Pacific coast! The genus *Cephalanthera* is found in all four quarters of the globe. Again, it is very singular to find Eastern *Bulbophyllums* represented in West Tropical Africa by the genus *Megaclinium*—much more so than it is to find the *Sobralias* of the West represented by the *Arundinas* of the East. Among European Orchids the most abundant are species of *Orchis*, and in Madeira and Northern Africa this genus reaches its highest stature and greatest beauty.

*Angræcum*, remarkable for its long spur, is further interesting, inasmuch as *A. funale* (like *Aërides tænale*) is quite leafless—much more so even than some African *Euphorbias*, *Rusci*, *Colletia*, or *Xylophyllum*—even the merest rudiments of true leaves are not observable. These two leafless epiphytes depend entirely upon the chlorophyll in their band or thong-like roots, which serve the double function of roots and leaves. Adaptive as all plants are to geographical or climatic conditions we have but

few, if any, examples more striking than are these two leafless Orchids.

The lesson they teach to practical Orchid growers is obvious. They show us that the roots of epiphytal Orchids have more extended functions than mere earth-loving roots are possessed of, and that these aerial roots can do good work, even when thrust out into mid-air, and that to bury such roots in crude, wet earth is to rob them of their healthy vigour. It is interesting to note in this connection the occasional occurrence of adventitious buds on the aerial roots of *Phalænopsis*, as recently recorded in a plant of Major Lendy's.

As every tyro in geography is aware, the heat of any portion of the globe is determined by latitude and by altitude. Now as to temperatures at sea level the isothermal lines on the map show it pretty plainly, but apart from latitude there is the question of altitudes to be considered, and these it is not at all easy to show clearly on a map of this kind.

Genera of Orchids only are named on the map, and some genera, *Oncidium* and *Dendrobium* for example, are represented by species growing at, or very little above sea-level, while others in the same genus grow at an elevation of 10,000 to 12,000 feet. *Oncidium nubigenum* rises to the last named altitude even if not higher, and *Epidendrum frigidum* is found growing at 14,000 feet, or only a little below the perpetual snow line! Whenever altitudes are given it is easy to calculate the approximate temperature in this way:—Note the mean temperature between the nearest isothermal lines, and for tropical or equatorial regions subtract  $3\frac{1}{2}^{\circ}$  for every 1000 feet elevation. This is not a perfectly accurate method, but it is amply sufficient for most practical purposes.

If the sketch-map of the Orchids be compared with a rain-chart, it will be seen that they agree in a remarkable way, inasmuch as the comparative proportions in which Orchids are naturally found is evidently dependent on light, heat, and rainfall. In cold countries, or in temperate countries having a cold winter season, perennial plants must either hide their vital organs (such as roots and stems) in the earth, or perish; but in the winterless tropics they can leave the protection of the soil and become epiphytal, or be fully exposed to the open air with impunity. The only adverse conditions they have to endure in tropical regions are the dry monsoons, and in order to resist the effects of these their savings-bank system of producing fleshy pseudobulbs, or swollen stems and leaves and petioles, has been developed. In a word, epiphytal Orchids store up material during their period of growth when moisture is most abundant, in order to tide over times of drought in the tropics, just as our terrestrial

kinds save up nutriment during summer, and store it in their underground tubers before winter arrives. The relative size of the pseudobulbs on any species of Orchid depends on the extremes through which its cycle of existence passes, and one reason why Orchids do not make their pseudobulbs so large under cultivation is, because they are not subjected to the great extremes of temperature and moisture which happen in their native habitats, and, as is now well known, the plants may bloom equally as well under cultivation as in their native forests.

There is reason to suppose that of all endogenous plant forms those having inferior ovaries are the latest among Dame Nature's fashions, and if this be true it is especially so in the case of the tree climbing Orchids (epiphytes) of the winterless regions of the globe. Were it likely to serve any useful purpose we might construct a sort of floral index or thermometer of Orchids alone, taking as our lowest starting point the terrestrial and hardy *Orchis* of Siberia, North America, or even of our English meadows, and ending with the maximum which the *Phalænopsis* and *Saccolabium* of the tropics afford us. The genus *Cypripedium* alone will give us some idea of how plants of the same genus, and essentially the same in floral structure, may and do vary under different climatic conditions. We can take the true Lady's Slipper (*C. calceolus*) of our northern woods—still there, but not abundant—as an example of the hardy terrestrial and herbaceous group. *C. calceolus* is a deciduous leaved species, whether found in Europe, in North America, or in Japan, as also are its congeners, the endemic species from North America and Siberia. But when we approach the equator in the east and in the west alike we find species of *Cypripedium* with evergreen foliage, persistent stems or rootstocks, and they are often epiphytal on tall forest trees. The most beautiful of all Orchids are the epiphytes, or tree-dwelling tropical species. True terrestrial *Disas*, some southern species of *Orchis*, *Eulophias*, *Cypripedia*, and *Sobralias* or *Arundinas*, are most lovely, but these are only the few exceptions which prove the rule, and are insignificant when we compare them with the epiphytal *Cattleyas* and *Odontoglossums* of the West, or with Eastern *Vandas* and *Phalænopsis*. Plants of epiphytal growth are common enough in Britain. You have only to go to Devonshire valleys to find the *Polypodium* Fern creeping overhead in the trees, and so in Ireland, beside the beautiful Wicklow streams, where rocks and trees alike are clothed with epiphytal Ferns and other growths. In the tropics it is not merely the Orchids, but many Ferns and *Bromeliads*, *Æschynanthus*, and the *Aroids*



also, which live in the trees; and wherever we meet with epiphytes in greatest abundance we find it mainly owing to two natural conditions, viz, excessive moisture and excessive tree shade.

The question why Orchids should live in the trees in hot countries, where the rainfall is excessive, is not at all a difficult one to answer. In a word, their doing so is not a bit more wonderful than is the climbing of the common Polypody in the Dargle or in Devon; indeed, the wild Roses and Honeysuckle in an English wood not unfrequently become sub-epiphytal from precisely the same causes. In the tall forests of the tropics, where many of the trees are both umbrageous and evergreen, all low-growing plants, dependent on the sunshine for life and strength to reproduce themselves, must do one of two things—they must either adapt themselves to the shade, or they must climb to the tree tops if they cannot live without the sun. The English Honeysuckle or the hedge Clematis do this by actually lengthening their stems—"more rope" so to say—but the Orchids and Ferns and Bromeliads do not climb in this way; if they do so, at least, it is but seldom. There are, in fact, some species—Oncids, Odontogloss, Epidendras, and the Burmese Erythrorchis scandens—which actually do rear themselves above the surrounding vegetation individually by means of an elongated stem or rhizome; but this is not the general way, and, as a rule, the Orchids owe their elevation to their seeds, which are blown about, and which grow only in those positions where light and moisture are most favourable. Their sawdust-like seeds are wafted among the branches when the latter are wet with rain or heavy dew. Thus, high up in the air and light and sunshine they exist, passing their whole lives on the tree-tops where the chattering apes are, and where the most beautiful of "unbidden guests"—the insects—make love among the curious blossoms. High up above the cloistered forest shade their delicate petals open just in time for the "butter-

fly's ball." The flowers are like insects, and the insects themselves gorgeous as are the blossoms; and while the insects are intent on the honeyed sweets of cup or nectary, they unconsciously augment the floral beauty on which they live by fertilising the waxy-petalled flowers. Whenever we talk of cross-fertilisation by insect agency, the great question of colour-variation crops up in quite a natural way, and after all it is not difficult to get another link or two in the chain of thought which leads us to believe that the most beautiful Orchids are as modern as they are beautiful.

It is easy to realise that great changes have taken place in Nature, but we must go a step further and recognise the fact that changes, slow but sure, are now taking place all around us. Nature is as busy in evolving new species to-day, even more active indeed than she was in times past; in a word, she is making us new Cattleyas and Odontogloss and Phalænopsids at this moment in her great wild garden, just as surely as our hybridisers are evolving new species of Orchids, &c., in our hothouses at home! The earliest of all blossoms, as we understand the word, were simply green leaves, modified in form and in function rather than colour. The green crescent shaped bracts of our native Euphorbias remain as examples of these green blossoms. Even yet we have green Roses in a double sense, we have Alchemilla still with green blossoms and simple leaves, and then we have the true Rose with green floral segments—a renegade, a reversion—a "bad lot" among blossoms, which may serve to remind us of the youngsters who even in our own day have a hankering after the cock-pit or the ring diversions peculiar to their great-grandfathers. It requires no great stretch of imagination to believe that all flowers were green in the beginning. Then comes a step forward, the green becomes lighter and brighter. Why the blue pigment vanishes we cannot say at present, but that it does so is a fact, and as the

result we have yellow flowers. Sometimes both blue and yellow vanish together, leaving us white flowers or flowers nearly white, for I never yet could find a flower without yellow and green colouring yet lingering about it somewhere or other. Red is a colour of a still higher grade—perhaps this is the reason why the poets, "who needs must love the highest," loved the red or purple-rimmed Narcissus the best, feeling in their hearts that it was the noblest of its race. At any rate red is a noble colour, as generals and cardinals are fully assured. But the highest of all floral colouring is blue—"heavenly blue;" and it is singular to find that we love the colour just as the father loved the prodigal—we welcome it "as a pilgrim returned." It is the first colour to flee from the earliest green petal, it is also the last colour to come back to us when floral development is at its highest and best. Now it may dawn upon the reader, as it has just dawned upon me, that but very few among the 7000 to 10,000 species of Orchids have blue flowers, and blue Vandas may be cherished and admired all the more in consequence. Ruskin somewhere compares a zone of soft blue alpine Gentians seen stretching across a mountain side, to a blue sash on a queen's bosom, and remembering how noble and rare blue as a colour really is in Nature, we can the more pity the generations of florists, now dead, who have laboured and sighed in vain for blue Dahlias, and longed even for a "blue Rose." When we find so many green, yellow, and white flowers among Orchids, and so few that are really entirely red, or entirely blue, we have biological evidence of their ancestry being a modern one. The Horse-tail in the wet ditch by the roadside marks an epoch in the history of the globe. Its ancestors were giants in the remote ages, as their fossil remains now testify; but the Orchis in the meadow is of a new dynasty, and its potentialities are those of a stripling—a glorious future. F. W. B.

## ALPHABETICAL LIST OF THE GENERA OF ORCHIDS.

THE following list has been compiled and rearranged from Hooker and Bentham's *Genera Plantarum*, vol. iii., pp. 460–636, and may be interesting to the numerous amateurs who cultivate Orchids. All the genera of Orchids recognised by the late Mr. Bentham are included, but only about one-third of the total number (334) are generally met with in cultivation; these are distinguished by being printed in black type. A few notes on culture and other matters of popular interest have been added, and each genus is numbered consecutively from 1 to 334, in accordance with the map issued with the present number, showing the generic distribution of all known Orchidaceous plants.

In the *Genera Plantarum* above cited will be found all the literary references necessary for the botanical student, together with many citations of plates and figures, which, from considerations of space, we are compelled to omit. The indications that are here supplied must therefore be considered as illustrative, but not exhaustive. On the other hand we have inserted references to the plates in the *Orchid Album*, and to the full enumeration of cultivated species of a large number of the genera, as drawn up by Mr. Hemsley, in our columns, and also to most of the figures given in the *Gardeners' Chronicle*, but not cited in the *Genera*. The \* indicates that a figure will be found in the volumes of the *Gardeners' Chronicle*. F. W. Burbidge.

1. **ABOLA**, Lindley.  
A small flowered epiphyte, of no beauty, from the Colombian Andes.
2. **ACACALLIS**, Lindley.  
One species, from Northern Brazil.
3. **Acampe**, Lindley.  
Eight or nine species, from India, China, South Africa, &c. This genus approaches *Sarcanthus*. Species not showy.
4. **Acanthephippium**, Blume.  
Three or four species, from India and the Malayan Archipelago. Flowers fleshy, on erect spikes, not very showy. See Bot. Reg., t. 1730, and 1846, t. 47; Bot. Mag., t. 4492. For list of species see *Gard. Chron.*, 1882, xviii., p. 565.
5. **Aceras**, R. Brown.  
One species, in Europe and North Africa. Rehb., Icon. Pl. Germanica, t. 357; Barla. Icon. Orch. Alp. Marit., t. 23.
6. **ACIANTHUS**, R. Brown.  
Seven species, from Australia, New Zealand, and New Caledonia. See Rehb. f., Xen. Orch., t. 187.
7. **Acineta**, Lindley.  
Eight species, from Colombia, Central America, and Mexico. Flowers resembling those of *Peristeria*, being fleshy, white, or yellow, and heavily spotted or dotted. Inflorescence pendulous, as in *Stanhopea*—like which, the plants should be grown in baskets. See Bateman's Orch. Mexico and Guatemala, t. 8; Bot. Mag., t. 4156, 4203; Bot. Reg., 1843, t. 78; *Gard. Chron.*, 1879, xi., 235.
8. **ACRIOPSIS**, Reinwardt.  
Three or four species, from Burmah and Malaysia. Not showy.

9. **Achrocæne**, Lindley.  
One species, from the Sikkim Himalayas. See *Gard. Chron.*, 1882, xviii., 428.
10. **Ada**, Lindley.  
One species only known, from the Colombian Andes. It was first called *Brassia cinnabarina* by Lindley. Showy spikes of vermilion tinted flowers. See Bot. Mag., t. 5435; *Orchid Album*, t. 53.
11. **AENOCHILUS**, Hooker.  
Two species only, from New Zealand and Australia.
12. **Aeranthus**, Lindley.  
Two species, both from Madagascar. See *Gard. Chron.*, 1879, xi., 235.
13. **Aerides**, Loureiro.  
Ten to fifteen species are found in India, Malayan Archipelago, Philippine Islands, China, and Japan. Nearly all the species are showy and fragrant, and some are variable. See *Orchid Album*, t. 21, 116, 160; Bot. Mag., t. 4049, 4139, 4427, 4982, 5278, 5798. The following species are figured in the *Gard. Chron.*:—  
\* *A. crassifolium*, 1877, viii., 493.  
\* *A. cylindricum*, 1875, iii., 537.  
\* *A. odoratum*, 1845, 436.  
\* *A. odoratum purpurascens*, 1881, xvi., 597.  
\* *A. quinquevulnera*, 1845, 100.  
\* *A. Schröderi*, 1880, xiii., 493; 1882, xvii., 341.
14. **AGANISIA**, Lindley.  
Six species, from Tropical America. See Bot. Reg., 1840, t. 32.
15. **Agrostophyllum**, Blume.  
Five or six species, from India and the Malayan Archipelago. For list of species see *Gard. Chron.*, 1882, xviii., 812.



16. **Alamania**, Llave and Lexarza.  
One species, from Mexico. See *Gard. Chron.*, 1883, xix., 764; 1879, xi., 235.
17. **ALTENSTEINIA**, Humboldt, Bonpland, and Kunth.  
Twelve species are known, from the Andes of Tropical America.
18. **Amblostoma**, Scheidweiler.  
Three species, from Brazil, Peru, and Bolivia. For list of species see *Gard. Chron.*, 1883, xix., 660.
19. **Angraecum**, Thouars.  
Twenty-five species are known, from Tropical and South-east Africa, Madagascar, Bourbon, and Mauritius. A. sesquipedale is the largest flowered of all Orchids, and also possesses the longest spur or nectary. A. funale is a rare leafless epiphyte, and the leaves of A. fragrans have been used as a kind of tea. A. falcatum is the most northern species, being found in Japan. See *Orchid Album*, t. 41, 162, 179; *Bot. Mag.*, t. 2097, 4159, 4295, 4370, 4761, 4782, 5113, 5170, 5389, 5624. The following species are figured in *Gard. Chron.*:—  
\*A. eburneum superbum, 1873, 217.  
\*A. Ellisii, 1875, iii., 277.  
\*A. fastuosum, 1885, xxiii., 533.  
\*A. funale, 1846, 135.  
\*A. Kotschy, 1880, xiv., 693.  
\*A. Scottianum, 1880, xiv., 137; 1882, xvii., 342.  
\*A. sesquipedale, 1857, 253; 1873, 255; plant, 1874, 346.
20. **Anguloa**, Ruiz and Pavon.  
Three species and several varieties are known, from Colombia and Peru. They are strong-growing plants, with the habit of Lycaste, and having great waxy flowers like Tulips, solitary on scapes springing from the base of the pseudobulbs. See *Bot. Mag.*, t. 4313, 4807, and 5384; *Orchid Album*, t. 19, 133.
21. **Anætochilus**, Blume.  
From ten to twenty species and varieties are in cultivation, and are mainly remarkable for the beauty of their foliage, which is velvet-like in texture, lined or suffused with golden, silvery, or bronzy lines. Borneo, Ceylon, India. See *Bot. Mag.*, t. 4123, 5208; *Bot. Reg.*, t. 2020.
22. **Ansellia**, Lindley.  
One species, originally found on the stem of a Date Palm at Fernando Po, but two or three remarkable varieties have since been introduced. Tropical and South Africa. See *Bot. Mag.*, t. 4965; *Bot. Reg.*, 1844, t. 12; 1846, t. 30.
23. **Anthogonium**, Lindley.  
Only one species known, from the Himalayas and Burmah. See *Gard. Chron.*, 1882, xviii., 812.
24. **APHYLLOCHIS**, Blume.  
Four or five species, native of India and the Malayan Archipelago.
25. **Aplectrum**, Nuttall.  
One species, known in North America as the "Putty Root," and a near relative of the Corallorhizas.
26. **APOSTASIA**, Blume.  
Four species, native of India, Malayan Archipelago, and Australia. Not showy, but of special interest to botanists.
27. **APPENDICULA**, Blume.  
Species twenty, from Malacca, Malayan Archipelago, and Pacific islands. Not showy.
28. **Arachnanthe**, Blume.  
Six species, from Malaya and the Himalayas. Vanda Lowii and V. Cartheartii have been included in this genus, which approaches Renanthera and Vanda. See *Bot. Mag.*, 5475, 5845.
29. **Arethusa**, Linnæus.  
One species, found in North America and in Japan. See *Bot. Mag.*, t. 2204; *Bot. Reg.*, 1072.
30. **ARGYNCHIS**, Blume.  
One species, from Java.
31. **ARNOTTIA**, A. Richard.  
Two species only known, from Mauritius.
32. **Arpophyllum**, Llave and Lexarza.  
About six species, from Mexico, Central America, and Jamaica. When well grown they are distinct and showy, fine examples having formerly been exhibited. For list of species see *Gard. Chron.*, 1881, xvi., 428; 1879, xi., 235.
33. **Arundina**, Blume.  
Five to ten species, from India, Malayan Archipelago, and South China. Of reed-like habit, with showy flowers, the Arundinas represent the Sobralias of the Western Hemisphere. See *Orchid Album*, t. 139. For list of species see *Gard. Chron.*, 1880, xiv., 636.
34. **Aspasia**, Lindley.  
Five or six species, from Brazil and Central America. See *Gard. Chron.*, 1879, xi., 235; *Bot. Mag.*, t. 3679, 3962; *Bot. Reg.*, t. 1907.  
BARKERIA (see Epidendrum), *Gard. Chron.*, 1879, xi., 235; *Orchid Album*, t. 148.
- \*B. elegans (cyclotella), *Gard. Chron.*, 1872, xliii., 80, 235. See *Bot. Mag.*, t. 3818.
35. **BARTHOLINA**, R. Brown.  
One species, from South Africa.
36. **BASKERVILLEA**, Lindley.  
One species, wild in Peru.
37. **Batemannia**, Lindley.  
One species, from Guiana. See *Gard. Chron.*, 1879, xi., 235; *Bot. Mag.*, t. 3818.  
\*B. meleagris, *Gard. Chron.*, 1881, xvi., 209.
38. **BICORNELLA**, Lindley.  
Two species, from Madagascar.
39. **Bifrenaria**, Lindley.  
About ten species, from Guiana and Colombia. See *Bot. Mag.*, t. 2789, 2927, 3597, 3629; *Bot. Reg.*, t. 879, 1566, 1875; 1830, t. 12.
40. **BIPINNULA**, Jussieu.  
Three or four species, from South America, outside the tropical limits. Not showy.
41. **Bletia**, Ruiz and Pavon.  
About twenty species, from Tropical America, China, and Japan. B. hyacinthina, B. Sherattiana, and one or two others are showy. See *Bot. Mag.*, t. 3736; *Bot. Reg.*, 1847, t. 60. For list of species, see *Gard. Chron.*, 1882, xviii., 681; see also *Gard. Chron.*, 1879, xi., 236.  
BOLLEA (see Zygopetalum).  
\*B. Patinii, *Gard. Chron.*, 1875, iii., 9.  
BOLBOPHYLLARIA (see Bulbophyllum), *Gard. Chron.*, 1879, xi., 236.
42. **Bonatea**, Willdenow.  
Two or three species are known, from South Africa. See *Bot. Mag.*, t. 2926.
43. **Brachionidium**, Lindley.  
Three species, from Colombia and Bolivia. Epiphytes, nearly related to Masdevalls and Pleurothallis. See *Gard. Chron.*, 1881, xvi., 172.
44. **BRACHTIA**, Reichenbach f.  
Three species, from Colombia.
45. **BRACHYCORVITHUS**, Lindley.  
Four or five species, from South and Tropical Africa.
46. **Brassavola**, R. Brown.  
About twenty species, from Tropical America and Mexico. Epiphytes, with terete foliage, except B. glauca and B. Digbyana. Flowers white and showy. See *Gard. Chron.*, 1879, xi., 236; *Bot. Mag.*, t. 543, 2878, 3229, 3722, 3761, 3782, 4021, 4734; and *Bot. Reg.*, t. 1465, 1561, 1911; 1839, t. 5; 1840, t. 39.  
\*B. striata, fruit of, *Gard. Chron.*, 1885, xxiii., 85, 505.
47. **Brassia**, R. Brown.  
About twenty species are known, from Tropical America, Brazil, and Mexico. Flowers greenish, spotted with brown, in spikes like Odonoglossum. See *Orchid Album*, t. 159; *Gard. Chron.*, 1879, xi., 236; *Bot. Mag.*, 1691, 3451, 3577, 3794, 4053, 5748; *Bot. Reg.*, t. 832, 1754; 1841, t. 18; 1847, t. 29.
48. **Bromheadia**, Lindley.  
Two species, native of Malacca and the Malayan Archipelago, forming reed-like growth in wet jungle. Showy, but not easy to grow. See *Bot. Mag.*, t. 4001.
49. **Broughtonia**, R. Brown.  
Three or four species from Jamaica and the West Indian Islands. Sun-loving epiphytes, growing best on bare blocks. See *Bot. Mag.*, t. 3076, 3536; Loddiges, *Bot. Cab.*, t. 793.
50. **BROWNLEE**, Harvey.  
Three or four species, from South Africa, related to Disa.
51. **Bulbophyllum**, Thouars.  
Eighty or a hundred species are known, from India, Malayan Archipelago, Tropical Africa, Australia, New Zealand, and South America. Very few are showy, but all are interesting. In the Eastern Tropics these plants take the place of the Western Masdevallias. Some Sarcopodia and other genera are now placed under Bulbophyllum. For list of species see *Gard. Chron.*, 1882, xviii., 52, 104, 172. See *Bot. Mag.*, t. 4532, 5408 (Sarcopodium), 3605, 4088, 4166, 4267, 5050, 5288, 5309, 5316, 5349, 6119, &c.  
Burlingtonia; see Rodriguezia, *Orchid Album*, t. 18.
52. **BURNETTIA**, Lindley.  
One species, from Tasmania, resembling Caladenia, but of different habit. Not showy.
53. **CALADENIA**, R. Brown.  
Thirty or forty, in Australia and New Zealand. Not showy.
54. **Calanthe**, R. Brown.  
About forty species, widely distributed. Japan, Pacific Islands, New Caledonia, Madagascar, Tropical and South-eastern Africa, Central America, Mexico, and West Indies. Limatodes rosea is now placed in this genus. See *Orchid Album*, t. 31, 134. For list of species see *Gard. Chron.*, 1879, xi., 267; 1883, xix., 636; *Bot. Mag.*, t. 2515, 4541, 4671, 5042, 5375, 6104 (Styloglossum), 4704, 5312.
55. **CALCANEA**, R. Brown.  
Three species, from South Australia.
56. **Calostylis**, Blume.  
One species only, from Java. See *Gard. Chron.*, 1882, xviii., 812.
57. **CALOGCHILUS**, R. Brown.  
Three species known, in Eastern Australia. See Fitzgerald's *Aust. Orchids*, and *Bot. Mag.*, t. 3187.
58. **Calopogon**, R. Brown.  
Four or five species, from North America. See *Bot. Mag.*, t. 116; Sweet, *Brit. Fl. Gard.*, t. 115.
59. **Calypso**, Salisbury.  
One species, broadly distributed in North Europe, Asia, and in North America.  
\*C. borealis, 1881, xvi., 656.
60. **Camaridium**, Lindley.  
About twelve species, in Colombia, Guiana, and elsewhere in Tropical America. See *Gard. Chron.*, 1879, xi., p. 267.
61. **CAMPYLOCENTRON**, Benthams.  
Fifteen species, from Brazil and West Indian Islands.
62. **Catasetum**, L. C. Richard.  
Forty to fifty species, including Myanthes and Monachanthus, principally Brazilian and Mexican. The group is curious, as showing an approach to a diocious development. Although not bright in colour these plants were formerly much grown. See *Gard. Chron.*, 1879, xi., 267; *Bot. Mag.*, t. 2559, 3262, 3329, 3514, 3590, 3802, 3823, 3923, 3929, 3937, 3942, 4017, 4792, 5202, 5399; *Orchid Album*, t. 83.  
\*C. incurvum, *Gard. Chron.*, 1855, 4.  
\*C. scurra, *Gard. Chron.*, 1877, vii., 305.
63. **Cattleya**, Lindley.  
About twenty species, and varieties innumerable, are known from, principally, Brazil and Mexico. Cattleyas and Laelias are the most showy of all Orchids. For one specimen of C. Trianae var. Lecana 250 guineas were paid, and several other varieties, such as C. Dodgsoni, Osmani, &c., have brought nearly as large a sum. The best known and most ornamental are C. labiata, C. Mossiae, C. Mendelii, C. Trianae, C. gigas, C. Dowiana, C. Gaskelliana, C. Percivaliana, C. Lawrenceana, &c. See *Orchid Album*, t. 3, 6, 20, 33, 45, 69, 81, 84, 108, 112, 115, 121, 125, 144, 150, 154, 166, 178, 184; *Bot. Mag.*, t. 2851, 3265, 3669, 3693, 3742, 3998, 4083, 4085, 4270, 4902, 4999, 4916, 5032, 5039, 5048, 5150, 5504, 5618, 5683. For figures, see *Gard. Chron.* as under:—  
\*C. Acklandiae, fruit of, 1885, xxiii., 544.  
\*C. amethystoglossa var. sulphurea, 1866, 315.  
\*C. dolosa, 1876, v., 430, 431.  
\*C. Dowiana, fruit of, 1885, xxiii., 501.  
\*C. fausta, 1873, 290.  
\*C. fausta var. radicans, 1873, 290.  
\*C. gigas, 1874, ii., 617; 1880, xiv., 269; 1882, xvii., 343.  
\*C. gigas Sanderiana, 1883, xx., 401.  
\*C. Lawrenciana, 1885, xxiii., 374, 375.  
\*C. lobata, 1848, 403.  
\*C. maxima, 1884, xxii., 620.  
\*C. Mossiae, 1883, xx., 533.  
\*C. nobilior, 1883, xix., 729.  
\*C. Percivaliana, 1884, xxi., 181.  
\*C. pumila, a monster, 1854, 804.  
\*C. Reineckiana, 1884, xxii., 173.  
\*C. Sanderiana, 1883, xx., 401.  
\*C. Skinneri, a monster, 1884, xvi., 548.  
\*C. velutina, 1872, 1259.  
\*C. Warneri, 1883, xx., 369.
64. **CENTROPETALUM**, Lindley.  
Five or six species, from the Andes of Colombia. The pretty little Nasonia is now placed here.
65. **Cephalanthera**, L. C. Richard.  
One of the few world-wide genera of Orchids. About ten species are known.
66. **CERATANTRA**, Ecklon.  
Seven or eight species are known from South Africa.
67. **Ceratostylis**, Blume.  
About fifteen species, from India, Malaysia, and the Pacific Islands. For species, see *Gard. Chron.*, 1882, xviii., 812.
68. **CHEIRADENIA**, Lindley.  
One species only known, from Guiana.
69. **CHEIROSTYLIS**, Blume.  
Eight species known, from India, Malayan Archipelago, and Tropical Africa.
70. **CHLOGLOTTIS**, R. Brown.  
Six species, from Australia and New Zealand.  
CHLOIOIA (see Corymbia), *Gard. Chron.*, 1879, xi., 267.



71. **CHLORÆA**, Lindley.  
Eighty or more species are known, from South America, Chili being the head-quarters of the group.
72. **CHLOROSA**, Blume.  
One species only known, from Java.
73. **Chondrorhyncha**, Lindley.  
One or two species only known, from Colombia.
74. **CHRYSOCCYNIS**, Reichenbach f.  
One species only known, from New Granada.
75. **Chrysoglossum**, Blume.  
Three or four species, from Malayan Archipelago and Sikkim. See *Gard. Chron.*, 1882, xviii., 428.
76. **Chysis**, Lindley.  
Six or eight species known, from Mexico and Colombia. *C. bractescens* and others are showy, with large waxy flowers in spikes from young growth. For list of species see *Gard. Chron.*, 1879, xi., 267; 1882, xviii., 746; *Bot. Mag.*, t. 3617, 4576, 5186, 5265.  
\**C. Chelsoni*, *Gard. Chron.*, 1880, xiii., 717.
77. **CHYTROGLOSSA**, Reichenbach f.  
Two species known, from Brazil.
78. **Cirrhopetalum**, Lindley.  
About thirty species, from India, Malaysia, China, and Madagascar. Some of the species are very beautiful, but are now but rarely met with in collections. For list of species, see *Gard. Chron.*, 1882, xviii., 172, 364.
79. **CIRRHEA**, Lindley.  
Five species, from Brazil. See *Gard. Chron.*, 1879, xi., 267.
80. **CLEISOSTOMA**, Blume.  
Fifteen species, from India, Malay Archipelago, and Tropical Australia.
- CLEISTES** (see *Pogonia*), *Gard. Chron.*, 1879, xi., 267.
81. **Clowesia**, Lindley.  
One species, from Brazil.
82. **COCHLIODA**, Lindley.  
Six species, from the Andes of South America.
83. **Cœlia**, Lindley.  
Four or five species, from the West Indies, Central America, and Mexico. See *Orchid Album*, t. 51. For species see *Gard. Chron.*, 1882, xviii., 428; see also *Gard. Chron.*, 1879, xi., 267.
- CELIOPSIS**, *Gard. Chron.*, 1872, 9; 1879, xi., 267.
84. **Cœlogyne**, Lindley.  
About fifty species are known from India, Malayan Archipelago, and the South of China. Many species are in cultivation, *C. cristata* and its varieties being extremely popular. The *Pleiones*, or "Indian Crocus," now included here, are much grown for their beauty. See *Orchid Album*, t. 54, 63, 143. For species see *Gard. Chron.*, 1883, xix., 46, 576.  
\**C. brunnea*, 1848, 71.  
\**C. cristata*, 1877, vii., 597.  
\**C. Massangeana*. (Supplementary sheet, March 18, 1882.)  
*COHNIA*, *Gard. Chron.*, 1879, xi., 297.  
*COLAS* (see *Lycaste*), *Gard. Chron.*, 1879, xi., 267.
85. **Collabium**, Blume.  
Two species, one from Java, and the other is Bornean. See *Gard. Chron.*, 1882, xviii., 428.
86. **Comparettia**, Poeppig and Endlicher.  
Two species, from the Andes of South America. See *Gard. Chron.*, 1879, xi., 276; *Bot. Mag.*, t. 4980; *Bot. Reg.*, 1838, t. 68; *Orchid Album*, t. 65.
87. **Corallorhiza**, R. Brown.  
Ten or twelve species are known, but widely distributed in Europe, Temperate Asia, North America, and Mexico. See *Gard. Chron.*, 1879, xi., 267.
88. **Coryanthes**, Hooker.  
Four or five species, from Tropical South America. See *Orchid Album*, t. 98; *Gard. Chron.*, 1879, xi., 267; *Bot. Mag.* (Gongora), t. 2755, 3747; *Bot. Reg.*, 1841, t. 1793.  
\**C. elegantissima* (as *macrantha*), 1882, xvii., 593, 597.  
\**C. maculata* var., sections of, 1885, xxiii., 144, 145.
89. **CORYCIUM**, Swartz.  
Ten species, from South Africa.
90. **CORYMBIS**, Thouars.  
Six or seven species, broadly distributed in the Tropics.
91. **Corysanthes**, R. Brown.  
Fifteen species, in Australia, New Zealand, and in Malayan Archipelago. See *Bot. Mag.*, t. 5357.
92. **Cottonia**, Wight.  
Two or three species, from India and Ceylon. *C. (Vanda) peduncularis* is the type.
93. **Cranichis**, Swartz.  
About twenty species, from the Andes, Tropical South America, Mexico, and West Indies. See *Gard. Chron.*, 1879, xi., 268.
94. **CREMASTRA**, Lindley.  
One species, from Japan.  
**CRYPE** (see *Arethusa*), *Gard. Chron.*, 1879, xi., 268.
95. **Cryptarrhena**, R. Brown.  
Species two, one from Central America, and the other from the West Indies. See *Gard. Chron.*, 1879, xi., 268.
96. **CRYPTOCENTRUM**, Benth.  
Only one species known, from Ecuador.
97. **Cryptochilus**, Wallich.  
Two species, from the Himalayas. See *Gard. Chron.*, 1882, xviii., 812.
98. **CRYPTOPUS**, Lindley.  
One species, from Madagascar, resembling *Angraecum*.
99. **CRYPTOSTYLIS**, R. Brown.  
Species seven, from India, Malayan Archipelago, and Australia.  
\**C. longifolia*, *Gard. Chron.*, 1885, xxiii., 275.
100. **Cynoches**, Lindley.  
The "Swan Orchid." Eight species, from Guiana and Mexico. See *Bot. Mag.*, t. 3855, 4054, 4215; *Gard. Chron.*, 1879, xi., 268; *Bot. Mag.*, t. 3855, 4054, 4215.  
\**C. Warscewiczii*, 1879, xii., 493.
101. **Cymbidium**, Swartz.  
Thirty species, from India, Malayan Archipelago, and South China. *C. eburneum*, *C. Mastersii*, *C. giganteum*, and its variety *Lowii*, are often met with in collections. See *Orchid Album*, t. 25, 140, 170; *Bot. Mag.*, t. 387, 1751, 4884, 4907, 5126, 5457, 5574, 5710, 5851.  
\**C. eburneum*, 1884, xxii., 499; 1884, xxii., 77.  
\**C. Lowianum*, 1879, xi., 405.
102. **CYNORCHIS**, Thouars.  
Twelve species, from Tropical Africa and Madagascar.
103. **CYPERORCHIS**, Blume.  
Two or three species, from India and Malayan Archipelago. Near *Cymbidium*.
104. **Cypripedium**, Linnaeus.  
Forty species, widely distributed in Europe, Asia, and America. The South American species have been called *Selenipedium*. Many hybrids have been raised in gardens. *C. caudatum* and its abnormal form, *Uropedium*, are very remarkable. They are the "Lady's Slipper" Orchid of gardens, and the most beautiful North American species (*C. spectabile*) is called "the Mocassin Flower." See *Orchid Album*, t. 8, 22, 36, 70, 86, 88, 109, 119, 122, 136, 155, 177; *Gard. Chron.*, 1879, xi., 268; *Bot. Mag.*, t. 192, 216, 911, 2938, 3024, 3855, 5349, 5508, 5791, 5922, 6175, 6296, 6432, 6490.  
\**C. Ashburtoniae*, 1879, xi., 16.  
\**C. calceolus*, 1879, xi., 813.  
\**C. caudatum*, 1875, iii., 211.  
\**C. caudatum*, fruit of, 1885, xxiii., 472.  
\**C. concolor*, 1865, 626; 1883, xix., 18.  
\**C. Druryi*, fruit of, 1885, xxiii., 472.  
\**C. hirsutissimum*, fruit of, 1885, xxiii., 472.  
\**C. Maulei*, 1882, xvii., 716.  
\**C. punctatum violaceum*, 1882, xviii., 717.  
\**C. japonicum*, 1875, iii., 625.  
\**C. laevigatum*, 1865, 914.  
\**C. Lawrenceanum*, 1880, xiii., 776.  
\**C. Lowii*, 1847, 765; 1850, 215.  
\**C. niveum*, 1883, xix., 18.  
\**C. occidentale*, 1877, vii., 725.  
\**C. Parishii*, 1869, 814.  
\**C. pubescens*, 1883, xix., 765.  
\**C. selligerum*, 1880, xiii., 776.  
\**C. spectabile*, 1877, viii., 689.  
\**C. Spicerianum*, 1880, xiii., 41.  
\**C. Stonei*, a monstrous, 1883, xx., 73.  
\**C. Stonei* var. *platyneurum*, 1867, 1118.  
\**C. vexillarium*, 1880, xiii., 781.  
**CYRTOPERA** (see *Cyrtopodium*), *Gard. Chron.*, 1879, xi., 268.
105. **Cyrtopodium**, R. Brown.  
Twenty species are known, in Asia, Africa, and Tropical America. See *Gard. Chron.*, 1879, xi., 268; *Bot. Mag.*, t. 1800, 3507.
106. **CYRTOSTYLIS**, R. Brown.  
Three or four species, wild in Australia and New Zealand. See *Fitzgerald, Aust. Orch.*, with plate.
107. **CYSTORCHIS**, Blume.  
Two species, from the Malayan Archipelago.
108. **Dendrobium**, Swartz.  
Over 300 species, and many varieties are known, from India, Malayan Archipelago, Ceylon, Japan, China, and Australia. Several hybrids have been raised. See *Orchid Album*, t. 13, 20, 38, 42, 92, 99, 103, 113, 141, 152, 165, 174; *Bot. Mag.*, t. 3608, 5019, 4619, 5439, 5537, 5285, 5444, 5459, 5549, 5936, 5968, 6013, 6226, 6383, 4993, 5482, 5515, 5679, 5823, 6007, 6030, 6199, 6319, 6438. For full list of species see *Gard. Chron.*, 1881, xvi., 624, 688; 1882, xvii., 18, 26, 306, 471, 528, 641, 735, 776, 799.  
\**D. Ainsworthii*, hybr., 1874, i., 443.  
\**D. Ainsworthii*, 1874, i., 443; 1877, viii., 166; 1881, xvi., 624.  
\**D. amœnum*, 1875, iii., 305; 1881, xvi., 625.  
\**D. Bensonæ*, 1878, x., 817; 1884, xvii., 145.  
\**D. Brymerianum*, 1879, xi., 475; 1881, xvi., 689.  
\**D. d'Albertsii*, 1878, x., 217.  
\**D. densiflorum*, 1882, xvii., 737.  
\**D. formosum giganteum*, 1882, xvii., 369.  
\**D. formosum giganteum*, fruit of, 1885, xxiii., 472.  
\**D. heterocarpum*, fruit of, 1885, xxiii., 472.  
\**D. Leechianum*, 1882, xvii., 256.  
\**D. luteolum chlorocentrum*, 1883, xix., 340.  
\**D. nobile*, 1872, 732; 1879, xi., 565.  
\**D. rhodostoma*, fruit of, 1885, xxiii., 472.  
\**D. speciosum Hillii*, 1877, vii., 113.  
\**D. superbiens*, 1878, i., 49.  
\**D. thyrsoflorum*, 1877, vii., 653; 1881, xv., 463.  
\**D. tortile*, 1847, 797.  
\**D. Wardianum*, 1877, viii., 240.
109. **Dendrochilum**, Blume.  
Nine or ten species are known, from the Philippines and other groups in the Malayan Archipelago. They are extremely graceful little epiphytes, and three or four species are now common in collections. For species see *Gard. Chron.*, 1882, xviii., 427.
110. **DENDROPHYLAX**, Reichenbach f.  
Three species, wild in the West Indies, and resembling *Angraecum*. See *Bot. Mag.*, t. 4295.
111. **Diacrium**, Lindley.  
Four species, wild in Guiana, Mexico, and other parts of Central America. See *Bot. Mag.*, t. 3332 (as an *Epidendrum*); *Gard. Chron.*, 1883, xix., 764.
112. **Diadenium**, Poeppig and Endlicher.  
Two species, from Peru and Para. See *Nenia Orch.*, i., 13, t. 6; *Saunders's Ref. Bot.*, t. 84; *Gard. Chron.*, 1879, xi., 268.
113. **Dichæa**, Lindley.  
Twelve species are known, from Mexico, Central America, and the West Indies. See *Gard. Chron.*, 1879, xi., 268.
114. **Dignathe**, Lindley.  
One species, wild in Mexico. See *Gard. Chron.*, 1879, xi., 268.
- DINEMA** (see *Epidendrum*), *Gard. Chron.*, 1879, xi., 268.
115. **Diothonea**, Lindley.  
Four species, from the Andes in Peru and Colombia. *Gard. Chron.*, 1883, xix., 700.
116. **DIPLOCENTRUM**, Lindley.  
Two or three species known, from India.
117. **DIPLOMERIS**, Don.
118. **DIPODIUM**, R. Brown.  
Six species, from the Malayan region, Australia, and the Pacific isles. See *Bot. Reg.*, t. 1980; *Paxt., Mag. Bot.*, xvi., p. 321 (as *Wailesia*).
119. **Disa**, Berg.  
Fifty species of *Disa* are wild in Southern and Tropical Africa, and in Madagascar, but only one species (*D. grandiflora*) is common in gardens, being one of the most beautiful of all terrestrial Orchids. Known to us from the Southern hemisphere, *Cypripedium* spectabile being the belle of the Northern one. See *Bot. Mag.*, t. 4073, 4091, 6529, 6532; *Bot. Reg.*, t. 324, 926; *Harvey, Thes. Cap.*, t. 41, 84, 86.  
\**D. grandiflora*, *Gard. Chron.*, 1875, iii., 441; 1882, xviii., 521.
120. **DISPERIS**, Swartz.  
Twenty species known from India, Tropical Africa, South Africa, and Madagascar. See *Harvey's Thes. Cap.*, t. 106, 148, 171, 172.
121. **DIURIS**, Swartz.  
Fifteen species, all wild, in Australia. See *Fitzgerald, Aust. Orch.*, with two plates; *Bot. Mag.*, t. 3156, 6201.
122. **DORITIS**, Lindley.  
Five or more species, from India and the Malayan Archipelago. Some species have been referred to *Dendrobium*, others to *Aërides* and to *Phalaenopsis*.
123. **DOSSINIA**, Morren.  
One species known, from Borneo.
124. **DRAKEA**, Lindley.  
Three species known, from Australia; *vide* *Rehb. f.*, *Nenia Orch.*, t. 189.  
\**D. elastica*, *Gard. Chron.*, 1848, 424.
125. **Drymoda**, Lindley.  
One species, from the Malayan Peninsula. See *Bot. Mag.*, t. 5904; *Gard. Chron.*, 1882, xviii., p. 427.
126. **Erina**, Lindley.  
Six or eight species known, from New Zealand and the Pacific islands. See *Gard. Chron.*, 1882, xviii., 812.



127. **Elleanthus**, Presl.  
Fifty species, from Tropical America, Brazil, Central America, and the West India Islands. See *Gard. Chron.*, 1879, xi., 334; 1883, xix., 659.
128. **EPIBLEMA**, R. Brown.  
One species, from South-west Australia and New Zealand.
129. **Epidendrum**, Linnaeus.  
Above 400 species are described, from Tropical America, extending as far north as Texas, where one species exists on trees of *Magnolia glauca*. A large proportion are fragrant, but with dingy white or greenish flowers. *E. vitellinum*, *E. nemorale*, *E. bicornutum*, and many others are, however, showy and generally cultivated. *E. cochleatum* and *E. fragrans* were the first epiphytal Orchids to flower in the Royal Gardens at Kew. See *Orchid Album*, t. 4, 74, 149, 157, 161. For full list of species see *Gard. Chron.*, 1879, xi., 334, 367. See also *Gard. Chron.*, 1883, xx., 42, 152, 204, 244, 477, 573, 606, 634; *Bot. Mag.*, t. 2831, 3013, 3534, 3557, 3631, 3638, 3765, 3885, 3898, 4067, 4094, 4197, 4572, 4656, 4784, 5333, 5491, 5664, 6093, &c.  
\**E. Endresii*, *Gard. Chron.*, 1885, xxiii., 504.
130. **Epipactis**, R. Brown.  
Ten or more species are known, and are widely distributed in Europe, Asia, and America, outside tropical limits. See *Gard. Chron.*, 1879, xi., 433.  
\**E. latifolia* var., 1852, 532.
131. **EPIPOGON**, Gmelin.  
Two species, from Temperate Europe and Asia.
132. **EPISTEMIUM**, Kunth.  
Six species, from Tropical South America. See *Bot. Mag.*, t. 5485.
133. **Eria**, Lindley.  
Eighty species, from India, South China, and the Malayan Archipelago. They are mostly weedy in habit, and produce inconspicuous flowers. For full list of species see *Gard. Chron.*, 1882, xviii., 468; *Bot. Mag.*, t. 3605, 4103, 5391, 5415, 5807, 5910.  
\**E. flava*, *Gard. Chron.*, 1882, xviii., 469.
134. **ERIOCHILUS**, R. Brown.  
Five or six species are known, all from Australia.
135. **Eriopsis**, Lindley.  
Three or four species, from North Brazil, Guiana, and Colombia. *E. biloba* is an interesting and showy species. See *Bot. Mag.*, t. 4437.
136. **Erycina**, Lindley.  
One species known, from Mexico, resembling *Ionopsis* in habit. See *Gard. Chron.*, 1879, xi., 433.  
*EUCNEMIS* (see *Gaveia*), *Gard. Chron.*, 1879, xi., 433.
137. **EUCOSIA**, Blume.  
One species, from Java.
138. **Eulophia**, R. Brown.  
Fifty species, wild for the most part, in Tropical and Southern Africa, Tropical Asia, and one from Brazil. Few have been introduced. See *Orchid Album*, t. 89; *Gard. Chron.*, 1879, xi., 433; *Bot. Mag.*, t. 2467, 5564, 5579, 5875, 6246.
139. **FARICARIA**, Lindley.  
One species, from South Africa.  
*FREGEA* (see *Sobralia*), *Gard. Chron.*, 1879, xi., 433.
140. **Galeandra**, Lindley.  
Six species, wild in Tropical America, Brazil and Mexico. See *Gard. Chron.*, 1879, xi., 433; *Bot. Mag.*, t. 4610, 4701; *Bot. Reg.*, 1840, t. 49; *Maudsl. Bot. Mag.*, t. 231.  
\**G. nivalis*, *Gard. Chron.*, 1882, xvii., 537.
141. **GALEOLA**, Lourieiro.  
Twelve species, from India, Japan, Malayan Archipelago, Australia, and New Caledonia.  
*GALEOTTIA*. (See *Zygopetalum*.)  
\**G. fimbriata*, *Gard. Chron.*, 1856, 660.
142. **GASTRODIA**, R. Brown.  
Seven species, from India, Western Asia, Malayan Archipelago, Australia, and New Zealand.
143. **Geodorum**, Jackson.  
Nine or ten species, wild in India, Malayan Archipelago, and Australia. See *Bot. Mag.*, t. 2195.
144. **Glomera**, Blume.  
Two species, from the Malayan Archipelago and Pacific isles. See *Gard. Chron.*, 1882, xviii., 812.
145. **GLOSSODIA**, R. Brown.  
Four species, wild in Australia.
146. **GLOSSULA**, Lindley.  
One species, from China and Cochin China; near *Habenaria*, or *Bonatea*.
147. **GOMEZA**, R. Brown.  
Six species, wild in Brazil, related to *Odontoglossum* or *Rodriguezia*. See *Bot. Mag.*, t. 2746 (*Pleurothallis*), t. 3497, 3504 (as *Rodriguezia*).
148. **GOMPHICHIUS**, Lindley.  
Four or five species, wild on the Andes of South America.
149. **Gongora**, Ruiz and Pavon.  
Twenty species, wild in Mexico and Brazil. The genus *Acropera* is now included. Some of the species are very interesting as grown in baskets, although not showy enough for modern collectors. See *Gard. Chron.*, 1879, xi., 433.
150. **Goodyera**, R. Brown.  
Twenty-five species, natives of Britain, Europe, Madeira, Asia tropical and temperate; Madagascar, North America, and New Caledonia. Velvety-leaved, low-growing plants, resembling the *Amietochili* of the Tropics. *G. discolor* and *G. Dawsonii* are common in collections. See *Gard. Chron.*, 1879, xi., 433; *Bot. Mag.*, t. 2540.
151. **GOVENIA**, Lindley.  
Ten species are known, from Brazil, Mexico, and the West Indies. See *Gard. Chron.*, 1879, xi., 433; *Bot. Mag.*, t. 3660, 4151.
152. **GRAMMANGIS**, Reichenbach f.  
Two species, one from Madagascar (see *Bot. Mag.*, 5179, *Grammatophyllum*), and one from Java (?). See *Bot. Mag.*, t. 5676 (as *Cymbidium Huttonii*).
153. **Grammatophyllum**, Blume.  
Three or four species, from Malayan Archipelago and Madagascar. They are large-growing epiphytes. See *Orchid Album*, t. 147.  
\**G. speciosum*, *Gard. Chron.*, 1878, x., 180.
154. **Grobya**, Lindley.  
Two species, wild in Brazil.
155. **GYMNOCILUS**, Blume.  
Two species, wild in Madagascar. Near *Goodyera*.
156. **Habenaria**, Willdenow.  
Four hundred species, from the temperate and sub-tropical regions, where they are widely distributed. Few are worth cultivating. See *Gard. Chron.*, 1879, xi., 433.
157. **HAFMARIA**, Lindley.  
Four species, wild in China, Cochin China, and the Malayan Archipelago. See *Bot. Mag.*, t. 2055; *Bot. Reg.*, t. 271.
158. **Hartwegia**, Lindley.  
One species, wild in Mexico and Central America, and rarely met with in collections as *H. purpurea*. See *Gard. Chron.*, xix., 764.
159. **HEMIPILIA**, Lindley.  
Two species, wild in India. Near *Habenaria* or *Bonatea*.
160. **HERMINIUM**, Linnaeus.  
Six species, wild in Europe and Temperate Asia.
161. **HERPYSMA**, Lindley.  
One species known, from the Himalayas.
162. **Herschelia**, Lindley.  
Two species, from Southern Africa. Near *Disa*. *H. caelestis* flowered at De Graaff's nursery in Leyden a few years ago.
163. **HETERIA**, Blume.  
Thirteen species, from India, Malaysia, Australia, and Tropical Africa. Near *Goodyera*, but not showy.
164. **Hexadesmia**, A. Brongniart.  
Four or five species, from Mexico, Central America, West Indies, and Brazil. See *Gard. Chron.*, 1883, xix., 700.
165. **HEXALECTRIS**, Rafin.  
One species, from Southern North America and Mexico, near *Coralorrhiza* and *Bletia*.
166. **Hexesia**, Lindley.  
Three or four species, wild in Mexico, Central America, and Brazil. See *Gard. Chron.*, 1879, xi., 434; 1883, xix., 700.
167. **HOFFMEISTERELLA**, Reichenbach, f.  
One species, from the Andes of Ecuador.
168. **HOLOTHRIX**, L. C. Richard.  
Eighteen or twenty species, from Abyssinia and South Africa.
169. **Hormidium**, Lindley.  
Seven species, from Tropical America, Brazil, Cuba, and Mexico. See *Gard. Chron.*, 1883, xix., 700; *Bot. Mag.*, t. 3233, 6314.
170. **Houlletia**, A. Brongniart.  
Five species, from Brazil and Colombia. See *Gard. Chron.*, 1879, xi., 434; *Bot. Mag.*, t. 4072, 6305.  
\**H. chrysantha*, *Gard. Chron.*, 1882, xviii., 437.
- HUNTLEYA. (See *Zygopetalum*.)
171. **HUTTONEA**, Harvey.  
Two species, from South Africa.
172. **HYLOPHILA**, Lindley.  
One species, from Malacca and Malayan Archipelago.
173. **Ionopsis**, Humboldt, Bonpland, and Kunth.  
Ten species are known, from Tropical America, Brazil, Mexico, and the West Indies. *I. paniculata* and others are showy, but difficult of prolonged cultivation. See *Gard. Chron.*, 1879, xi., p. 434; *Bot. Mag.*, t. 5541.
174. **Isochilus**, R. Brown.  
Four or five species, from South America, Brazil, Mexico, West Indies. See *Bot. Reg.*, t. 745; *Gard. Chron.*, 1879, xi., 434; 1883, xix., 764.
175. **Josepha**, Wight.  
Two species, from the Indian Peninsula and Ceylon. See *Gard. Chron.*, 1882, xviii., 812.
176. **Lacæna**, Lindley.  
Two species, known in Central America. See *Gard. Chron.*, 1879, xi., 434.
177. **Lælia**, Lindley.  
Twenty species or more, from Mexico and Brazil; differs from *Cattleya* in having eight pollen masses in each flower instead of four. All are showy, and much prized. See *Orchid Album*, t. 2, 9, 10, 23, 30, 44, 49, 60, 75, 97, 117, 123, 132, 135, 138, 146, 181; *Gard. Chron.*, 1879, xi., 559; *Bot. Mag.*, t. 3804, 3810, 3817, 3957, 4090, 4099, 4302, 4905, 5144, 5449, 5498, 5553, 5667, 6038. The following species are figured in *Gard. Chron.*:—  
\**L. autumnalis* var., 1872, 1003.  
\**L. Jongheana*, 1872, 425.  
\**L. majalis*, 1883, xix., 628.  
\**L. mylamiana*, 1876, ii., 740.  
\**L. purpurata*, 1880, xiv., 45.  
\**L. Veitchiana*, 1883, xx., 145 (Supplement).
178. **Læliopsis**, Lindley.  
Species three or four, from the West Indies and Cuba and St. Domingo. *Læliopsis domingensis* resembles *Broughtonia* in habit, with pale rosy flowers.
179. **Lamium**, Lindley.  
Species two only, from Brazil and Surinam. Near *Epidendrum*. See *Gard. Chron.*, 1883, xix., 660.
180. **Latourea**, Blume.  
One species, wild in New Guinea, with the habit of *Dendrobium*. See *Gard. Chron.*, 1882, xviii., 52.
181. **LEUCANORCHIS**, Blume.  
Two species, from Java and Japan, resembling *Aphyllorchis*.
182. **LEIOCHILUS**, Knowles and Westcott.  
Four or five species, wild in Central America, Mexico, and the West Indies. See *Bot. Mag.*, t. 3845.
183. **Lepanthes**, Swartz.  
Forty species, from Tropical America on the Andes, Mexico, and West Indies. See *Bot. Mag.*, t. 4112, 5259; *Gard. Chron.*, 1879, xi., 559; 1881, xvi., 136.
184. **LEPIDOGYNE**, Blume.  
One species, from Java.  
*LEPTOTES*. (See *Tetramicra*.)
185. **LEUCORCHIS**, Blume.  
Two or three species, from India, Malayan Archipelago, and the Pacific islands. Widely distributed.
- LINATODES*. (See *Calanthe*.)
186. **Limodorum**, L. C. Richard.  
One species, wild in the Mediterranean, Europe, and Caucasus.
187. **Liparis**, L. C. Richard.  
A hundred species, widely dispersed throughout the subtropical regions. *L. longipes* is now and then found in cultivation. See *Gard. Chron.*, 1879, xi., 559; 1881, xvi., 592; *Bot. Mag.*, t. 2004 (Malaxis), 2709, 3770, 5529.  
\**L. Laeslii*, *Gard. Chron.*, 1884, xxi., 144.
188. **Lissochilus**, R. Brown.  
Thirty species, from Tropical and Southern Africa. See *Bot. Mag.*, t. 2931 (*Eulophia*), 5486, 5861.
189. **Listera**, R. Brown.  
Ten species, in Europe and Temperate Asia and mountains of North America. See *Reich.*, Ic. Fl. Germ., t. 478 f. 3—5, t. 479, 480; *Hook. Fl. Bor. Amer.*, t. 205.
190. **Lockhartia**, Hooker.  
Ten species, from Tropical America, Brazil, West Indies, and Mexico. See *Gard. Chron.*, 1879, xi., 559; *Bot. Mag.*, t. 2715, 5592 (*Fernandezia*); *Bot. Reg.*, t. 1806 (*Fernandezia*).
191. **Luisia**, Gaudichaud.  
Ten species, from India, Eastern Asia, Malaysia, and Japan. See *Bot. Mag.*, t. 3648 (*Cymbidium*), 5558.  
\**L. Psyche*, *Gard. Chron.*, 1865, 842.
192. **Lycaste**, Lindley.  
Twenty-five species, from Tropical America, Peru, Mexico, and West Indies. *Paphinia* and *Colax* are now included here. Mostly showy. *L. Skinneri* and its varieties are very popular. See *Orchid*



- Album, t. 100; *Gard. Chron.*, 1879, xi., 559; Bot. Mag., t. 3146, 3395, 4081, 4193, 4445, 5616, 5706, 6251, 6303.
- \**L. flavescens*, *Gard. Chron.*, 1882, xvii., 523.
193. **Lycomormium**, Reichenbach, f.  
Two or three species, from Colombia and Central America. Habit of *Peristeria*. Flowers resembling *Cyrtopodium*. See Bot. Reg., t. 1953; Knowles and Westcott, *Floral Cabinet*, t. 70.
194. **LYPERANTHUS**, R. Brown.  
Five or six species, from New Caledonia, New Zealand.
195. **MACODES**, Blume.  
One species, from Java. See Blume, *Orch. Archip.* Ind., 119, t. 31, 36; Rehb. f., *Xen. Orch.*, t. 96, f. 1.
195. **Macradenia**, R. Brown.  
One or two species, from the West Indies. See *Gard. Chron.*, 1879, xi., 559.
197. **Malaxis**, Swartz.  
One little species (*M. paludosa*) is epiphytal on living sphagnum in Britain, Ireland, and North Europe. See *Gard. Chron.*, 1881, xvi., 463.  
\**M. paludosa*, 1884, xxi., 144.
198. **MANNIELLA**, Reichenbach f.  
One species, native of West Tropical Africa. Related to *Platyalepis*. Flowers small, not showy.
199. **Masdevallia**, Ruiz and Pavon.  
Species a hundred or more, wild in South America, Peru, Mexico, Brazil, Guiana, and West Indies, generally at considerable altitudes on mountains. Many are showy, and they are favourites in collections along with *Odontoglossa* from similar climates. *M. Veitchii*, M. Harryana, *M. Davisii*, *M. tovarensis*, *M. Chimera*, and others, are very beautiful. For full list of species see *Gard. Chron.*, 1881, xvi., 236, 305, 336, 409; 1879, xi., 559; *Orchid Album*, t. 5, 24, 62, 76, 105, 110; Bot. Mag., t. 4921, 5476, 5505, 5239, 5962, 5990, 6152, 6159, 6171, 6190, 6208, 6258, 6262, 6273, 6368, 6372. The following species are figured in *Gard. Chron.* :—  
\**M. bella*, 1880, xiii., 756; 1881, xvi., 237.  
\**M. Carderi*, 1883, xx., 181.  
\**M. chimera*, 1875, iii., 41; 1881, xvi., 113.  
\**M. coccinea*, 1868, 70; 1881, xvi., 236; 1884, xxi., 736.  
\**Masdevallia*, group of, 1881, xxi., 741.  
\**M. ignea*, 1872, 545; 1881, xvi., 305.  
\**M. Lindenii*, 1874, i., 385; plant, 1881, xvi., 336.  
\**M. macrura*, 1877, vii., 13; 1881, xvi., 337.  
\**M. nycterina*, 1881, xvi., 337; 1874, 639.  
\**M. polysticta*, 1875, iii., 657.  
\**M. racemosa* var. *Crossii*, 1884, xxi., 737.  
\**M. rosea*, 1880, xiii., 680, 681; 1881, xvi., 336; 1882, xvii., 644.  
\**M. Schlumii*, 1883, xix., 532.  
\**M. tovarense*, 1871, 1421; 1881, xvi., 409.  
\**M. triaristella*, 1876, vi., 559.  
\**M. Veitchiana*, 1871, 1421; 1881, xvi., 409.  
\**M. Wallisii* var. *stipenda*, 1885, xxiii., 473.
200. **Maxillaria**, Ruiz and Pavon.  
Above a hundred species are known, from Tropical America, Brazil, West Indies, and Mexico. *M. grandiflora* and *M. venusta* resemble *Lycaste* in having large flowers, solitary on basal scapes, but there are many inconspicuous species in the group. See *Orchid Album*, 106; *Gard. Chron.*, 1879, xi., 559, 686; Bot. Mag., t. 2729, 3154, 3613, 3945, 3966, 4374, 4434, 6477; Bot. Reg., t. 3614.
201. **Megacelinium**, Lindley.  
Nine species, wild in Tropical Africa, where they seem to represent the Eastern *Bulbophylla*. See *Gard. Chron.*, 1882, xviii., 364; Bot. Mag., t. 4028, 5836; Bot. Reg., t. 1959.
- MESOSPINDIUM. (See *Odontoglossum*.)
202. **Meiracyllum**, Reichenbach, f.  
Three species, from Mexico and Central America, with habit of *Pleurothallis*, and pollen resembling *Eria*. See *Gard. Chron.*, 1879, xi., 686; 1881, xvi., 428.
203. **MICROSACCUS**, Blume.  
Three or four species, from Malayan Archipelago and Malacca, somewhat resembling *Saccolabium*, with affinity with some *Dendrobates*.
204. **Microstylis**, Nuttall.  
Forty species are wild in Europe, Asia, and America, North and South. See *Gard. Chron.*, 1879, xi., 686; 1881, xvi., 463; Bot. Mag., t. 4103, 5403, 6225.  
\**M. histionantha*, 1881, xvi., 463.
205. **MICROTIS**, R. Brown.  
Six species, wild in Australia and New Zealand (? Java.)
206. **Miltonia**, Lindley.  
Ten species, from Peru and Brazil. Mostly showy when well grown. It is questionable whether the *Miltonia*-flowered *Odontoglossa* should not be included here, or are they hybrids, *Miltonia* and *Odontoglossum*? See *Orchid Album*, t. 46, 72, 146; Bot. Mag., t. 3793, 4109, 4204, 4425, 5436, 5572, 5843.  
\**M. Warscewiczii*, *Gard. Chron.*, 1871, 1258.
207. **MCERENHOUTIA**, Blume.  
One species, wild in the Society Islands. Not showy.
- MONACANTHUS. (See *Catasetum*.)
208. **MONADENIA**, Lindley.  
Twelve species, from South Africa, approaching *Disa*.
209. **Monomeria**, Lindley.  
Two species, one from Nepal and one from Burmah, resembling *Bulbophyllum*. See *Gard. Chron.*, 1882, xviii., 427.
210. **Mormodes**, Lindley.  
Fourteen species, from Colombia, Central America, and Mexico. Showy and interesting plants, requiring a hot, dry atmosphere like *Catasetum*. See *Gard. Chron.*, 1879, xi., 686; Bot. Mag., t. 3879, 3900, 4214, 4455, 4577, 5802, 5840, 6476. The following are figured in *Gard. Chron.* :—  
\**M. Cartoni* var., 1871, 447.  
\**M. luxatum eburneum*, 1882, xviii., 145.  
\**M. Oceana*, 1879, xii., 816, 817.
211. **MORMOLYCE**, Fenzl.  
One species, wild in Mexico.
- MYANTHUS. (See *Catsetum*.)
212. **MYRMECHIS**, Blume.  
Two species, from Java and Japan.
213. **MYSTACIDIUM**, Lindley.  
Twenty species, from Tropical and Southern Africa, near *Angraecum*.  
NANODES, Lindley. (See *Epidendrum*.)  
\**N. Meduse*, *Gard. Chron.*, 1867, 432.
214. **NEODRYAS**, Reichenbach, f.  
Three species, from Bolivia and Peru, approaching *Oncidium* (*O. Brunlesianum*).
215. **Neottia**, Linnaeus.  
Three species, from Europe, Northern Asia, in mountainous districts. Not showy.
216. **Nephelaphyllum**, Blume.  
Four species, from India, South China, and Malayan Archipelago. See *Gard. Chron.*, 1882, xviii., 780; Bot. Mag., t. 5332, 5390.
217. **NEUWIEDIA**, Blume.  
Three species, from Malacca and the Malayan Archipelago.
218. **Notylia**, Lindley.  
Eighteen species, from Tropical America (*Pleurothallis*). See *Gard. Chron.*, 1879, xi., 719; Bot. Mag., t. 5609, 6311; Bot. Reg., t. 759 (*Pleurothallis*).
219. **Oberonia**, Lindley.  
Fifty species, from Tropical Asia, Madagascar, Pacific islands, and Australia. Curious epiphytes, with distichous leaves and minute greenish flowers arranged in rat-tail-like spikes. See *Gard. Chron.*, 1881, xvi., 527; Bot. Mag., t. 4517, 5056.
220. **Ocotelesmia**, Benthama.  
Three species, from Jamaica, St. Domingo. See *Gard. Chron.*, 1883, xix., 700; Bot. Mag., t. 2823.
221. **Ocotomeria**, R. Brown.  
Ten species, described from Tropical America and the West Indies, Near *Pleurothallis*. See *Gard. Chron.*, 1879, xi., 719; 1881, xvi., 428; Bot. Mag., t. 2764.
222. **Odontochilus**, Blume.  
Ten species, from India, Malayan Archipelago, and the Pacific islands. Ornamental leaved plants, related to the *Anæctochiles*. See *Gard. Chron.*, 1883, xix., 608.
223. **Odontoglossum**, Humboldt, Bonpland, and Kunth.  
Eighty species, and numerous varieties; wild on the Andes of Tropical America, Bolivia, and Mexico. Nearly all the species are amenable to cool-house growth, the exceptions being *O. grande*, *O. Inseleyi*, *O. citrosum*, and the species of the *Miltonia* flowered, or *O. vexillarium* group. The genus *Mesospindium* is now included here. See *Orchid Album*, t. 27, 35, 40, 43, 47, 52, 58, 64, 66, 68, 71, 79, 82, 185, 90, 101, 111, 118, 127, 131, 151, 163, 167, 171, 175; *Gard. Chron.*, 1879, xi., 719; Bot. Mag., t. 3812 (*Zygopetalum*), 3955, 4272, 4878, 4919, 4923, 5691, 5697, 5736, 5778, 5993, 6029, 6144, 6229, 6237, 6265, 6317, 6455, 6502. The following species are figured in *Gard. Chron.* :—  
\**O. Andersonianum*, 1884, xxii., 44.  
\**O. Andersonianum* var. *lobatum*, 1884, xxii., 45.  
\**O. cirrosum*, 1878, ix., 181; 1876, v., 54, 503.  
\**O. coradinei*, 1872, 1068.  
\**O. Dowsonianum*, 1865, 1226.  
\**O. elegans*, 1883, xix., 721.  
\**O. gloriosum*, 1865, 578.  
\**O. grande*, fruit of, 1885, xxiii., 505.  
\**O. Hallii*, 1865, 962; 1873, 77.  
\**O. hebraicum*, 1881, xvi., 173.  
\**O. Kramerii*, 1868, 98.  
\**O. luteo-purpureum*, 1884, xxi., 585.  
\**O. lyroglossum*, 1882, xvii., 632. (Supplement, May 13, 1882.)
- \**O. membranaceum*, 1881, xv., 753.  
\**O. mulus* var., 1883, xxi., 469.  
\**O. nebulosum*, 1867, 572.  
\**O. nebulosum candidulum*, 1867, 710.  
\**O. nevadense*, 1881, xvi., 461.  
\**O. Oerstedii*, 1877, vii., 811.  
\**O. odoratum*, 1881, xv., 337.  
\**O. Pescatorei*, 1881, xvii., 332.  
\**O. Phaknopsis*, 1872, 832.  
\**O. polyanthum*, 1881, xvi., 461; 1883, xiz., 761.  
\**O. radiatum*, 1865, 746.  
\**O. Rœzlii*, 1873, 1303.  
\**O. Rossi majus* var. *rubescens*, 1884, xxi., 345.  
\**O. Ruckerianum*, 1873, 105.  
\**O. Schlipperianum*, 1865, 1082.  
\**O. triumphans*, 1867, 516.  
\**O. vexillarium*, 1872, 667; 1873, 644.  
\**O. Warnerianum*, 1865, 579.  
\**O. Wilckeanum*, 1884, xx., 640.
224. **OEONIA**, Lindley.  
Four or five species, wild in Madagascar. They are related to *Angraecum*.
225. **Oncidium**, Swartz.  
Over 250 species are known from Tropical America, Brazil and Bolivia, West Indies, and Mexico. Many showy species are in cultivation. They vary much in habit, the sections being "small lipped" (*microchilia*), "iris-leaved" (*equitantia*), "round-leaved" (*teretifolia*), and "flat-leaved" (*planifolia*). *O. papilio* is the "Butterfly Orchid," and one of the first of Orchids to attract public attention in England. See *Orchid Album*, t. 1, 12, 32, 104, 120, 137, 183; Bot. Mag., t. 5632, 27773, 3393, 4130, 3568, 777, 1491, 2203, 2900, 3109, 3486, 3499, 3581, 3705, 3712, 3752, 3806, 3807, 3836, 5193, 6138, 6254, 6278, 6322. See also *Gard. Chron.*, 1879, xii., 43. The following are figured in *Gard. Chron.* :—  
\**O. bifrons*, 1857, 84.  
\**O. candidum*, 1883, xx., 233.  
\**O. Forbesii*, 1870, xi., 525.  
\**O. Forbesii* var. *Borwickianum*, 1879, xi., 525.  
\**O. Gardnerianum*, 1881, xvi., 86.  
\**O. Lanceanum*, 1884, xxi., 609.  
\**O. luridum* var. *purpureum*, 1848, 159.  
\**O. macranthum*, 1869, 739.  
\**O. microchilum*, 1856, 68.  
\**O. monachicum*, 1883, xix., 366.  
\**O. Rogersii*, 1870, 277.  
\**O. splendidum*, 1871, 42.  
\**O. varicosum*, 1870, 277.  
\**O. zehrinum*, 1872, 1355.
226. **Ophrys**, Linnaeus.  
Thirty species or more, wild in Europe, Temperate Asia, and Northern Africa. The likeness to insects, as shown by several species of *Ophrys*, has long been observed. The Spider, Fly, and Bee *Ophrys* belong to this group, and some European species and varieties are very beautiful. See Rehb. Ic. Fl. Germ., t. 443, 465; Barlee. Ic. Orch. Alp. Marit., t. 51, 62; Mogger. Fl. Ment., t. 19, 43, 46, 72. See *Gard. Chron.* for figures of the following :—  
\**O. tenthredinifera*, 1872, 605.  
\**O. scolopax*, 1869, 442; 1872, 1009.
227. **Orchis**, Linnaeus.  
Eighty species, widely distributed throughout the temperate regions of the Northern Hemisphere. The most showy species are from North Africa and the islands of Madeira, and those of the Canary group. The "long purples" of Shakespeare are supposed to refer to our *O. mascula*. The species of *Orchis* are more easily cultivated than are many other terrestrial species.  
\**Orchis*, Snipe (*Ophrys scolopax*), 1860, 442; 1872, 1009.
228. **OREORCHIS**, Lindley.  
Four species, from the mountains of Asia and India Siberia and Japan.
229. **Ornithidium**, Salisbaud.  
Twenty species, from Tropical America, Brazil, West Indies, and Mexico. *O. coccinea* is a pretty little red-flowered species, in cultivation. See *Gard. Chron.*, 1879, xi., 75; Bot. Mag., t. 1437 (*Cymbidium*); Bot. Reg., t. 1804; Saunders' Ref. Bot., t. 105 (*Maxillaria densa*).
230. **Ornithocephalus**, Hooker.  
Twenty species, from Tropical America, Brazil, and Mexico. Small-growing Epiphytes of no great beauty. *Gard. Chron.*, 1879, xii., 75.
231. **ORNITHOCILUS**, Wallich.  
Two species, from the Himalayas and Burmah.
232. **ORTHOCERAS**, R. Brown.  
One species, from Australia and New Zealand. Fitzgerald, *Australian Orchids*, with plate.
233. **OSYRICERA**, Blume.  
One species, from Java, approaching *Bulbophyllum*. See *Gard. Chron.*, 1882, xviii., 427.
234. **OTOCILUS**, Lindley.  
Three or four species, from the Himalayas and Burmah. Near *Ceologyne*. See Bot. Mag., t. 3921.
235. **PACHITES** (?), Lindley.  
One species, from South Africa.



236. **Pachyphyllum**, Humboldt, Bonpland, and Kunth.  
Six or seven species, from the Andes of Tropical America. Near Lockhartia, or Fernandezia. See Hooker, Icon Plant., t. 117; *Gard. Chron.*, 1879, xii., 75.
237. **Pachystoma**, Blume.  
Ten species, native of India, Malayan Archipelago, and Tropical Africa. *P. Thompsonianum* is a very beautiful species, now and then seen in cultivation. Ipsea is now included here. See *Gard. Chron.*, 1882, xviii., 500; *Bot. Mag.*, t. 5701, 6471.  
\**P. speciosum* Thompsoni, *Gard. Chron.*, 1879, xii., 625; 1882, xviii., 501.  
**PALUMBINA** (see *Oncidium*).  
\**P. candida*, *Gard. Chron.*, 1865, 793.
238. **Panisca**, Lindley.  
One or two species, from the Himalayas. Related to *Coelogyne* and *Bulbophyllum*. *Gard. Chron.*, 1882, xviii., 427.
- PAPHINIA** (see *Lycaste*), *Orchid Album*, t. 34, 145.
- PAPPERITZIA**, *Gard. Chron.*, 1879, xii., 75.
- PANTONIA** (see *Spathoglottis*).  
\**Pantonia rosea*, 1882, xviii., 532.
239. **PELEXIA**, Lindley.  
Seven or eight species, from Tropical America, Brazil, West Indies, and Central America. Near *Spiranthes* and *Cephalanthera*. Not showy.
240. **Peristeria**, Hooker.  
Two or three species, from the Andes of Colombia, and from Panama. *P. elata* is the "El Spirito Sancta," or "Dove Orchid," often met with in gardens, where it produces long erect spikes of fleshy-white, waxlike flowers. *Gard. Chron.*, 1879, xii., 75.  
**PESCATOREA** (see *Zygopetalum*), *Orchid Album*, t. 17, 57.  
\**P. Dayana* var. *candidula*, *Gard. Chron.*, 1875, iii., 343.  
\**P. Lehmanni*, *Gard. Chron.*, 1882, xvii., 45.
241. **Phaius**, Loureiro.  
Fifteen species, wild in Tropical Asia, Japan, Malaysia, Pacific islands, Australia, Madagascar, and in Tropical Africa. *Phaius grandifolius*, from Hong Kong, is naturalised in Jamaica, and is one of the oldest of cultivated Orchids. *Thunia* is now included under *Phaius*. *P. Wallichii* is only a form of *P. grandifolia*. See *Orchid Album*, t. 91; *Gard. Chron.*, 1882, xviii., 565; *Bot. Mag.*, t. 1924, 2719 (*Bletia*) t. 3960, 4078, 6032, 4442, 3991, 5694. The following species are figured in *Gard. Chron.*:—  
\**P. callosus*, 1848, 287.  
\**P. grandifolius*, 1872, 733; 1882, xviii., 565.  
\**P. irroratus*, 1867, 264; 1882, xviii., 565.  
\**P. tuberosus*, 1881, xv., 341; 1882, xviii., 595; 1884, xxi., 520.
242. **Phalænopsis**, Blume.  
Twenty to thirty species, from India, the Philippines, and Malayan Archipelago. These are amongst the most graceful and beautiful of all Orchids. *P. grandiflora*, *P. amabilis*, *P. Schilleriana*, and their varieties, are well known. See *Orchid Album*, t. 11, 39, 80, 158, 182; *Bot. Mag.*, t. 4297, 5184, 5351, 5630, 6622, 5212, 5523, 5527, 5815, 5570. The following are figured in *Gard. Chron.*:—  
\**P. amabilis*, 1848, 269  
\**P. amethystina*, 1870, 1731  
\**Phalænopsis* at home, 1879, xi., 597.  
\**P. grandiflora*, 1848, 39.  
\**P. Portei*, 1876, v., 369, 371.  
\**P. rosea*, 1848, 671.  
\**P. speciosa* var. *Christiana*, 1882, xviii., 745.  
\**P. Schilleriana*, 1875, iv., 169; 1881, xvi., 301.  
\**P. Stuartiana*, 1881, xvi., 752.  
\**P. sumatrana*, 1865, 507.  
\**P. violacea*, 1881, xvi., 145.
243. **Pholidota**, Lindley.  
About twenty species, from India, Malaysia, and South China. *P. imbricata* and *P. articulata* are met with in collections, but none are showy. See *Gard. Chron.*, 1883, xix., 608.
244. **Phreatia**, Lindley.  
Ten species, wild in India, Malaysia, Pacific isles, and Australia. *Oberonia* is included. See *Gard. Chron.*, 1882, xviii., 500.
245. **PHYMATIDIUM**, Lindley.  
Two species from Brazil. Near *Ornithocephalus*.
246. **Physosiphon**, Lindley.  
Four species, from Tropical America, Brazil, and Mexico. Near *Stelis*, and not showy. *P. Lodigesii* is sometimes grown in collections. See *Gard. Chron.*, 1879, xii., 75; 1881, xvi., 136; *Bot. Mag.*, t. 4869; Loddiges, Botanical Cabinet, t. 1601 (*Stelis*).
247. **Physurus**, L. C. Richard.  
Twenty species, wild in Asia and Tropical Africa. Low growing leafy Orchids, resembling *Goodyera* or *Anectochilus*. See *Gard. Chron.*, 1879, xii., 75; *Bot. Mag.*, t. 5305.
- PILUMNA** (see *Trichopilia*), *Orchid Album*, t. 128.
248. **Pinelia**, Lindley.  
One species, wild in Brazil, resembling *Restrepia*. See *Gard. Chron.*, 1883, xix., 764.
- PLATANThERA** (see *Habenaria*), *Gard. Chron.*, 1879, xii., 75.
249. **PLATYCLINIS**, Benthau.  
Eight species, from India and Malasia, resembling *Liparis*. See *Bot. Mag.*, t. 4853.
250. **PLATYCORYNE**, Reichenbach f.  
One species, wild in Madagascar, and approaching *Disa* in habit.
251. **PLATYLEPIS**, A. Rich.  
Five species, wild in Tropical and Southern Africa and Madagascar. Near *Goodyera*.  
**PLEIONE** = *Coelogyne*. See *Orchid Album*, t. 102.  
\**Pleione*, *Gard. Chron.*, 1874, i., 15.
252. **Pleuranthium**, Lindley.  
Five or six species, wild in Tropical America. Near *Ponera*. Not showy. See *Gard. Chron.*, 1883, xix., 764.
253. **Pleurothallis**, R. Brown.  
About 350 species are wild in Tropical America, Brazil, Bolivia, and elsewhere on mountains. Many are weedy. For full list of cultivated species see *Gard. Chron.*, 1879, xii., 75; 1881, xv., 784; xvi., 10, 42; *Bot. Mag.*, t. 3261, 3030, 3682, 3897, 4142.  
\**P. scapha*, *Gard. Chron.*, 1881, xv., 784.
254. **PLOCOGLOTTIS**, Blume.  
Eight species, from Malaysia.
255. **PODOCHILUS**, Blume.  
Twelve species, wild in India and Malayan Archipelago.
256. **Pogonia**, Jussieu.  
Thirty species, wild in all parts of the world, America and Asia, both Tropical and Temperate; also in Temperate and Tropical Africa. See *Bot. Mag.*, t. 6125.
257. **POGONOPSIS**, Reichenbach f.  
One species, wild in Brazil, and related to *Pogonia*.
258. **POLYCYENIS**, Reichenbach f.  
Three or four species, native of Tropical America. Pretty little plants, resembling *Gongora* in habit. See *Gard. Chron.*, 1879, xii., 75; *Bot. Mag.*, t. 4479 (*Cynoches*); *Bot. Reg.*, 1841, t. 69 (*Houlletia*).
259. **Polystachya**, Hooker.  
Forty species, wild in Tropical and Southern Africa, rarely found in Asia and America. But few species are worth culture. See *Gard. Chron.*, 1879, xii., 75; *Bot. Mag.*, t. 3707, 4161, 5586.
260. **Ponera**, Lindley.  
Four or five species, wild in Mexico and Central America. Near *Epidendrum*. See *Gard. Chron.*, 1883, xix., 764; xii., 107.
261. **Ponthieva**, R. Brown.  
Ten or twelve species, wild in Tropical and Subtropical America. Terrestrial herbs. Near *Neottia*. See *Bot. Mag.*, t. 842 (*Neottia*), and 6337; *Gard. Chron.*, 1879, xii., 107.
262. **PRASOPHYLLUM**, R. Brown.  
Twenty-six species, wild in Australia and New Zealand, and in New Caledonia. Terrestrial herbs. Not showy.
263. **Prescottia**, Lindley.  
Twenty species, from Tropical America, Brazil, West Indies, and Mexico. Not showy. See *Gard. Chron.*, 1879, xii., 107; *Bot. Reg.*, t. 1915; Lodd., *Bot. Cab.*, t. 990.  
**PROMENEA**, *Orchid Album*, t. 7. (See *Zygopetalum*.)
264. **Pseudocentrum**, Lindley.  
Four or five species, wild on the Andes of Southern and Central America, and in Jamaica. Not showy. See *Gard. Chron.*, 1879, xii., 107.
- PSITTACOGLOSSUM** (see *Maxillaria*), *Gard. Chron.*, 1879, xii., 107.
265. **PRERICHIS**, Lindley.  
Six species, wild in Tropical and Southern America. Terrestrial herbs. Not showy.
266. **PTEROGLOSSASPIIS**, Reichenbach f.  
One species, found in Abyssinia.
267. **Pterostylis**, R. Brown.  
Thirty-six species, from Australia, New Zealand, and New Caledonia. See Fitzgerald, Austral. Orch., with twelve plates; *Bot. Mag.*, t. 3085, 3086, 3172, 3400, 3401, 6351.  
\**P. Baptistii*, *Gard. Chron.*, 1878, ix., 273.
268. **PTERYGODIUM**, Swartz.  
Ten species, from South Africa.
269. **QUEKETIA**, Lindley.  
One species, wild in Brazil. Not showy.
270. **Renanthera**, Loureiro.  
Five species, from India and the Malayan Archipelago and China. *R. coccinea* is a showy species. See *Bot. Mag.*, t. 2997, 2998; *Bot. Reg.*, t. 1131; 1843, t. 41.  
\**R. Lowi*, *Gard. Chron.*, 1883, xx., 657.  
\**R. coccinea*, *Gard. Chron.*, 1845, 491.
271. **Restrepia**, Humboldt, Bonpland, and Kunth.  
About twenty species, from Tropical America, Brazil, and Mexico. In habit resembling *Pleurothallis*. See *Gard. Chron.*, 1879, xii., 107; 1881, xvi., 172; *Bot. Mag.*, t. 5257, 5966, 6288.  
\**R. elegans*, *Gard. Chron.*, 1881, xvi., 172.
272. **RHYNCHOSTYLIS**, Blume.  
Two or three species, wild in India and Malaysia. Resembling *Saccolabium*. See *Bot. Mag.*, t. 4108.
273. **Rodriguezia**, Ruiz and Pavon.  
Twenty species, including *Burlingtonia*, from Tropical America, Brazil, and Central America. See *Gard. Chron.*, 1879, xii., 107; *Bot. Mag.*, t. 3324, 4834, 5419; *Bot. Reg.*, t. 930; Lodd., *Bot. Cab.*, t. 676.
274. **Saccolabium**, Blume.  
About twenty species, wild in India and the Malayan Archipelago. *S. giganteum*, *S. guttatum*, *S. premorsum*, and others, are well known favourites, specimens bearing twenty to thirty spikes having been exhibited. Well grown they are very effective. See *Orchid Album*, t. 56, 107, 156, 169; *Bot. Mag.*, t. 4772, 5326, 5433, 5595, 5635, 5681, 5767, 6222.  
\**S. Blumei*, *Gard. Chron.*, 1885, xxiii., 523.  
\**S. guttatum*, *Gard. Chron.*, 1845, 364; 1874, i., 219.  
**SARGOPEDIUM**. (See *Bulbophyllum* and *Dendrobium*.)  
\**S. Dearei*, *Gard. Chron.*, 1883, xx., 108.
275. **Sarcanthus**, Lindley.  
Fifteen or twenty species, from India and South China, and the Malayan Islands. Scarcely any are showy. See *Bot. Mag.*, t. 3571, 4639, 5217, 5630.
276. **Sarcophilus**, R. Brown.  
Thirty species, from India, Malaysia, Pacific islands, and Australia. Not much cultivated, although *S. calceolus* is showy.
277. **Satyrium**, Swartz.  
Fifty species, from India, Madagascar, and Tropical and Southern Africa. Terrestrial herbs, many of which are beautiful, but not easy of cultivation. See *Bot. Mag.*, t. 1512, 2172, 6625; *Bot. Reg.*, t. 416, 703; 1840, t. 18; Lodd., *Bot. Cab.*, t. 104.  
\**S. nepalense*, *Gard. Chron.*, 1885, xxiii., 208.
278. **SAUNDERIA**, Reichenbach f.  
One species, wild in Brazil.
279. **Scaphoglottis**, Poeppig and Endlicher.  
Eight or ten species, from Tropical America. Not very showy. *Gard. Chron.*, 1879, xii., 107; 1883, xix., 700; *Bot. Mag.*, t. 4071; *Bot. Reg.*, t. 1901.
280. **SELOCHILUS**, Klotzsch.  
Three or four species, wild on the Andes of Tropical America, and resembling *Compertea*.
281. **SCHIZOCHILUS**, Sond.  
Four or five species, wild in South Africa.
282. **SCHIZODIUM**, Lindley.  
Ten species, from South Africa. Related to *Disa*, but not showy.
283. **Schlimmia**, Planch.  
Three species, from Colombia, resembling *Maxillaria* in habit.  
\**S. trifida*, *Gard. Chron.*, 1877, vii., 141.
284. **SCHOENORCHIS**, Blume.  
One species, wild in Java (? Australia), resembling *Saccolabium*.
285. **Schomburgkia**, Lindley.  
Twelve species, from Tropical and Central America. *S. tibicensis* has hollow pseudobulbs, and is the "Cow's-horn Orchid" of Honduras, and difficult to collect, owing to the ants which infest its sheltering stems. See *Gard. Chron.*, 1879, xii., 107; *Bot. Mag.*, 3729, 4476, 5172.
286. **Scuticaria**, Lindley.  
Two or three species, from Brazil and Guiana. Epiphytes with curious thong-like or terete drooping leaves. *S. Steclii* and *S. Hadweni* have long been grown in gardens. See *Orchid Album*, t. 55; *Bot. Mag.*, t. 4629 (*Bifrenaria*), 3572, 3573; *Bot. Reg.*, t. 1986 (*Maxillaria*).
287. **Selenipedium**, Reichenbach f.  
Ten species, from mountains of South and Tropical America. They are mostly grown as *Cypripediums*. *S. caudatum* is one of the most remarkable of Orchids, its petals growing 20 to 30 inches in length, a large proportion of which growth elongates after lower bud expansion. In *Uropeidium* Lindeni the lip is petaloid instead of saccate,



- and three stamens are present. See *Gard. Chron.*, 1879, xii., 107; *Bot. Mag.*, t. 5466, 5614, 5970, 6217 (*Cypripedia*).
288. **Seraphyta**, Fischer and Meyer.  
One species, from the West Indies, resembling *Aniblostoma*. See *Gard. Chron.*, 1883, xix., 700; *Bot. Mag.*, t. 3565 (as *Epidendrum diffusum*).
289. **Serapias**, Linnæus.  
Four or five species, wild in the Mediterranean region and extending to the Azores. They are so closely linked together by natural hybrid intermediates as to be scarcely distinguishable from a purely botanical point of view. See *Bot. Mag.*, t. 5868, 6255; *Bot. Reg.*, t. 1189; *Moggr.*, *Flor. Ment.*, t. 16, 94, 95.  
\**S. cordigera*, *Gard. Chron.*, 1883, xx., 341.
290. **SERTIFERA**, Lindley.  
One species only known, wild in Ecuador (*S. purpurea*, Lindl.).
291. **SIGMATOSTALIX**, Reichenbach f.  
Seven species, wild in Tropical America.
292. **Sobralia**, Ruiz and Pavon.  
Thirty species are wild on the Andes of Tropical America, Peru, Mexico, and Guiana. They are reedy herbs, bearing large Cattleya-like flowers, and represented in the West—the *Arundinas* of the Eastern Tropics. *S. macrantha* and its varieties are often met with in collections. See Lindl., *Sert. Orch.*, t. 29; Bateman, *Orch. Mex.*, t. 25, 37; *Bot. Mag.*, t. 4446, 4570, 4682, 4882; *Bot. Reg.*, 1841, t. 17.  
\**S. macrantha albidia*, *Gard. Chron.*, 1871, 906.
293. **SOLENIDIUM**, Lindley.  
Only one species, wild on the Colombian Andes, and allied to *Oncidia*.
294. **Sophranitis**, Lindley.  
Four or five species, mostly from the Organ Mountains in Brazil. They are showy little epiphytes, with scarlet, butterfly-like flowers. *S. coccinea* and *S. grandiflora* are very popular in gardens. See Lindl., *Sert. Orch.*, t. 5, f. 2; *Bot. Mag.*, t. 3677, 3709; *Flor. de Serres*, t. 1716.  
\**S. grandiflora*, *Gard. Chron.*, 1884, xxii., 561.
295. **Spathoglottis**, Blume.  
Ten or more species, wild in India, South China, Malaysia, Pacific islands, and Australia. Terrestrial herbs, often bearing showy flowers on erect spikes. "*Paxtonia*" is a pelorioid form of this genus. See *Gard. Chron.*, 1882, xviii., 532.  
\**S. Lobbi*, *Gard. Chron.*, 1882, xviii., 532.
296. **Spiranthes**, L. C. Richard.  
About a hundred species, of world-wide distribution. Few are showy, except one or two species of *Stenorhynchus*. *Spiranthes Romanzoviana* (= *S. gemmipara*), wild in the South of Ireland, is unknown elsewhere in Europe, but extends from the Atlantic to the Pacific in North America. See *Gard. Chron.*, 1879, xiii., 107; *Bot. Mag.*, t. 1568, 2026 (*Neottia*), 1562, 2730, 3277; *Bot. Reg.*, t. 602, 794, 823, 1934.  
\**S. Romanzoviana*, *Gard. Chron.*, 1881, xvi., 465.
297. **Stanhopea**, Forst.  
About twenty species known, from Tropical America, Brazil, and Mexico, strong-growing epiphytes, bearing peculiar sweet-scented flowers, all showy. They are well deserving of culture. The lip is peculiar, and variable in formation in different species. See *Gard. Chron.*, 1879, xii., 107. The following species are figured in *Gard. Chron.*:—  
\**S. ecomuta*, 1850, 295.  
\**S. florida*, 1881, xvi., 561, 565.  
\**S. guttulata*, 1848, 439.  
\**S. serrata*, 1850, 295.  
\**S. tricornis*, 1850, 295. See *Bot. Mag.*, 3359, 4197, 4885, 5278, 5289, 5300.
298. **Stauroopsis**, Reichenbach f.  
Eight or ten species, from the Malayan Archipelago and (?) India. Generally included under *Phalenopsis* in gardens. *Trichoglottis pallens* is sometimes met with in cultivation, and is a good type species. See Lindl., *Bot. Reg.*, 1846, t. 59; *Bot. Mag.*, t. 5189.
299. **Stelis**, Swarz.  
A hundred and fifty species are known in books, some few being in cultivation. They are wild in Tropical America, Brazil, Peru, Mexico, and the West Indies. See *Gard. Chron.*, 1879, xii., 107; 1881, xvi., 136; *Bot. Mag.*, t. 3975, 6521; *Bot. Reg.*, t. 935; Lodd., *Bot. Cab.*, t. 442, 1011.  
\**S. Bruchmüllerii*, *Gard. Chron.*, 1881, xv., 130
300. **Stenia**, Lindley.  
Two species only known, one from Guiana, and the other from Colombia. *S. fimbriata* is often grown in gardens.
301. **Stenoglossum**, Humboldt, Bonpland, and Kunth.  
One species, from the Andes of Tropical America. Near *Epidendrum* or *Diothonea*. See *Gard. Chron.*, 1883, xix., 700.
302. **STENOGLOTTIS**, Lindley.  
One species, wild in Southern Africa.
- STENORRHYNCHUS (see *Spiranthes*), *Gard. Chron.*, 1879, xii., 138.
303. **STENOPTERA**, Presl.  
Three species, from the mountains of Tropical America and the West Indies. Not showy.
304. **STEREOSANDRA**, Blume.  
One species, wild in Java.
305. **Sunipia**, Lindley.  
One species, from the Himalayas and Burmah. See *Gard. Chron.*, 1881, xvi., 463.
306. **SUTRINA**, Lindley.  
One species, from Peru.
307. **TENIOPHYLLUM**, Blume.  
Six species, from India, Malaysia, Pacific Isles, and Australia.
308. **Tainia**, Blume.  
Six or seven species, from India, South China, and the Malayan Archipelago. Allied to *Eria*. See *Gard. Chron.*, 1882, xviii., 780.
309. **TELEPOGON**, Humboldt, Bonpland, and Kunth.  
Forty or more species, from the Andes of South America.
310. **TETRAMICRA**, Lindley.  
Six species, from Tropical America, Brazil, and the West Indies. *Leptotes* is included here. See *Bot. Mag.*, t. 3098 (*Brassavola*), 3734.
311. **THECOSTELE**, Reichenbach f.  
Only one species, from Malacca and the Malayan Archipelago. Somewhat approaching the American *Stanhopeas*.
312. **THELASIS**, Blume.  
Eight species, from India, China, and the Malayan Archipelago. Not showy.
313. **Thelymitra**, Forst.  
Twenty species, from Australia, New Zealand, New Caledonia, and Malaysia.
- THUNIA (see *Phaius*), *Orchid Album*, t. 67, 150.
314. **TIPULARIA**, Nuttall.  
Two species, from North America and the Himalayan range. Near *Oreorchis* and *Corallorhiza*.
315. **Trias**, Lindley.  
Three species, from India, wild in Moulmein, and approaching *Bulbophyllum*. See *Gard. Chron.*, 1882, xviii., 426.  
\**T. albo-purpureum*, *Gard. Chron.*, 1866, 219.  
\**T. Flavii*, *Gard. Chron.*, 1882, xvii., 117.
317. **TRICHOCEROS**, Humboldt, Bonpland, and Kunth.  
Six or eight species, from Peru and Colombia.
318. **Trichoglottis**, Blume.  
Four or five species, from Malaysia; approaching *Sarcocylus*.
319. **Trichopilia**, Lindley.  
Sixteen or more species, from Colombia, and Central America, and Mexico. *Helcia* and *Pilumna* are now placed here. Several species are grown in gardens. See *Orchid Album*, t. 14; *Gard. Chron.*, 1879, xii., 139; *Bot. Mag.*, t. 3739, 4654, 4857, 5035 (*Pilumna*), 5550, 5949.
320. **Trichosma**, Lindley.  
One species, wild on the Khasia Hills, related to *Eria*, with the habit of *Coclogyne*. See *Orchid Album*, t. 113; *Gard. Chron.*, 1882, xviii., 812.
321. **Trigonidium**, Lindley.  
Seven or eight species, from Tropical and Central America, Brazil, &c. See *Gard. Chron.*, 1879, xii., 139.
322. **Trizeuxis**, Lindley.  
One species, from the Colombian Andes. See *Gard. Chron.*, 1879, xii., 139.
323. **TROPIDIA**, Lindley.  
Five or more species, from India, Malaysia, and the Pacific islands.
324. **UNCIFERA**, Lindley.  
Two species, wild on the Khasia Hills, and resembling *Saccolabium*.
325. **Vanda**, R. Brown.  
Twenty species and numerous varieties, from India, Malayan Archipelago, and Tropical Australia. *Vanda suavis* and *V. tricolor* are well-known favourites, varying greatly. *V. teres* and *V. Hookeri* are lovely representatives of the terete-leaved group. *V. Sanderiana* is one of the finest species. See *Orchid Album*, t. 15, 48, 59, 61, 73, 77, 124, 168, 172, 180; *Bot. Mag.*, t. 2245, 3416, 4114, 4432, 5174, 5611, 5759, 5811, 5834, 6173, 6328. The following species are figured in *Gard. Chron.*:—  
\**V. Bensonæ*, 1857, 180.  
\**V. Cathcartii*, 1870, 1409.  
\**V. cœrulescens*, 1870, 529.  
\**V. fuscoviridis*, 1848, 351.  
\**V. lamellat* (Boxall), 1881, xv., 87.  
\**V. Sanderiana*, 1883, xx., 440, 441.  
\**V. suavis*, 1872, 974.  
\**V. suavis*, Wingate's var., 1884, xxii., 237.  
\**V. teres*, 1883, xx., 273.  
\**V. tricolor Patersonii*, 1884, xxii., 236
326. **Vanilla**, Swarz.  
Twenty or more species, of world-wide distribution in tropical countries, and remarkable as affording delicious flavouring principle from their fruits. See *Gard. Chron.*, 1879, xii., 139.  
\**Vanilla*, fertilisation of, *Gard. Chron.*, 1867, 997.
27. **VRYDAGZENIA**, Blume.  
Eight species, from the Malayan Archipelago, and the Pacific islands. Near *Heteria* or *Anæctochilus*.
328. **Warrea**, Lindley.  
Two species, from Colombia and Peru. See *Bot. Mag.*, t. 4235 (*Maxillaria*), Loddiges, *Botanical Cabinet*, t. 1884 (*Maxillaria*).
- WARSCIEWICZELLA (see *Zygopetalum*), *Orchid Album*, t. 126.
329. **WULLSCHLEGELIA**, Reichenbach f.  
Two species, from the West Indies and North Brazil. Near *Cranichis*.
330. **XYLOMUM**, Lindley.  
Sixteen species, from Tropical America, resembling *Maxillaria*. See *Bot. Mag.*, t. 2805, 2955, 2981.
331. **YOANIA**, Maximowicz.  
One species, wild in Japan, resembling *Epipogon*.
332. **ZEUNINE**, Lindley.  
Sixteen, from India, Malaysia, and Tropical Africa. Not showy.
333. **Zygopetalum**, Hooker.  
Forty species, from the warm parts of South and Central America, Brazil, and the West Indies. *Hundleya*, *Bolkea*, *Warszewiczella*, and *Promœrea* are now included in this genus. See *Orchid Album*, t. 28, 50, 78, 87, 142; *Gard. Chron.*, 1879, xii., 139; *Bot. Mag.*, t. 2748, 2819, 3402, 3585, 3674, 3686, 4766, 4830 (*Warren*), 5046, 5567, 5582, 5598 (*Hundleya*), 6003, 6331, 6458.  
\**Z. aromaticum*, *Gard. Chron.*, 1868, 75.
334. **ZYGOSTATES**, Lindley.  
Three or four species, from Brazil; approaching the genus *Ornithocephalus*. Not showy.



# SKETCH-MAP OF THE GENERIC DISTRIBUTION OF ORCHIDS.



THE ISOTHERMAL OR WAVY LINES INDICATE THE MEAN OR ANNUAL AVERAGE TEMPERATURE AT SEA-LEVEL.

WHEN ALTITUDES ARE KNOWN SUBTRACT  $3\frac{1}{2}$  DEGREES FAHR. FROM THE TEMPERATURE AT SEA LEVEL FOR EVERY 1,000 FEET TO INDICATE APPROXIMATE TEMPERATURES.

THE FIGURES ON THE MAP CORRESPOND TO THOSE OF THE GENERA AS GIVEN IN THE ACCOMPANYING ALPHABETICAL LIST.







# THE GARDENERS' CHRONICLE.

Established 1841.

No. 593.—VOL. XXIII. { NEW SERIES. }

SATURDAY, MAY 9, 1885.

{ Registered at the General Post-office as a Newspaper. } Price 5d.  
{ With Two Supplements. } POST-FREE, 51d.

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Now Ready, in cloth, 16s.  
**THE GARDENERS' CHRONICLE,**  
Volume XXIII., JULY TO DECEMBER, 1884.  
W. RICHARDS, 47, Wellington Street, Strand, W.C.

**ROYAL HORTICULTURAL SOCIETY,**  
South Kensington, S.W.  
GREAT EXHIBITION OF ORCHIDS AND ORCHID CONFERENCE, in the Conservatory, on TUESDAY and WEDNESDAY, May 12 and 13, in connection with the International Inventions Exhibition.

**ROYAL HORTICULTURAL SOCIETY,**  
South Kensington, S.W.  
NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M., in the Conservatory; Scientific at 2 P.M., in the Library.  
GENERAL MEETING for the Election of Fellows, &c., at 3 P.M., on TUESDAY NEXT, May 12, in the Conservatory.  
ORCHID CONFERENCE, TUESDAY, May 12, and WEDNESDAY, May 13. Open to Fellows at Noon on May 12, and at 10 A.M. on May 13.  
N.B.—Exhibitors' Entrance west side of Royal Albert Hall.

**ROYAL BOTANIC SOCIETY,**  
Gardens, Regent's Park, N.W.  
FIRST SUMMER EXHIBITION OF PLANTS and FLOWERS, WEDNESDAY, May 22, 2 to 7 o'clock. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 5s.; or on the day of Exhibition, 7s. 6d. each. Schedules of Prizes may be had by post.

**CRYSTAL PALACE.**  
GRAND MAY FLOWER SHOW, FRIDAY and SATURDAY, May 22 and 23. For Schedules apply to W. G. HEAD, Garden Superintendent, Crystal Palace, S.E.

**ROYAL BOTANICAL SOCIETY OF MANCHESTER.**  
The GRAND NATIONAL HORTICULTURAL EXHIBITION of 1885 will Open at the Gardens, Old Trafford, Manchester, on FRIDAY, May 22, at 2 P.M. Entries Close on the 15th inst. For further information apply to the undersigned.  
BRUCE FINDLAY,  
Royal Botanic Gardens, Manchester.

**SHEPPERTON and DISTRICT FLOWER SHOW.**  
Including all places within a radius of 6 Miles from Shepperton Church.

The SECOND ANNUAL SHOW will be held on THURSDAY, July 2, in the Grounds of Sunbury Court, Sunbury, by kind permission of Lieut.-Col. W. H. Harfield. EXHIBITION of ROSES and other FLOWERS, ORCHIDS, FOLIAGE PLANTS, FRUIT, and VEGETABLES. Special Classes open to All England. Third Prize will be given where considered worthy. The Band of Her Majesty's Royal Horse Guards (by kind permission of Colonel Milne Home, M.P.) will attend, conducted by Mr. Charles Godfrey. Further particulars, Schedules of Prizes, and Entrance Forms to be obtained from ARTHUR E. STEARNS, Hon. Sec. The Lodge, Upper Halliford, Walton-on-Thames.

**EALING, ACTON, and HANWELL HORTICULTURAL SOCIETY.**  
SPECIAL GREAT ANNIVERSARY EXHIBITION in the Grounds of Gunnersbury Park, Ealing, W., on TUESDAY, July 7, and WEDNESDAY, July 8. The sum of SEVENTY-FIVE POUNDS is offered in SPECIAL PRIZES, open to All Comers. Schedules of Prizes forwarded on application to RICHARD DEAN, Hon. Sec. Ranelagh Road, Ealing, W.

## WILTS HORTICULTURAL SOCIETY'S SHOW, Salisbury, AUGUST 23. Division A., Open.

Twelve STOVE and GREENHOUSE FLOWERING PLANTS. First Prize, £15.  
Twelve VARIEGATED and FINE-FOLIAGE STOVE and GREENHOUSE PLANTS. First Prize, £13.  
Schedules on application to

W. H. WILLIAMS, Hon. Secretary.  
The Nurseries, Salisbury.

**CARTERS' INVICTA LAWN SEED** for present sowing. Price, in sealed packets, 1s., 1s. 6d., and 2s. 6d., post free; 25s. per bushel, carriage free.  
**CARTERS' GRASS SEED** for Town Lawns, 1s. 3d. per lb., 25s. per bushel.

**CARTERS' GRASS SEEDS** for Tennis Grounds, 1s. per lb., 21s. per bushel.

**CARTERS' GRASS SEEDS** to repair Old Lawns, 1s. 3d. per lb., 25s. per bushel.

**CARTERS' GRASS SEEDS** for under Trees, 1s. 3d. per lb., 25s. per bushel. Sow 4 Bushels of Seed per Acre.

**CARTERS, SEEDSMEN** by Royal Warrant to H.R.H. the Prince of Wales, 237 and 238, High Holborn, London, W.C.

A Great Acquisition for In and Outdoor.  
**TROPÆOLUM H. GRASSHOFF.**  
Perfectly double. Orange-scarlet flowers, 2½ inches in diameter, 4s. per dozen, post-free for cash.  
JAMES MATTHEWS, Nurseryman, Limerick.

**GERANIUMS, 3000 Tricolor**—Mrs. Pollock, 25s. per 100; Flambeaux, 30s. per 100—one of the best for bedding out. Good strong plants in 3¼-inch pots.  
Messrs. TURNER BROS., Nurserymen and Florists, Green Hill Nursery, Allerton, Liverpool.

**CARNATIONS, PICOTEES, CLOVES, PINKS, PANSIES**, in the very best varieties, strong, vigorous plants. Special Trade Quotations.  
SAMUEL HARTLEY, Headingley Nursery, Leeds.

**HOLLYHOCKS**.—A full Collection of fine named Hollyhocks, in good Plants. Also choice Collections of all FLORISTS' FLOWERS.  
CATALOGUE on application.  
JOHN FORBES, Nurseryman, Hawick, N.B.

**FOR SALE**, a splendid Double White CAMELIA, 12 feet high. Apply to Mr. MURPHY, Cleveland Lodge, Great Ayton, Yorkshire.

**"YE NARCISSUS or DAFFODIL,"** containing its History, Poetry, and Culture, with Notes on Hybridisation, and illustrated with many Woodcuts. Price 1s.  
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**Hyacinthus candicans.**  
**BUDDENBORG BROS., BULB GROWERS,**  
Hillegom, near Haarlem, Holland, offer the above, splendid white flowering bulb, at 50s. per 1000.

**CREEPERS for Walls, Trellises, &c.**, in great variety. By planting what is suitable, an unsightly object may easily be made beautiful. Descriptive LIST and advice on application.  
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**GLADIOLI, PYRETHRUMS, and DAHLIAS**, the largest collections in Europe. CATALOGUES gratis.—KELWAY AND SON, Langport, Somerset.

**SQUELCH AND BARNHAM,**  
Long Market, Covent Garden, London, W.C. REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatos, Cucumbers, choice Flowers, &c.

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ACCOUNT SALES sent daily, and CHEQUES forwarded weekly.  
BANKERS and TRADE REFERENCES.  
BASKETS and LABELS supplied.

**WISE AND RIDES, Covent Garden, W.C.**, are open to RECEIVE CONSIGNMENTS of Choice FRUIT and FLOWERS.

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**WANTED, for Cash, GALANTHUS ELWESI, SNOWDROPS** (single and double), NARCISS (in variety), LILUM (in variety), IRIS, (in variety), SCILLA SIBIRICA, TIGRIDIAS (in variety), HELLEBORUS (in variety), LILY of the VALLEY, CHIONODOXA LUCILLE, and any other popular or rare species. State quantity and lowest price to ALPHA, T. W. Hannaford, 73, Ludgate Hill, London, E.C.

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**SUTTON'S PAMPHLET ON LAWNS**, their Formation and Improvement, gratis and post-free.

**SUTTON AND SONS, SEEDSMEN**, by Royal Warrants, to H.M. the Queen, and H.R.H. the Prince of Wales, Reading.

**DR. PATERSON TESTIMONIAL FUND.**  
Intending Subscribers will be so good as send their Subscriptions, as early as possible, to the Treasurer, Mr. JOHN GRAHAM, Bridge of Allan; or to Mr. R. P. McCAGIE, Bridge of Allan, Honorary Secretary.

**Seaforthia elegans.**  
**JOHN STANDISH AND CO.** offer fine Furnishing Plants of this popular PALM, in 48's, 2 to 2½ feet high, four to five leaves, at 18s. per dozen; good plants, in large 60's, 12s. per dozen.  
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CHARLES HOLLINGSWORTH, Firwood Nursery, Farnborough, Kent.

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Messrs. TURNER BROS., Nurserymen and Florists, Orson Hill Nursery, Allerton, Liverpool.

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5000 ARGYRIES at 4s. per 100.  
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**NEW SINGLE FUCHSIA**.—A splendid dark variety, blooms 4 inches in length, borne in large clusters. Strong plants, in 5-inch pots, 2s. 6d. each, 24s. per dozen. Also HARDY AQUATIC PLANTS.  
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**JOHN LAING AND CO.**  
**BEGONIA ROOTS.**  
Collections, unnamed, our selection.—Singles: G, 21s.; H, 18s.; J, 18s.; K, 12s.; L, 9s. per dozen. Doubles: W, 36s.; X, 24s.; Y, 18s. per dozen. Singles, for Bedding, 4s. and 6s. per dozen—all free by Parcel Post. The immense demand has much reduced our saleable roots of named varieties for the present.  
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**PALMS**.—Specially hardy grown, for Cool Greenhouses and Dwelling-houses. Latzina borbonica and Seaforthia elegans, splendidly foliaged, 20 inches high, 12s. per dozen; sample plants, 1s. 3d. Same kinds, 12 inches high, 25s. per 100; sample twelve for 4s. All packages and parcels post-free. Postal Orders to GARDENER, Holly Lodge, Stamford Hill, London, N.

**LILUM AURATUM**.—Special Offer.—Last consignment this season. Splendid sound Bulbs, as good as in the autumn, 8 to 10 inches, 6s. per dozen; 42s. per 100. Quality unsurpassed. (See former Advertisements.)  
MOKLE AND CO., 1 and 2, and 162A, Fenchurch Street, E.C., and Child's Hill Farm Nursery, N.W.

**BEDFORDSHIRE CHAMPION ONION.**  
—A few pounds left, at 3s. 6d. per pound. Splendid Stock. To clear. Cash.  
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**ROBINSON'S CHAMPION DRUMHEAD**  
CATTLE CABBAGE, strong plants, 3s. per 1000. Cash with order from all unknown correspondents.—JOHN PERKINS AND SON, Billing Road Nurseries, Northampton



## SALES BY AUCTION.

Monday Next. May 11.

The day preceding the Orchid Conference.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on MONDAY NEXT, May 11, at half-past 12 o'clock precisely, a splendid importation of EPIDENDRUM VITELINUM MAJUS, ODONTOGLOSSUM ROSA MAJUS, and RUBESCENS, in unusually large masses; O. CITROSUM ALEUM and ROSEUM, O. INSLEAYI SPLENDENS, O. LEOPARDINUM, O. NEBULOSUM, O. PHALANOPSIS, O. CERVANTESI, LELIA ANCEPS, the large and dark flowering varieties; L. MAJALIS, L. ALBIDA, CATTLEYA CITRINA, LELIA AUTUMNALIS ATORRUBENS, and many other Orchids.

On view morning of Sale, and Catalogues had.

Wednesday Next.

CARNATIONS, PICOTEES, PLANTS, &amp;c.

**MESSRS. PROTHEROE AND MORRIS** will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, May 13, at half-past 12 o'clock precisely, 100 Lots of choice named CARNATIONS and PICOTEES, from a celebrated Collection; an assortment of GREENHOUSE PLANTS, many in flower; AZALEAS, GERANIUMS, and other BEDDING PLANTS, FERNS, PINKS, CLOVES; a variety of Hardy PLANTS and BULBS, 500 LILUM AURATUM from Japan, fine bulbs; and 400 GOLD FISH.

On view morning of Sale, and Catalogues had.

Thursday Next.—Orchid Conference Week.

**MESSRS. PROTHEROE AND MORRIS** will SELL by AUCTION, at their Central Auction Rooms, 67 and 68, Cheapside, E.C. (next door but one to Bennett's Clock), on THURSDAY NEXT, May 14 (the day following the Conference), at half-past 12 o'clock precisely, a large and varied assortment of ORCHIDS in FLOWER, comprising a large number of Odontoglossum Alexandræ and Pescatorei, including some very beautiful varieties; a grand lot of Cattleya Mossiæ and Cattleya Mendeli, including several fine examples and varieties; a specimen Masdevallia Lindeni with forty spikes, Masdevallia Harryana with ten spikes, Cattleya Sanderiana, superb specimen with ten flowering leads; several Lælia purpurata, fine examples, one with ten flowering leads; specimen Lælia elegans with six flowers on each spike; Disa grandiflora with ten growths, Cattleya nobilior, a considerable number of Dendrobium thyrsiflorum, D. Jamesianum, some fine examples of the lovely late flowering Treantiam variety of Cœlogyne cristata, Cypripedium Druryi, Odontoglossum Rossi majus rubescens, Odontoglossum vexillarium, &c.

On view morning of Sale, and Catalogues had.

N.B.—Messrs. P. and M. have received numerous other entries for the above Sale, particulars of which did not arrive in time to be included in this advertisement, but they will appear in the Catalogue.

Feltham, Middlesex.

**GREAT UNRESERVED CLEARANCE SALE.**—Important to the Trade and Market Growers.—Nearly 200,000 GREENHOUSE PLANTS, Steam BOILER, and Pulpmeter PUMP, 2 HORSES, VAN, 200 casts FLOWER-POTS.

**MESSRS. PROTHEROE AND MORRIS** will SELL by AUCTION, on the Premises, The Royal Nursery, Feltham, Middlesex (in the occupation of Mr. G. A. Roberts, whose vacancy is expiring), on WEDNESDAY, THURSDAY, May 13 and 14, at 12 o'clock precisely each day, without the least reserve, the whole of the valuable and well-grown Stock-in-Trade, comprising 300 PELARGONIUMS, 7000 Zonal GERANIUMS, 7000 MARGUERITES, 10,000 FUCHSIAS, large white AZALEAS and CAMELLIAS, 2000 CRASSULAS, 2000 Intermediate STOCKS, 5000 DAHLIAS, 2000 Seedling and other CYCLAMEN, 500 AKUMS, 300 AZALEA MOLLIS and A. INDICA, about 10,000 Bedding GERANIUMS, the well-known and unique collection of White, Red, and Yellow CHRYSANTHEMUMS, comprising about 80,000 plants; the whole of the UTENSILS in Trade. Vertical Steam BOILER, 14 Pulpmeter PUMP, raising 6000 gallons daily; 200 casts FLOWER-POTS, galvanised water TANK, BOXES and FRAMES, two PITTS, two HORSES, spring VAN, HARNESS, and numerous effects.

May now be viewed. Catalogues may be had of Mr. ROBERTS, on the Premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

N.B.—The valuable FREEHOLD ESTATE, of 5 Acres, with numerous ERECTIONS and PIPING, to be SOLD, or LET. It is ripe for Building, and presents a fine field for speculation by the creation of Ground-Rents, or resale in Plots.

Orchid Conference Week.

IMPORTANT TO EXHIBITORS.

**MESSRS. PROTHEROE AND MORRIS** beg to call the attention of intending exhibitors (who would prefer selling their plants by Auction) to the SPECIAL SALE OF ORCHIDS in FLOWER, at the Central Sale Rooms, 67 and 68, Cheapside, E.C., on THURSDAY NEXT, May 14, at half-past 12 o'clock precisely—the day following the Conference.

Messrs. P. and M. will be glad to receive an early intimation from Gentlemen proposing to include their Plants. A Special Supplement to the Catalogue will be issued for late entries.

Friday Next.—Orchid Conference Week.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. F. Sander to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, May 15, at half-past 12 o'clock precisely, grand importations of ORCHIDS, from Columbia, Mexico, and the East, all in fine order.

On view morning of Sale, and Catalogues had.

Harlesden, N.W.—Clearance Sale.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. J. Tibbles (who is relinquishing the business through ill health) to SELL by AUCTION, on the Premises, the St. Mary's Nursery, Harlesden, N.W., ten minutes' walk from Willesden Junction Station, on THURSDAY, May 21, at 12 o'clock precisely, the first portion of the well-grown stock, comprising 5000 ZONAL GERANIUMS, in 40 and 48 pots, of the best sorts; AMARYLLIS, AGANTHUS, 2000 ORCHIDS, 170 LILY OF THE VALLEY, 100 ANTHURUS SCHERZERIANUM, all fine plants; 2000 LOBELIAS, and other BEDDING PLANTS.

May be viewed. Catalogues had on the premises, and of the Auctioneers and Valuers 67 and 68, Cheapside, E.C.

N.B. THE NURSERY, with DWELLING-HOUSE, 10 GREENHOUSES, all heated upon the best principles, PITTS, &c., to be SOLD. Apply to the Auctioneers.

Maesmyrnan Hall, Caerwys, Flintshire.

About five minutes' walk from the Caerwys Station. IMPORTANT CLEARANCE SALE of a Valuable Collection of STOVE and GREENHOUSE PLANTS, &c.

**MESSRS. PROTHEROE AND MORRIS** (in conjunction with Mr. John Pritchard) are instructed by Wm. Pickstone, Esq., to SELL by AUCTION, without reserve, on the Premises, as above, on TUESDAY and WEDNESDAY, May 19 and 20, at half-past 11 o'clock precisely each day, the whole of the celebrated COLLECTION of STOVE and GREENHOUSE PLANTS, comprising several handsome Tree Ferns, Palms, splendidly grown Fuchsias, Geraniums, and Pelargoniums, for exhibition; Camellias, Azaleas, fine Eucharis, Tea and other Roses, Vines, several thousand Plants for Bedding purposes, a large and complete collection of 2000 Chrysanthemums, a considerable number of Rhododendrons, several tons of STALACTITE, MOWING MACHINE, GARDEN POTS, &c.

On view the day preceding the Sale. Catalogues (6d. each, returnable to purchasers) may be had of Mr. JOHN PRITCHARD, Auctioneer and Land Agent, Bodryfyd, Bangor; and of the Auctioneers and Valuers, 67 and 68, Cheapside, London, E.C.

N.B. The Maesmyrnan FREEHOLD ESTATE, of about 1200 Acres in extent, with the Mansion, the Manor and Court Leet, will be offered for SALE by AUCTION in JULY NEXT, unless previously Sold by Private Treaty.

Orchid Conference Week.

SPECIAL NOTICE.

**MR. J. C. STEVENS' ROOMS** will be KEPT OPEN until 9 o'clock on WEDNESDAY EVENING for the convenience of Gentlemen wishing to remove their plants from the Orchid Conference Exhibition for Sale on the Thursday.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Thursday Next.—(Sale No. 6599)

ORCHIDS IN FLOWER.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 14 (the day following the Orchid Conference at South Kensington), at half-past 12 o'clock precisely, a grand Collection of ORCHIDS IN FLOWER, comprising a choice assortment of Masdevallias, including M. Veitchii with eighty leaves; splendid rosea, each with about fifty flowers; the finest specimen of M. Schlimii in Europe, with 135 leaves; and others. Grand masses of Lælia purpurata, L. p. alba, many splendid forms of Odontoglossum Alexandræ, including two plants of the rare var. guttatum; O. Pescatorei, O. vexillarium, best types; O. polyanthum, the rare O. laeve, and O. marginellum; Phalaenopsis speciosa (six plants), P. Stuartiana, and P. Sanderiana; Cattleya crispa, C. Mendeli, and C. Mossiæ; Lælia Schröderi, fine specimen of Cypripedium caudatum, Aerides Houlettianum, with twenty-two leaves and forty flowers; Aerides species, strong plants, with three growths and two spikes, with over fifty flowers; a violet-blue Yanda, with three spikes, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6599)

ESTABLISHED ORCHIDS, from a Celebrated Collection.

**MR. J. C. STEVENS** will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 14 (the day following the Orchid Conference at South Kensington), a few choice ESTABLISHED ORCHIDS, from a celebrated Collection, comprising, amongst other fine things, Cypripedium Spicerianum, with eight breaks; C. selligerum, with sixteen breaks; C. barbatum grandiflorum nanum, with twenty breaks; a large specimen of Cattleya Trianae alba, with fifty bulbs, in perfect health; two strong plants of Cypripedium Læcanum, with four leads, one of the best of the new Cypripedium hybrids, &c.

On view morning of Sale, and Catalogues had.

The Collection of Orchids formed by A. D. Berrington, Esq., of Pant-y-Goitre, Abergeveany.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 20, without the least reserve, the ENTIRE COLLECTION of ORCHIDS formed by A. D. Berrington, Esq., of Pant-y-Goitre, Abergeveany, including, amongst others, Agræum sesquipedale, with forty leaves; Anguloa Ruckeri, fine plant, with ten bulbs; Cœlogyne tomentosa, two plants; C. viscosa, Cattleya crispa, very fine variety; five plants of the autumn-flowering Clivia, two plants of C. Lemoniana, Lælia anceps Dawsoni, two good plants; Odontoglossum Blunthii, fine spotted form; O. pulchellum, &c.

On view morning of Sale, and Catalogues had.

Public Hall, Bexley Heath.

STOVE and GREENHOUSE PLANTS, ORCHIDS, BEDDING-OUT PLANTS, &amp;c.

**MR. DANN** has received instructions to SELL the above by AUCTION, on THURSDAY, May 14, at 1 for 2 o'clock, at the Public Hall, Bexley Heath. The plants are the property of a gentleman, and have been removed for the convenience of sale. The STOVE and GREENHOUSE PLANTS comprise about 100 Pelargoniums, leading sorts; 300 choice Zonal Geraniums, 18 specimen Gardenias, 12 specimen Deutzias and Azaleas, valuable Orchids, 100 Chrysanthemums, 200 Maidenhair Ferns. BEDDING PLANTS—500 bedding Geraniums of sorts, 200 Carpet Bedding Plants, including Echeveria, Alternanthera, Mesembryanthemum, &c., 200 Tree Carnations, and various other Plants.

May be viewed the morning of the Sale. Catalogues had of Mr. JENKINS, the Observer Office, Bexley Heath; and of the Auctioneer, Bexley, and 26, Lowfield Street, Dartford, Kent.

The Nursery, High Street, Brentwood.

R. Follwell &amp; Laming.

**MR. BURLEY** is favoured with instructions from the Official Receiver in Bankruptcy, to SELL by PUBLIC AUCTION, on the premises, THURSDAY, May 14, at 10 for 11 o'clock, the whole of the valuable NURSERY STOCK and UTENSILS IN TRADE, comprising about 2000 Herbaceous Plants in pots, of the most approved kinds, collection of Ferns, Palms, Orchids, Camellias, Azaleas, Spiræas, Hybrid Perpetuals, and Tea Rose, in pots, fine plants of Marseillaise Niel Rose, quantity of large flowering Pelargoniums and Chrysanthemums, &c., 1000 Zonal, Golden and Silver Tricolor Geraniums, Peonies, Shrubs in pots, Standard and Trained Fruit Trees, Standard and Dwarf Roses, Three Nests of Seed Drawers, Horticultural Sundries, Iron Safe, Scales and Weights, nearly new Wheelbarrow, Sundry Tools, Eighteen Round Baskets, and a quantity of Seeds; 400 feet of 1-inch Boards, 160 feet of 2-inch Hot-water Pipes, Boiler, quantity of Bricks and Flower Pots, &c.

On view morning of Sale. Catalogues may be obtained of C. GODFREY, Esq., Romford; of TAYLOR, Solicitor, High Street, Brentwood; of Mr. LAMING, on the Premises; and of the Auctioneer and Valuer, High Street, Brentwood.

**WANTED TO PURCHASE,** a good WORKING NURSERY and SEED BUSINESS, or a PARTNERSHIP in an Old-established House. Enquiry per letter only.

T. F. S. Hurst &amp; Son, 152, Houndsditch, London, E.

**TO BE SOLD or LET,** the well known FREEHOLD MARKET GARDENS, 9 miles north of London, and five minutes from Whetstone Station (G.N.R.), on account of the ill-health of occupier. They contain about 80,000 feet 27-in. Glass, with every modern improvement, erected within the last few years. Large Boilers, thousands of yards of Hot-water Pipes. Well stocked with Vines, Camellias, Cucumbers, Plants, &c.—one Camellia 20 feet by 20 feet through; all in a high state of cultivation. Good House and Out-buildings, Cottages for men, Vans, Horses, Tools, &c.; occupying about 5 Acres. Part of Purchase-money can remain on Mortgage. There are, further, 13 Acres of Land which may be reserved for Building purposes.

May be seen by applying to Mr. DAVIDSON, the premises; or Mr. DAVIS, Friern Lodge, Hereford; or Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

Bledlow, Bucks.

4 miles from Thame, and close to Bledlow Station, G.W.R. To NURSERYMEN, MARKET GARDENERS, and INVESTORS.

**TO BE LET, or SOLD,** an attractive and valuable FREEHOLD PROPERTY, fronting the main road between Bledlow Station and Towersey and Thame, the Ground being profusely planted with choice Fruit Trees in their full bearing. The Premises are compact, and have a long roadside frontage, and contain about 33, or 6p. They are watered by an unfailing stream which passes through the ground. The Land is a deep loam of a very yielding quality, and the Trees are all young and are now in, or approaching, their full bearing. Upon the ground are two brick, stucco, and tiled Cottages and Woodhouses, with slated Shed at end, one being occupied by Widow Bowler as caretaker. There is also a row of four old brick and thatched Cottages, with large Packing Shed at end and tiled Shed behind with small Greenhouse. These Cottages are either used as Store Houses or are untenanted. There is also an old four-roomed Cottage by the high road with a 50 feet span Greenhouse near. There are a few ornamental Fruit trees, and the remainder of the land is covered with Fruit Trees which in good seasons yield a large return.

Particulars may be obtained of DANIEL CLARKE, Esq., Solicitor, High Wycombe; or of Messrs. VERNON AND SON, Land Agents, &c., Great George Street, Westminster, S.W., and High Wycombe, Bucks.

**TO LET, a FLORIST and JOBBING BUSINESS,** 14 years' unexpired Lease; can have 21 years more on Lease if required. Leaving through sickness. Is situated in the County of Middlesex. Good opening for any one requiring a Florist's Business. Capital required, about £100. Apply, by letter, to G. T., Mr. Jacklin, Alma Villas, Twickenham.

To Florists, Market Gardeners, and Others.

**TO LET, at Fulham, 1½ Acre of GARDEN GROUND,** with nine Glass Houses. Suitable for the business of a Florist or Seedsman.—For particulars apply to Messrs. ROSE AND JOHNSON, Solicitors, 26, Great George Street, Westminster, S.W.

To Florists.

**TO BE LET, RENT FREE, EXTENSIVE SPACES and CONSERVATORY in the ROYAL AQUARIUM,** for Exhibition and Sale of Flowers, Shrubs, and Plants.

For conditions and other particulars, apply personally to the MANAGER.

**PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS,** 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

**JOHN KENNARD'S HORTICULTURAL SUNDRIES,** Pent, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

**T. HARPHAM, PRACTICAL ROCK BUILDER and GENERAL HORTICULTURAL DECORATOR** for Caves, Waterfalls, Fountains, &c., 107, Church Street, Edgware Road, London, W.

To Landed Proprietors, &amp;c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELING existing GARDENS. Plans prepared, 115, Listra Park, Stamford Hill, N.

**SINGLE DAHLIAS.** FORMOSA, finest novelty of the season, gained the only First-class Certificate from the Royal Horticultural Society during the season, 22. 6d. each, post-free. Fifty other choice varieties of SINGLES, 6s. per dozen. DOUBLES, Show and Fancies, 4s. and 6s. per dozen.

CATALOGUE free.

J. CHEAL AND SONS, Lowfield Nurseries, Crawley, Sussex.

**PRIMULAS.—PRIMULAS.—PRIMULAS.** Sixteenth year of distribution.

**WILLIAMS' SUPERB STRAIN,** 1s. 6d. per doz., 10s. per 100. CINERARIAS same price. Package and carriage free for cash with order. Above are strong, and fit for potting into 3-inch pots.

JOHN STEVENS, The Nurseries, Coventry.

To the Trade.

**SWEDE and other TURNIP SEEDS.** H. AND F. SHARPE invite the attention of the Trade to their fine selected Stocks of home-grown SWEDES and other TURNIP SEEDS of 1884 growth, and raised from transplanted Bulbs. Prices and further particulars may be had on application.

Seed Growing Establishment, Wisbech.

**A SPARGACUS.—True Giant, 2, 3, and 4-yr.** Fine sample 100 or 1000, with price, on application. JAMES BIRD, Nurseryman, Downham.

**CARNATIONS.—Strong Seedlings,** from a splendid Collection of Choice Named Flowers. All to bloom in year. Per dozen, 21. 6d.; per 100, 154. DANIELS BROS., Town Close Nurseries, Norwich.





# MESSRS. JAMES VEITCH & SONS' NEW AND GENERAL PLANT CATALOGUE FOR 1885,

*Is now ready, and will be forwarded Post-free on application.*

ROYAL EXOTIC NURSERY, 544, KING'S ROAD, CHELSEA, LONDON, S.W.



# MESSRS. JAMES VEITCH & SONS' CATALOGUE OF SELECT SOFT-WOODED AND BEDDING PLANTS,

*Is now ready, and will be forwarded Post-free on application.*

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## PELARGONIUM, "VOLONTÉ NATIONALE ALBA." FREDERICK PERKINS

Has great pleasure to announce that he is now prepared to distribute this splendid new Geranium, which is a sport from the well-known favourite Volonté Nationale, with splendid large fringed flowers, of the purest white. A strong grower and continual bloomer, and will be invaluable for cut flowers and every description of decorations.

Strong Plants, 10s. 6d. each.

Post-free for cash.

*Sample Flowers sent to intending purchasers.*

FREDERICK PERKINS,  
NURSERYMAN, REGENT STREET, LEAMINGTON.

## ITALY IN ENGLAND.

### PALMS

(PHOENIX

CANARIENSIS)

with leaves  
5—7 feet long.

### FOR LAWNS AND PARKS, &c.

Require only to be sunk in a hole in the ground, in the tubs they now occupy. They will stand a few degrees of frost.

### FOR VESTIBULES, TERRACES, &c.

Are already in sound tubs, but may be transplanted into others with safety.

HOOVER AND CO. have received a fine lot of these plants, in excellent condition, and invite inspection of them by Noblemen, Gentlemen, or their Gardeners, Managers of Public Establishments, Parks, &c. Their ornamental value is of the highest order, and they can be offered at **LESS THAN HALF THE USUAL COST** of such plants in England.

*On view at the Piazza, Covent Garden.*

HOOVER & CO., COVENT GARDEN, LONDON, W.C.

Clapton Nursery, London, E.  
Bush Hill Park Nursery, Enfield, N.

At the above-named Nurseries are cultivated, in unusually large quantities, Azaleas, Bouvardias, Camellias, Climbing Plants, Cyclamen, Epacris, Ericas, Ferns, Ficus, Flowering and Decorative Plants in variety; Fruit Trees, Gardenias, Geoists, Grape Vines, Greenhouse Plants in variety; Palms, Pelargoniums, Rhododendrons, Roses, Shrubs, Stove Plants in variety, &c.

ORCHIDS A SPECIALTY. — The stock at the Clapton Nursery is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent. The glass structures cover an area of upwards of 236,000 superficial feet.

HUGH LOW & CO.  
cordially invite Gentlemen interested in Horticulture to inspect the Nurseries.

## NEW CATALOGUE FOR 1885.

*Beautiful Flowers for Indoors, selected from an immense stock. Our Glasshouses cover nearly 2 acres.*

Wm. Clibran & Son's New List  
(90 Pages Double Column)

Of the newest and finest varieties of all classes of Plants for Greenhouses, Stoves, &c., may now be had for two stamps. It includes only the best varieties of their respective classes. Every season new sorts are added. Comparisons of the varieties when in bloom carefully made, and the inferior kinds discarded. Intending purchasers may rely, when selections are ordered as under, on being supplied with varieties of merit only.

The following cheap Collections of finest named kinds consist entirely of our selection. Purchasers may select from the Lists at Prices as per CATALOGUE, which please see before ordering elsewhere.

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| 12 Achimenes, 12 sorts, 2s. 6d.                                                                | 50 " 2 classes, a lovely selection, 12s. 6d.                                             |
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| 100 " 18s.                                                                                     |                                                                                          |

W. CLIBRAN AND SON'S NEW CATALOGUE (free for two stamps) of Hardy Plants and Florists' Flowers for outdoors, is a list of the finest Collections in the Country of Low Priced Plants, and includes only varieties which are annually tested and compared to ensure the weeding out of all inferior plants. The following cheap Collections are of our selection only, all named sorts for Garden or Exhibition: —

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| 12 each of ANTIRRHINUMS, PENTSTEMONS, PHLOXES for 9s., or 12 of any separate for 3s. 6d.                            |
| 12 PYRETHRUMS, 5s. 12 POTENTILLAS, 5s. 12 DELPHINIUMS, 7s. 6d.; 12 PÆONIES, 9s.; or 12 of each, 22s. 6d.            |
| 12 CARNATIONS, 6s.; 12 PICOTEEES, 6s.; 12 PINKS, 3s. 6d.; 12 Show or Fancy PANSIES, 3s.; or 12 of each for 17s. 6d. |
| 12 DAHLIAS of any class, Show, Fancy, Bedding, Bouquet, or Single, 3s.; 50 varieties, 12s. 6d.; 100 varieties, 25s. |
| 12 lovely IRIS, 3s.; 12 beautiful MIMULUS, 3s.                                                                      |
| 12 lovely PRIMROSES, Double, 6s.; 12 SAXIFRAGAS, 3s.; 12 SEDUMS, 3s.                                                |
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| 40 Acres fine NURSERY STOCK.                                                                                        |
| 5 " HERBACEOUS PLANTS.                                                                                              |
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Hundreds of Thousands of  
FERNS AND SELAGINELLAS,  
for Stove and Greenhouse Cultivation, and Outdoor Ferneries.  
ABRIDGED CATALOGUE  
of over 1200 Species and Varieties free on application.

LARGE CATALOGUE (price 1s.), containing 75 Illustrations of Ferns and Selaginellas, valuable "Hints on Fern Culture," and other useful and interesting information.

W. & J. BIRKENHEAD,  
FERN NURSERY, SALE, MANCHESTER.

## NEW HAMPSHIRE SEED MAIZE.

Very hardy. Quick growing. Ears over 6 inches long.

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*Exhibitors of Maize at Health Exhibition.*

## CLEMATIS for Bedding.

CLEMATIS for the Rock Garden.

CLEMATIS for Walls.

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CLEMATIS for Everything Beautiful.

Above all have the 10 Clematis awarded First-class Certificates by the Royal Horticultural Society.

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CHARLES NOBLE, BAGSHOT



**THE LIVERPOOL HORTICULTURAL COMPANY** (JOHN COWAN), Limited, have a large and fine stock of **EAST INDIAN** and other **ORCHIDS**, and they are constantly receiving fresh importations from various parts of the world. Full particulars of Orchids in stock, and also fresh importations, forwarded on application.

The Company have also a large and fine stock of **TEA** and other **ROSES** in pots, **GRAPE VINES**, **FERNS**, and other **ORNAMENTAL PLANTS**, which they offer at extremely moderate prices. LIST with full particulars on application. The Vineyard and Nurseries, Garston, Liverpool.

**NEW ROSES.**—One dozen of the best **NEW ROSES** of 1884-85 for 30s., including Gloire Lyonnaise, the new yellow H.P.; Sunset, the fine new American Tea; Bedford Belle and Gipsy, Laxton's two new varieties; Bennett's Grace Darling and Mary Bennett, Etendard de Jeanne d'Arc, white Gloire de Dijon; Perle d'Or, the yellow Polyantha; Mrs. Caroline Swales, &c.

Basket and packing free for cash with order.  
LIST of Pot Roses, &c., post-free,  
**GEO. COOLING AND SON**, The Nurseries, Bath.

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**JOHN STANDISH AND CO.** beg to offer a splendid lot of well-grown **GARDENIA PLANTS**, clean, bushy, and well set. Each—s. d.  
In 5-in. pots, 1½ feet high, 9 to 12 buds 1 6 to 2 0  
In 6-in. " 1½ " and bushy, 12 to 18 buds 2 0 to 2 6  
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In 18-in. " 2½ to 3 feet high and as much through, with 200 to 250 buds, 50s. to 65s. each.  
Royal Nurseries, Ascot.

#### Cheap Plants.—Special Offer.

**WILLIAM BADMAN** offers as under from store pots, all healthy, well-rooted, and fit for present potting:—

**TRICOLORS**—Mrs. Pollock, one of the best, 2s. per dozen, 15s. per 100; Lady Collum, S. Dumareque, Sir R. Napier, 2s. 6d. per dozen, 18s. per 100. Twelve choice varieties Tricolors, for 1s.

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**BRONZE**—McMahon, Black Douglas, Czar (best bedders), 2s. per dozen, 15s. per 100.

**SCARLET**—Yeu-vius, Jean Sisley, Col. Seely, 1s. 6d. per dozen, 8s. per 100.

**PINK**—Master Christine, Mrs. Levers (fine), 1s. 6d. per dozen, 10s. per 100.

**WHITE**—Madame Vaucher and Virgo Marie, 1s. 6d. per dozen, 10s. per 100.

**CRIMSON**—Henry Jacoby, 2s. per dozen, 15s. per 100; Waltham Seedling, 1s. 6d. per dozen, 8s. per 100.

**LOBELIA**—Brighton, Blue Stone, Pumila magnifica, 3s. per 10, 20s. per 100.

**HELIOTROPE**—Jean d'Amour, Miss Nightingale and Light, 6s. per 100.

**AGERATUM**—Imperial Dwarf Blue, 5s. per 100, 40s. per 1000.

**CALCEOLARIA**—Golden Gem and Dark Camden Hero, 5s. per 100, 40s. per 1000.

**COLEUS** Verschaffelti and IRESINE Liadani, 5s. per 100.

**TROEOLMUM** Yeu-vius, dwarf, good bedded, 8s. per 100.

**PELARGONIUMS**—Show and Fancy, in single pots, 3s. per dozen, 20s. per 100.

Packing included. Terms Cash.

Cemetery Nursery, Gravesend.

**NEW ZONAL PELARGONIUMS**, to be sent out on and after May 1:—

Mr. A. HEAVER, bright deep scarlet, very large, fine form, free habit, distinct. Two First-class Certificates.

**ROBERT CROOK**, light scarlet, large overlapping pip and truss; very effective. One First-class Certificate.

**LUTHER M. MEADOWS**, rich coloured salmon, of the finest form, very large compact grower, very free. One First-class Certificate.

Mrs. CROOK, quite new in colour, light salmon, very large, compact and free. One First-class Certificate.

**LADY ROSE**: this is, without doubt, one of the finest rose ever sent out; good for all purposes.

**OSBORNE BEDDER**: we have in this one of the finest bedders ever sent out, very dwarf and branching, stands sun and rain well, deep crimson. The set of Six, 10s. 6d.

Carriage paid. Cash with order. P.O. payable Upper Tooting.

T. TODMAN AND SON,

Rose Park Nursery, Upper Tooting, London, S.W.

**S E D S.**  
TO THE TRADE.

MANGEL, Champion Yellow Globe, 30s. per cwt.

" Berkshire Prize, 30s. per cwt.

" Sutton's Yellow Intermediate, 30s. per cwt.

SWEDE, Sharpe's Improved Purple-top, 17s. per bushel.

Shamrock, Purple-top, 17s. per bushel.

TURNIP, Green Globe (Imperial), 16s. per bushel.

" Bradfield Hall Yellow, 17s. per bushel; a valuable late-keeping variety.

" Red Globe, 16s. per bushel.

Satisfactory reference desired from unknown correspondents.

A. DUCKERING, Seed Grower and Merchant, East Barkwith, near Wragby.

**JULES DE COCK**, Ornamental Plant

Nurseries, Ghent, Belgium, offers to the Trade, per 100, in store pots:—ARECA SAPIDA, 12s.; CHAMÆROPS FORTUNEI, 4s.; COCOS WEDDELLIANA, 40s.; CORYPHA AUSTRALIS, 5s.; KENTIA FORSTKIANA, 50s.; PANDANUS UTILIS, 15s.; PHENIX RECLINATA, 4s.; P. TENUIS, 8s.; PTYCHOSPERMA ALEXANDRAE, 20s.; SEAFORTHIA ELEGANS, 7s.; ARALIA SIEBOLDI, 5s.; DRACENA INDIVISA, 8s.; FICUS, Head Cuttings, 50s.; CLIVEA MINIATA SUPERBA, 20s.

**SPECIAL OFFER** of Tricolor, Zonal, and other GERANIUMS, Brighton Blue LOBELIA, and other PLANTS.

W. POTTEN can still supply many thousands of strong Plants of the above as advertised in *Gardeners' Chronicle*, April 25.

**WILLIAM POTTEN**, Camden Nursery, Sissinghurst, Staplehurst.

#### New and Choice Chrysanthemums.

**R. OWEN** begs to call attention to his choice collection, which comprises only the best new and old varieties. Strong Plants, twelve varieties for 1885, 7s. 6d.; ditto for 1884, 3s. 6d.; best old varieties, 4s. 6d. per dozen cuttings, 6s. 6d. per 100. Catalogue for cash. CATALOGUE one stamp.

Mr. BOWERMAN, Hackwood Park Gardens, says:—"They are the best cuttings I ever had sent me." The Floral Nursery, Maidenhead.



#### CHEAP OFFERS OF PLANTS and BULBS.

LIST sent on application.

**E. G. Henderson & Son,**  
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THE

## Gardeners' Chronicle.

SATURDAY, MAY 9, 1885.

ORCHIDS, DOUBLE AND  
SINGLE.

IT is only the other day that we were called  
on to record the vagaries in which sportive  
Daffodils incontinently indulge, and now a  
similar task lies before us as to Orchids. The  
flowers of Orchids, under ordinary circum-  
stances, are so peculiar in the appearance and  
arrangement of their parts that it would seem  
at first sight as if no amount of "doubling"  
would increase their peculiarities; and in point  
of fact it diminishes them. Doubling in Orchids  
for the most part, exceptions disregarded, is  
little more than an undoing of the complexity  
which characterises the ordinary flower—a dis-  
integration and isolation of parts usually con-  
solidated. The chief interest, therefore, attach-  
ing to double flowered Orchids lies in the key  
they afford us as to the peculiarities of the  
normal structure, the insight they give as to  
the history and lineage of the race, of the modi-  
fications from a simpler plan, which have made  
an Orchid what it now is, and of the possible  
potentialities of the future. Hitherto gardeners  
have looked at these productions as mere in-  
constant sports, generally the reverse of orna-  
mental; but it depends very much on the  
cultivator himself whether these productions  
are to remain capricious and inconstant, or  
whether by the systematic and persistent  
exercise of the same processes of selection and  
elimination followed in other cases, they are to  
be developed, "improved," and rendered  
relatively constant. There are limits no doubt  
beyond which the gardener cannot go, but he  
has not reached them yet, indeed, so far as this  
matter is concerned, he has not even touched  
its fringe, nor will he be able to do so to any  
purpose till he becomes familiarised not only  
with the superficial appearance and arrangement  
of the parts of an Orchid flower, but with the  
clues to its origin and course of development  
and with the indications of the real plan of its  
structure as given by the study of the mode of  
development from the embryo stage to the adult  
condition, by its minute anatomy and by the  
comparative study of the varied forms of Orchid  
flowers and of the malformations they present.

Much that was said relating to double Daffo-  
dils (see p. 563) applies equally well, with the  
requisite modifications, or with no modifications  
at all, to Orchids, and need therefore not be  
repeated. On the other hand there are a few  
changes in Orchids which may conveniently be  
treated of here, although in strictness they  
should fall under the head, not of double, but of  
"peloriated" flowers. As these illustrations of  
"peloria" are essential to our comprehension  
of the structure of the normal Orchid flower  
they may appropriately be introduced here with  
double flowers proper.

## THE NATURAL CONFORMATION.

But first of all we must briefly allude to the ordi-  
nary structure of the flower of an Orchid, Cypris-  
pedium being in many ways exceptional will require  
special notice. As in the Narcissus and Daffodils the  
ovary of Orchids is placed beneath the flower, by the



operation of the same causes as those which were alluded to previously (p. 564).

The ovary is surmounted by the flower, and is usually (but not always) twisted, so that what was originally the top of the flower becomes in course of growth the lower. The flower of an Orchid (see fig. 108), like that of a Narcissus, has a perianth of six pieces, three outer, three inner; the three outer are the sepals, the three inner are the petals, and of these petals one is usually different in size, colour, and form from the rest, and, therefore, receives a distinct name, the "labellum," or "lip." Every one is familiar with the large extent to which the peculiarities and the beauty of Orchids depend on the marvellous variety in form and colour of the lip. Within the petals, in the centre of the flowers, stands the "column" directly continuous with the ovary. This column is a composite structure—a simple column it looks, but it is far from being so in reality. As we see it superficially, it consists of a thick body, erect or bent, with an anther at or near the top, and with a cup-like cavity in front beneath the anther, more or less filled with a viscid secretion, and which is in fact the stigma. The column (fig. 108, D; fig. 109, p. 597) then superficially consists of at least one stamen and one style, which in course of growth have developed in union one with the other. The anther has a little cap, easily removed by the point of a pencil or the proboscis of an insect, and when removed it reveals the pollen, not in the form of detached grains or powder, as in most flowers, but aggregated together into two, four, eight waxy masses or "pollinia" (fig. 108, L). Stamen, pollen, style, stigma, lip, are all specially adapted to secure the fertilisation of the flower by insects. The insect attracted by the colour, sweet smell, or nectar in the flower, alights on the lip; once there it is guided or forced to take a certain direction by the plates or warts or other peculiarities of the lip, and in his course he knocks off the anther cap, when out springs the pollen by a mechanism which we cannot stay to describe here, but which is one of the most marvellous contrivances in the vegetable world. Released from the anther the pollen masses attach themselves to the head or proboscis of the insect, and weighted with them he flies off to some other flower. Arrived there he is compelled to follow the same course as before, and consequently the pollen would be knocked up against the anther. But to prevent this mishap another marvel occurs: the pollen masses while still in the anther have a more or less erect position, but no sooner are they removed than they change their position, they bend downwards or sideways, at any rate in such a way that, when the insect visits another flower, these pollen masses instead of knocking up against the anther, fall against the stigma—the very place where they are required to ensure the fertilisation of the seeds.

All this is not new to botanists, and the general public, even, has become somewhat familiarised with it from the interesting researches and experiments of Darwin. No amount of familiarity, however, can lessen the marvel of adaptation as here presented to us. But this is a part of the subject to which our limits will not allow us to allude further. We must go back to the column. Instead of being composed of one stamen and one style, as appears to be the case, it is really made up of six stamens and three styles. Of the six stamens five are usually undeveloped, one only coming to perfection; the others present only traces of their original existence to the scrutinising eye of the botanist. No ordinary observer without special means would detect them. In *Cypripedium* two of the stamens are developed, and so we have an anther on each side of the column. Of the three styles one only is developed, and it needs the special opportunities of the botanist to find the two others.

It may, therefore, be said that in an Orchid there are, potentially at least, fifteen parts in five rows of three each—three sepals, three petals (including the lip), three outer stamens, one only of which is fertile, three inner stamens (all abortive, except in *Cypripedium*, where two are fertile), and three styles. Of the presence of these three latter organs any one may convince himself by cutting across the ovary, when the threefold placenta on which the ovules are attached will at once show the existence of three "carpels," consolidated into one ovary and one style.

The highly irregular flower of an Orchid is, then, not so irregular as it seems. The individual flower,

however strange it becomes hereafter, begins by being nearly regular in the form, size, and disposition of its parts. The baby Orchid flower is nearly, but not always, regular; it is only as it grows on to maturity that the changes occur which render the adult flower what it is, and which enables it to be fertilised by insect agency, as we have just sketched out.

#### ANCESTRAL STATE.

As the baby flower is so nearly regular, we assume, with a near approach to certainty, that its ancestors were regular also; and we assert, though we cannot prove it by direct means, that the Orchids, with all their present irregularity, are descendants from an

flowers as *Thelymitra*, *Oncidium candidum*, or *Tetramicra*, where the flower, as regards its perianth, is regular, and in which the lip is either no bigger and no different from the other petals, or only very slightly so. These are normal flowers; they are not sports; and, from our point of view, they ought to be looked on with great respect as "survivals," showing what the Orchids of the past were like. Every now and then a flower is produced on a *Cattleya* or other Orchid which shows the same thing. For some reason or other—why, we generally cannot tell—the lip, instead of running off into strange forms, is developed in a regular way, and is thus said to "revert" to the primitive simplicity. Fig. 110 shows an instance of



FIG. 108.—FLOWER OF *LÆLIA*, TO SHOW ITS PARTS.

REFERENCES:—A, A, A, Sepals; B, B, Petals; C, Lip; D, Lip, &c., removed, to show the column; E, Anther at the top of the column, magnified; F, Anther with pollen masses, G, H, uplifted; J, Anther detached from the column with pollen masses *in situ*; K, Interior of anther; L, Pollen masses removed from the anther, showing discs and caudicles; M, Column from which the anther has been removed; N, Stigmatic surface; O, Lip removed to show D, the column; P, Ovary.

earlier simpler type—the same, in fact, as that from which Irids and Narcissus and Amaryllids have descended, while they in their turn are the modified descendants of still simpler types, such as Lilies and Rushes. Those to whom these propositions are new, may regard them as much too wonderful to be true, and require to be furnished with evidence. To this very natural requirement we must refer them not only to the teachings of anatomy, morphology, and development—matters we cannot possibly enter into here—but to the evidence afforded by "sports" and "double flowers," which alone we can deal with, and then of course only in outline.

In the first place, attention may be directed to such

this in *Cattleya pumila*. Such a flower, we might imagine, would offer less facilities for cross-fertilisation by insect agency, so that in course of time, by selection, we might get a close or self-fertilising flower.

#### PELORIA.

Be this as it may, such flowers as we are speaking of illustrate the possible regularity of Orchid flowers, and are instances of "regular" Peloria, in which a habitually irregular flower becomes regular by the decrease of its irregular parts—by reversion, in fact. The opposite condition, in which the flower becomes regular by the increase in number of its habitually irregular parts, is shown in fig. 111 wherein the two



side petals are shown as brightly coloured as the lip. Lately a variety of *Dendrobium nobile* with the lateral petals as bright coloured as the lip was shown, and sometimes one meets with flowers of *Cypripedium* with three lips, arising from the presence of two additional lips, yet not additional, as they are only extra developments of the lateral petals.

Some of the five missing stamens are sometimes developed, and I have elsewhere given a list of cases known to me in which, in some cases, two, three, or in one or two cases, all six stamens were present.

#### PETALODY.

A petalodic condition of the stamens is not uncommon; the missing stamens, indeed, frequently present themselves in the guise of petals. One of the most remarkable cases of this kind is figured at fig. 112, p. 601. *Cypripedium* have two of their three sepals joined together, so that it appears single, s 2, while the upper sepal, s 1, is free. In addition, they have two petals, p, p, one lip, l, and a column bearing two side anthers, a barren rudimentary anther, in the form of a shield, and a stigma. In the flower now figured (fig. 112, p. 601), and which was kindly sent by T. B. Haywood, Esq., the sepals, s<sup>1</sup>, s<sup>2</sup>, the petals, p p, and the lip, l, were normal, but the column, instead of its usual form, was split into five petals. On examination of their relative position it was seen that one of the outer stamens, a<sup>1</sup>, was present, the other two being absent; all three of the inner stamens, a 1, a 2, a 3, were present—the last, it is

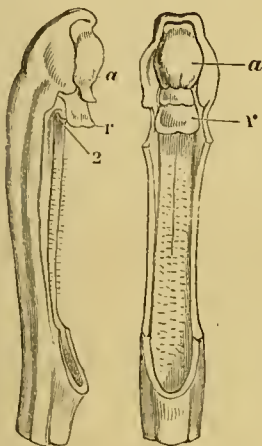


FIG. 109.—COLUMN OF VANILLA.

a, Anther; r, Rostellum over 2, the stigma.

worth note, being in the form of a lip partially concealed within the true lip. One of the styles, G<sup>1</sup>, was also present as a folded petal at the top of the flower, the other three being absent. Here, then, we have clearly a semidouble *Cypripedium*. In this case, although the ovules were formed, there was no pollen and no true stigma, so that it would be hopeless to propagate by seed, but possibly the plant may next season produce other flowers less fatally affected, and from these in time a double-flowered race of *Cypripedium* might be obtained.

The earliest double-flowered Orchis on record is that of *Orchis mascula*, in Jacob's *Plantæ Faver-shamenses*, 1777. This case, together with other more recent specimens sent by the late Dr. Moore of Glasnevin, has been considered at length by the present writer in the *Journal of the Linnean Society*, vol. viii., p. 207, and vol. ix., p. 347. Not to weary the reader with detail we must here merely mention that we every year receive numerous specimens of great interest as showing the true nature and history of the flower, and as the forerunners of a race of double Orchids—whenever the gardener sets to work to ensure their production. Whether they would be any improvement æsthetically, is another matter. We don't think it would, but when fashion rules, taste has to take a second place. M. T. M.

**BAD WEATHER IN ST. PETERSBURG.**—Our correspondent says that after some days of fine weather winter has again set in, and on April 30 there was an inch of snow on the ground.

## Orchid Notes and Gleanings.

### CATTELEYA SKINNERI VAR. ALBA.

A PLANT of this rare variety of the popular old *C. Skinneri* is now in flower at Kew, and is exceedingly beautiful. Although introduced into English collections by the Messrs. Veitch in 1877, the white-flowered form has continued to be extremely rare, importations of it invariably proving a deception to those deluded into purchasing the plants before they have been tested in this country. In Costa Rica and Guatemala, where ordinary *C. Skinneri* is said to be very abundant, the white-flowered variety is said to

surface smooth and slightly glaucous. From the base of the plant a short decumbent raceme is produced, which bears four flowers clustered together, and which are more like *Saccolabium* than *Sarcochilus* flowers. They are an inch long from the top of the hooded dorsal sepal to the base of the curiously formed saccate lip, and are creamy-white, with a faint tint of purple about the mouth of the pouch of the labellum. This pouch is compressed, and about its mouth are three horn-like processes, two lateral and club-shaped, and one in front and pointed. Judging from its name it is probable this species was brought home by Lieutenant Berkeley, who visited the Andaman Islands a few years ago and brought back with him some good Orchids. Most likely "the Professor" knows the history of this plant, which is very distinct from the Australian *Sarcochilus* (S. Fitzgeraldi and S.



FIG. 110.—REGULAR FLOWER OF CATTELEYA PUMILA. (SEE P 596.)

occur only very rarely. The Kew specimen was obtained from the former country two or three years ago, and is now flowering for the first time. It is a small plant, having six pseudobulbs, the largest a foot high, and bearing a raceme of six flowers. These are pure white, except for a small purplish blotch on the spreading portion of the lip, a tinge of pale sulphur on the lower part, and a blotch of dark purple inside the lip at the base of the column. Not every one of the "albinos," for which high prices are paid, can be said to have any particular charm except whiteness and value in the Orchid market; but this white-flowered variety of Skinner's *Cattleya* is a charming thing, and would be considered so if it were as plentiful as the type is at the present time. W.

### SARCOCHILUS BERKELEYI.

This is a small but pretty Orchid, now flowering at Kew, the name of which appears to be as yet unpublished. The plant is about 2 inches high, and bears three leaves, which are 3 inches long by three-quarters of an inch wide, the tip unequally notched, and the

Hartmanni), and which, whatever its name, is a charming little Orchid. At Kew it is growing in a bunch of Fern-stem fibres, with a piece of sphagnum in the middle, and hanging in a warm house. W.

### PONTHIEVA MACULATA.

In addition to the singular structure and pretty markings which are found in the flowers of this rare Orchid there is the character, not common among Orchids, of hairiness, the whole plant, including flower-stalks and flowers, being clothed with long soft hairs. There is a striking absence of hairiness in the Orchid family, at least among those cultivated in gardens; in fact, if we except one or two *Erias*, only met with in botanical collections, this *Ponthieva* is the only garden Orchid with a distinctly hairy character. The Kew specimen of this plant is now bearing four flower-spikes, one of which is 18 inches high, and bears about a score of flowers, the form and variegated colours of which are very attractive to all except those connoisseurs whose standard of beauty stops at *Cattleyas* and other "big" flowers.



I heard from Herr Wendland a short time ago that in his garden at Hanover he had large pans of this plant growing quite thirty years back. Large quantities of it were imported at that time by M. Linden, and no doubt the figure of it which appeared in the *Gardeners' Magazine* about that period had been obtained from some Continental source. For its cultivation *P. maculata* requires a position near the glass in a Masdevallia-house; in a warm house it will not thrive. It likes plenty of water when growing, and a short period of drought after it has flowered. *W.*

#### PACHYSTOMA (IPSEA) SPECIOSA.

This pretty yellow-flowered *Bletia*-like Orchid has been in flower at Kew for several weeks, and is still to be seen in perfection, like the *Spathoglottis* and some of the *Bletias*, such as *B. Shepherdii* and *B. hyacinthina*, it thrives best when allowed to rest for two or three months after flowering, and to afford this rest it is a good plan to place the pans in which the tubers are planted on a sunny shelf in an intermediate-house, allowing them to remain till they show signs of new growth, when the tubers (really underground pseudobulbs), should be repotted into a compost of sandy peat with a good layer of drainage beneath. If placed in a moist tropical temperature and kept well watered the erect flower-scapes are soon developed, generally two flowers being borne on each scape. These flowers are 2 inches across, and are composed of rather broad sepals and petals, and a broad three-lobed scoop-shaped lip, upon which are several ridges coloured red, the rest of the flower being golden-yellow. *P. speciosa* is a native of Ceylon, from whence it was first introduced into England through Kew, Mr. Bateman being the first to flower it in 1868. Since that time plants of it have frequently flowered at Kew, as well as in other collections, but it is still a rare plant in gardens, though plentiful enough in some parts of its native country. *W.*

#### TREATMENT OF LÆLIAS.

I have much pleasure in noting the treatment Mr. Crawshaw adopts with his *L. anceps*, and congratulate myself on having hit on a somewhat similar method. To commence with, I selected what looked to me promising samples of *L. anceps alba*, *L. Sanderiana*, *L. Stella*, and *L. Schroederiana*, from the St. Albans importation, and from Messrs. Carder's a mass full of green leaves—in all sufficient to make 139 lots; these were carefully cleaned, all decayed or damaged parts cut away, and each one washed in a bath of tepid water. A somewhat curious circumstance had occurred with a lot I acquired about a week prior to this. Being short of room my gardener suggested we might for a few days place the imported *L. anceps* between the stages on a layer of shells. This was done, and, much to my surprise, I found the bulbs at once plumping up and the roots starting so freely that I determined to try the same method with the *L. anceps alba*, and I think the result has shown the correctness of this decision. Out of the whole of my purchase not one has failed to start. I found the *L. Schroederiana* much more shy in starting than the others; but on one piece of *L. Sanderiana* I have twenty-four breaks, of which nine are back ones, and roots 7 inches long. The growths on the lot are from 2 to 6 inches long, strong and healthy. I was so satisfied there was some "winkle" that I tried some imported *O. Edwardii* and *O. Klabochorum* (which I have previously had some trouble to start); I also placed *Cattleya Lawrenceana* on the same stage, and obtained the same result as with the *Lælia* anceps. We syringed the *L. anceps* freely while on the stage. On removal they were placed in baskets close to the glass, and kept at a temperature of 65° to 70°. Now, as to the construction of the house and stage on which they started. This house has three-eighths hammered glass from floor-line to underside of stage sill, four rows of 4 inch pipes, the two upper rows with evaporating troughs 9 feet long, 16 inches below the stage. The bottom stage is made of 1-inch boards, 3 feet 4 inches wide, with a layer of shells on top. Above this is the *Phalenopsis* lath stage, the lowest lath being 8 inches above the shell-covered stage, and rising back to the side of the glass 5 inches at a time. The back is of 21-oz. sheet-glass, so that we have the full light always, except when it is necessary to shade the house. Free ventilation is given, and a small spray of water constantly playing in the tank. This makes the atmosphere always feel soft and humid, and the plants appear perfectly at home

in it. I trust other lovers of Orchids will give you the results of any more successful methods, so that we may gain more wisdom and pleasure in the cultivation of these beautiful flowers. *R. H. M., The Woodlands, Streatham, April 25.*

#### PHALÆNOPSIS PARISHII.

Although wanting the size and gracefulness which characterise the large-flowered section of *Moth Orchids*, this species has much beauty to recommend it, as well as its free-flowering and free-growing habit when intelligently cultivated. At Kew there are several pans and blocks of it now bearing their little clustering racemes of white and rosy flowers, those in pans looking especially happy, the flowers being surrounded by foliage and green sphagnum, and the whole having the appearance of a nest of pretty-headed birds. The flowers are placed thickly together upon the spikes, which spring from the base of the very short stem. The ovate, pointed, glaucous-green foliage forms a pretty contrast with the flowers. Like all the *Phalænopsis*, this species requires to be kept continually moist, and thrives well if planted in sphagnum, with a few pieces of charcoal among it. Although said to be from regions less hot than the homes of the large-flowered species, yet *P. Parishii* appears to prefer as much warmth as they when in cultivation; at all events, this is borne out by what is done at Kew, where this little Burmese species is to be seen growing and flowering every year. Under the same treatment some healthy specimens of *P. Lowii* are also to be seen at Kew. *W.*

#### PHAIUS MACULATUS.

This is an old garden plant, having been introduced over fifty years ago, and since then for a long time cultivated under the names of *Bletia Woodfordii* and *Bletia flava*. It belongs to the large growing, free-flowering species of *Phaius*, represented in the well-known *P. grandifolius*, but owing to its having been treated as a tropical Orchid it was rarely seen in good health. Grown in a cool Orchid-house it is, however, an ornamental species, both in its spotted foliage and in the large yellow handsome flowers, which are produced on erect scapes. In the Kew collection there is now a specimen of it with five stout flower-spikes, each bearing from ten to twelve flowers, which are about 2 inches across, the petals and sepals overlapping each other, and partly surrounding the labellum. The margin of the latter is crisp, and rosy-red in colour. *P. maculatus* is a native of India, from whence are obtained all our garden *Phaiuses* except the beautiful *P. tuberculatus*, which is a native of Madagascar. At Kew the genus is represented by flowering specimens of *P. Wallichii*, *P. grandifolius*, *P. (Thunia) albus*, and *Marshallii*, and the above; whilst plants of the rare *P. bicolor* are rapidly developing flower-spikes. Last year this species continued in flower nearly six months. It is the plant which was shown some time ago under the name of *P. luridus*. *W.*

#### CYMBIDIUM LOWII.

A fine specimen of this distinct species is now in flower at Gunnersbury Park. It has thrown four spikes of flower; one contains twenty-four flowers, the other three twenty-three each—ninety-three blossoms in all. It is a fine plant, well grown and bloomed, but the individual flowers fall far behind those of *C. eburneum*, blooming by the side of it. This is one of the most chaste and beautiful of Orchids. *R. D.*

**THE DEMAND FOR TIMBER.**—The continuous extension of railways in different countries causes an immense demand for timber. The sleepers, or "ties," as they are termed in America, vary in dimensions according to the gauge. They range from 10 feet x 10 inches by 5 inches on the broad gauge to 6 feet x 6 inches by 4½ inches for the narrow gauge. They may be taken, however, to average 9 feet long by 8 inches by 4 inches (or say 3 cubic feet). Assuming the distance apart at which ties are placed at 3 feet, this requires 1760 ties for each mile of single line. The average duration of ties appears to be from five to seven years; therefore one-seventh, at least, of the original number of ties must be supplied every year. The railroad companies in America almost invariably require young and growing trees, such as are large enough to make one tie for each cut. Trees of this size will not average more than two cuts each; consequently the construction of the existing roads in North America alone must have taken 90,178,880 trees. *P. L. Simmonds, in "Journal of the Society of Arts."*

## NOTES FROM A BUCKINGHAMSHIRE GARDEN.

APRIL 3.—

"'Ay, there's easting in it,'  
The white-haired sailor said,  
As he looked on the sweep of tossing grey  
And the flying flakes of snowy spray,  
Wind-borne o'er the great pier-head.

"'Ay, there's easting in it,'  
Said the herd, who his moor-watch kept;  
'The lambs crouch clustering under the Oak,  
And last night a sound like sea-waves broke,  
As the wind my turf-walls swept.' "

Yes, "there's easting in it," this dry hard day, under the hard pitiless blue. Day after day, a cold sun shines down upon the parched and dusty world. The sun shines, but there is none of the sovereign delight of sunshine. The sky is as steel and brass; the grass is white with frost morning after morning, and there has not fallen one April shower to set the sap running within the black bare trees and loose the young leaves and blossoms bound up within their hard buds. There is no life in the fields, no balm in the air, "nothing grows," as the saying is. Everything looks pinched and unhappy, and I thick no living thing enjoys the east wind, except, perhaps, the skylarks. They, dear souls, spring up and glory in the open heaven above them. They rise quivering and carolling up to the very gates! Doubtless they in their joy are singing "Blow thou wind of God!" How beautiful are the Daffodils just now; and how their pure cold yellow seems in harmony with the freezing sunshine! But they are none the better for it, and never were there so many imperfect, unaccomplished flowers among them. One or two in almost every clump come uncomfortably green, or open unkindly, and as if they could not make up their minds to be either good green leaves, or fair yellow flowers! These unhappy ones are rather amusing, but they are certainly very ugly: "there's easting in it." The great mass of Daffodils, however, were never finer. I am comparing the common single long-tubed Daffodil, *Telamionus plenus*, with Sir Watkin. The former would surely be thought almost the handsomer of the two, but for Sir Watkin's star-like corolla and erect carriage. Our cernuus, a new possession, is in bloom: it seems almost too delicate for the open border. But in the Bocage, there grows the joy o' my eyes, a lovely group of cream-white Daffodils! On the grass in the Orchard, a brilliant multitude of all sorts have succeeded the Crocuses. Some are wild, transplanted hither from the sweet wild meadows of Derbyshire. They are modest little things, most palely delicate in colour, their bent heads all turned one way, south-east. There is something peculiarly neat and pretty in the half-opened bud, the long tube being fulled round the edge as if drawn in by a thread—a bit of Dame Nature's neatest needlework! We are trying these wild ones also in a garden border, but I do not expect them ever to double. The single long-tubed Daffodils never have doubled in this garden, though they grow as at first planted, both separately, and mixed in the same clumps with the double ones. Hardly one of my favourite star-shaped, short-cupped single Daffodils remain now unspoilt. They go on doubling for ever! In the broad new border 'of the Bocage and in the Fantaisie, heavily scented Jonquils flourish in perfect peace, their deep content plainly visible, as it always is with some flowers. "Blue Roses" would give one little pleasure; but how exquisite is the idea of a White Jonquil. There are times when I am possessed with the wish for coloured flowers to be white. A white *Camellia japonica*! a white Chinese Currant! At this moment, however, a crowd of pure white Daffodils is the desire of my heart. In the garden of that castle in Spain there shall be a long green walk, bordered thickly on each side, under the Pomegranate trees, with white and golden Daffodils, both single and double!

Here we have only a short grass walk, where one passes through the shimmering pink of large bushes of Chinese [? Californian] Currant (*Ribes sanguineum*). As yet they are only in rosy bud; but there is something fairy-like in the extreme lightness of these interlacing branches, tipped with clustered points of pink; it is better than when the flowers are full, for then a little green begins also to show and there is something gone from the beauty of them. Better still than the magic of this roseate mist, there is a certain sweet and



silvery charm begun to spread over all the garden, quite low on the ground, almost noder foot. The seeds may have lain there long, first carried by the birds, perhaps. We have never before observed this overspreading of white Violets. In every corner where there may be any little bit of border not dug, under trees, even niched into the walls, in all parts of the garden are white Violets. We should not be content with always white instead of purple; but yet there is some kind of strange little spell about the white, so that sometimes I am compelled to put on my hat and hasten out into the garden, just for a moment's look at their fresh pleasant faces, and to inhale their scent. There is no "easting" in their perfume, whether they come white or blue! and indeed I think these white Violets must be here "for luck." It matters not if we have to-day's chill sunlight, or if a black north-easter blows, the silvery Violet patches shioe on unheeding in serene and genial lowliness. Ah, how ungrudgingly would we not—if this might be—pass them on into the grey life of one or two, to cheer them for a space, when they sigh, "Ay, there's easting in it," . . . sighing sadly

"O for the perfect work of time;  
O for the other shore!  
Where the riddles of years are read at last,  
And the east wind blows no more."

Violets are very little flowers, but somehow there's much to say about them! Under a sunny hedgerow of the Walk meadow blue and white Violets grow together, with a third kind in which the blue seems to run into the white; white Violets dashed with blue or lilac. And two or three years ago under another quickset hedge in our lane I scattered some seeds of purple Violets for the delight of our village children, or for any little wayfarers in the spring. The seeds did not seem to come up, and I forgot all about them till the other day, when I saw, with great satisfaction, a little boy and his big brother happily engaged gathering dark Violets under the barren hedge, and making them up into posies with a few scant early Daisies. I sowed many seeds that year along our dull roadside banks—common things that might well have grown, and I counted on the children's pleasure and surprise when they found such lovely things in bloom—there were Campanulas and Stocks and Poppies, Snapdragons, Primroses, Foxgloves, and yellow Broom, and Virginian Stock. But never a plant came up, excepting just one Foxglove, whose fine spire of buds was untimely plucked—and now the Violets.

I do not know if the east wind has to answer for our Forget-me-Nots coming red. Most of the blue is more freely mixed with pink than usual, and one root, under a Chestnut tree near the watercourse, has fairly gone into deep crimson. If the seeds can be saved, we might possibly get from them a new variety. But a crimson Forget-me-Not would be unpoetical, and unreal, and like the dark blue which appeared a few years ago, interesting only as a curiosity. There was some failure in the seed last year, so that our *jaire of turquoise* will not this season be quite so extensive as usual. Brilliant and close-flowering, however, as our garden Myosotis is, the pleasure of it never could compare with the image, glassed I suppose in almost every mind, of the clear quiet pool, set in some sequestered meadow, on whose green margin grew the blue Forget-me-not. Or of the place where it bloomed just out of reach in the little stream among wavering weeds, shedding starlets of Heaven's blue upon the water, under the Willows. Those were the real *Vergissmichnicht* of our youth, and when we sat on the bank beside them, or wet our feet in gaining difficult possession of them, we thought upon the dear old half-sad, half-foolish German romance,—but never remembered in the garden!

April 13.—At last a gracious rain has fallen. A sort of quickening thrilled at once through all the garden, and now the grass gives out a green answer to the precious drops. There is to-day, at the southern end of the broad walk, in the untidy—because too full—border facing the east, a new beautiful colour of Pæonies in their first young growth. I do not remember them before the rain; now the strong healthy stalks pushing up above the ground are a full crimson red. The colour is so vivid, it almost has the effect of some strange flowers seen from a little distance. At the opposite end of the walk the Onion flavour of the Crown Imperials is not so unpleasantly perceptible as it sometimes has been. I remember it was long before we discovered the source

of the strong odour pervading that part of the garden. Not an Onion anywhere near, there seemed nothing to account for it. Gerard says, "the whole plant do savour or smell very like a fox." I think we may well forgive our Crown Imperials their smell, however, for the stately show they make; and if taste and fashion did not change with flowers as with other things, they might still be among the choice favourites of spring. Ours ought to be somewhat taller, a fine Crown Imperial should rise so high that a little child might stand under the yellow bells and look up into the moonstone circlet within; for "in the bottom of each or these bells there is placed six drops of most clear shining sweet water, in taste like sugar." In another place are also saffron-coloured Crown Imperials, coming into bloom. They are commoner and less beautiful than the yellow.

I never dwell upon failures in the garden: they are never many, and are soon forgotten. Here may be the place, however, to record one small disappointment. Round the stone floor of the garden porch we had made an outer rim of gold and silver Thyme. The intention was that with every passing step, crossing over to the gravel, or with the sweep of a trailing gown, should arise sweet thymy odours on the air. But the thing did not succeed. The gold and silver Thyme all died away before any one had enjoyed it much. And yet perhaps the idea is worthy of another trial. Perhaps Thyme or wild Mint might be induced to grow upon the lawn, and in the mowing or the treading it would smell deliciously. A trimly shaped Rosemary in bloom is about as pleasant a sight as can well be seen on an April day. The "sweet gaping flowers" of bluish-grey, set not too thickly among the dark green narrow leaves, give such a sense of neatness; they look so clean and cool, that the wonder is the sweet-smelling shrub should not be a greater favourite. Two hundred years ago it seems to have been planted in every garden. Then there were gilded Rosemarys and Rosemary of the poets, and several wild Rosemarys—all grown for physical or civil purposes. It was used at weddings and at funerals, and a bundle of it was a welcome gift bestowed upon friends. Where Rosemary flourishes nigh the house, there the wife is said to rule. It is by no means for any such reason, however, that so shapely and fine a bush of it grows beside our south porch! It is because it worships the sun, and when the sun shines the bees are about it all day long. E. F. B.



## COVERING UP ORCHIDS IN WINTER.

WE are so accustomed to see our Orchid-houses devoid of all covering, albeit the thermometer in our capricious climate may sometimes register 32° of cold for some few days in succession, that we do not consider how our Orchid growing friends on the Continent have to contend in some parts with Arctic cold for periods of from three to six months together. In such countries the contrivances employed are not for use to-day, to be thrown aside to-morrow, but are made to bear much hard usage, and to keep out several degrees of frost by themselves alone. The usual method of "covering up" is by means of board shutters of 1½–2 feet in width, the length being usually that of the roof, at the apex of which is a weather-board, underneath the overlapping part of which the protecting shutters are shoved. Should a house have a sunless or northern slope of roof, that is kept covered throughout the cold season, and is usually protected further by a layer of straw mats next to the glass; but not in all instances, for should the slope be of no great length, and the roof be a well made and strong one, the snow is permitted to lie on it about a foot in thickness, forming an excellent blanket against further ingress of frost. On this sunless side it will rarely thaw, so that the shutters could not be removed even if it were desirable, every part being fast frozen. The shutters on the sunny side get thawed early in the morning, if the sun should shine, and as soon as that has taken place they are removed by sliding them downwards, with their lower ends resting on the ground; or they are laid alternately one over the other, so that at least one half of the sunny side gets opened to the light. In snowstorms happening during the day-

time the coverings are kept on entirely, or if it should occur that these are withdrawn before the storm they are at once put on at its approach. It will be readily understood by those accustomed to stoves and forcing-houses that these roof coverings keep up a genial heat and a pleasant moist atmosphere within the house, owing to the warmth of the glass preventing all condensation of the water that is present in the air, and the temperature will remain steady at any given degree without involving any great amount of care on the part of the stoker.

It is necessary that all plants therein should be brought well up to the light either by hanging up the plants or by other means. The principal thing that is observed is not to use any more moisture about the house than is requisite to prevent the air from becoming dry, not to water the plants themselves more than is necessary, and keep the temperature during the night at 58° to 60°, with a rise of 10° to 15° in the daytime. M.

## FORESTRY.

### WOODLAND WORK.

GRASS seeds may still be sown on woodland drives and bare places, and afterwards rolled down. Wood hedges will now require their annual renewal before stock are turned into the adjoining fields. This should receive immediate attention, as if cattle or sheep once find their way into the woods the prevention of trespass is no easy task. Clean and loosen the soil along hedgerows by hoeing or light digging, which will much enhance their value as woodland fences. This will be found a suitable time for improvements or corrections of drainage, as damp places will now be readily detected. The pruning of evergreens should be finished early in the month, so that borders and lawns may be put in order, and walks receive their final gravelling and rolling.

Remove broken or twisted branches from such trees as are visible along the margins of woods from drives and walks. Plantation gates should now receive their annual renovation in the way of repairs and painting; wire fences may also be tarred, as well as tree-guards, pailing-fences, wire-nettings, and forest sheds. Oak timber after being barked should be removed from the woods, as delay is dangerous to the young coppice wood. The branches may be cut up and faggoted previous to removal. About the end of the month is generally the best time for budding trees, as the young bark then rises freely and is in the best state for manipulating, and the buds "take" quickly while the sap is well in motion. The ties which secure the buds should, in about a fortnight after the operation has been performed, be slackened and retied, as they are liable to become too tight, thereby injuring both stock and bud. In most cases the bud will have "taken" in about a month, when the ligatures may be entirely dispensed with.

Foresters who have charcoal to make should lose no time in setting about the work, as considerable advantages accrue from having long daylight while watching the kilns. This operation necessitates the carting in of a quantity of peeled Oak for charring purposes, which work should be well in hand previous to the men commencing their first kilns. Advantage should be taken of dry weather during the present month to get all Oak timber carted to the saw-mill, for, as they have often to be dragged a considerable distance before being laid on the cart or waggon, if done in wet, slushy weather, the trees get covered with gritty mud, which tells disastrously on the saws when the trees are being cut into boards.

### GENERAL WORK AND NOTES.

During dry, warm weather the tarring or varnishing of wood or iron fences should be proceeded with, as at such a time the tar is absorbed more readily, and the fences are consequently better fitted to ward off the attacks of rust or decay.

It should not be forgotten that in many parts of the country young plantations suffer severely from an overgrowth of rough vegetation, an evil which can be easily remedied during the latter part of the present month by attending to the worst places, and cutting off the tender tops with a hook or scythe. Hoe and clear carriage-drives and walks, at the same time preserving an equable surface for comfort in walking or driving.



In this district vegetation is generally ahead of what it was at the same time last year. The Larch, Horse-Chestnut, Maple, and Sycamore are already in leaf, soon to be followed by the Beech, Lime, Elm, and Oak, which are well furnished with plump, healthy buds. Seldom indeed have we seen such a gorgeous display of early-flowering plants as during the past two months. The *Laurustinus*, *Daphne Mezereum* and *D. laureola*, *Berberis Darwinii*, *Mahonia Aquifolia*, *Pyrus japonica*, *Forsythia viridissima*, and *Jasminum nudiflorum*, have been a complete blaze of colours, and are all well worthy the attention of planters for placing in the more prominent positions alongside drives and walks. *A. Webster, Penrhyn Castle, North Wales, April 28.*

## ORCHIDS IN LONDON NURSERIES.

THE large establishments for Orchids both in and around London are now gay with bloom, and any visitor to the "Conference" from a distance will be highly gratified by a visit to a few of the principal emporiums, most of which are within easy distance. Should such visitors not have seen any of them previously we predict an agreeable and instructive surprise for them, as all have extensive collections and each has distinctive features, of which nothing but a personal inspection can give a true and fair idea. All that we can do is to give a general idea of the plants that are now in bloom.

MESSRS. J. VEITCH & SONS.

The house that most visitors to this nursery of well-grown plants like to see is the new Cattleya-house that was finished in 1884. The cultural advantages of this large structure have fully vindicated themselves, so that plants which were formerly kept alive with difficulty in other houses, grow and flower abundantly in this one, and it is found that the important conditions of steady warmth of any required degree, and of an equally steady amount of moisture, are far easier of attainment than could possibly be the case in small houses, and there is, moreover, a sweetness, buoyancy, and a total freedom from stuffiness, in the air, thereby approaching the state of an out-of-doors position in a warm country.

There are a great number of very fine specimens in flower of *C. Mendelii*, most of them showing points of difference in form and colour, some being of extraordinary richness in lip tints; the rosy-purple *C. Skinneri* is likewise found in a few flowering examples, and many *C. Mossii*. *Lælia purpurata* is in fine abundance, and forms decidedly one of the leading features amongst those in bloom. This species is found to succeed here without check.

The small show-house, where the visitor has an opportunity of seeing the cool section of Orchids massed together, is more than full of *Odontoglossums*, *Oncidiums*, *Masdevallias*, &c., the front stage holding those at present in full bloom, whilst the back parts of the house contain the succession plants. The *Odontoglossums* are doubtless the pick of the collections, and beautiful indeed they are—*Andersoni*, *Pescatorei*, *cordatum*, *Halli*, *triumphans*, and others; the pretty *O. Humeum*, with a white lip and the markings of *O. membranaceum*. *Masdevallia Lindenii* *superba* is very rich, and is certainly an improvement on *M. Lindenii*. Many fine pieces of *Oncidium Marshallianum* lend a touch of rich colour to the whole. *Calanthe masuca*, of pale lilac with a lip of yellow, is a conspicuous plant, as is *Odontoglossum maculatum*, of the *O. Rossi* section, and which bears blossoms that have great lasting properties.

The Vanda-house contains a gem in a large plant of *V. cœrulescens*, with seven fine spikes. This plant is so distinct in habit, if not in colour, from *V. cœrulea*, that it is a pity it is not more commonly grown. *Chysis Limminghi* is nicely in bloom, the brown, yellow, and purple tints in the flower making a very attractive example. Many *Vandas* are in bloom or showing for bloom, such as *V. teres*, *V. suavis*, and *V. tricolor*. Of *Dendrobiums* there were numbers of thyrsoiflorum loaded with bloom, strong and showy to a degree. The striking white *Dendrobium Fitchianum* (*barbatulum*) has several spikes open on various plants. *Dendrobium macrophyllum*, a Javan species, with erect racemes of flowers, the sepals yellow, shaded with green, and petals white, and the yellowish-green streaked with purple, is also in bloom. Amongst *Phalaenopsis*

the richly tinted *Luddemanniana*, *Sanderiana*, and *Brymeriana* (*Portii*) may be seen in flower.

A plant of *Coelogyne Massangeana* with two massive racemes, and one of *Chysis bracteescens*, with two spikes of bloom, are interesting plants in one of the houses, as is a strong plant of *Lycaste Skinneri* *labellum*, remarkable for the rich colour of the lip, which is of richest crimson. A few *Cypripediums* were still in bloom of the *barbatum* section, and *C. ciliolare*, *C. niveum*, and others.

Of new Orchids raised from seed, and to which naturally much interest attaches, botanically as well as commercially, we were fortunate in seeing *Cypripedium tessellatum* *porphyreum* × *barbatum* and *concolor*, the former being the seed bearer; *C. microchilum* × *Druryi* and *niveum*, the latter the seed bearer; another was a × *longifolium* and *Schlimii* *album*; *C. Mastersii*, a species from Java, but which came from Kew, was in bloom, the cupped green hood (dorsal sepal) broadly and distinctly margined with white, greenish-brown pouch, and darkly marked sepals borne on a hairy petiole of a dark colour, marking it out as a remarkable flower, if not a particularly handsome one. A fine *Chysis*, named *Chelsoni* × *bracteescens* and *Andrea*, the ground colour

those of *S. curvifolium*; *Masdevallia peristeria*, with a dove-like form of bloom; *M. Schlimi*, of rosy-brown and yellow—a distinct kind; *M. splendens*, a rich coloured flower of the *Harryana* section, and a variety producing a large quantity of bloom simultaneously; *M. trochilus*, *M. acanthifolia*, a rosy-purple—one of the freest flowerers; *M. conchiflora*, a handsome cupped crimson.

*Odontoglossums* are very abundant, and consist of many fine species and varieties, very pretty, being *O. citrosum* *carneum* *superbum*, a great improvement, if we regard colour, on *O. citrosum*. *O. crispum* show many pleasing and massive spikes, in which there was much deviation in size and tints. These plants are disposed generally through the house, and are sometimes placed in little groups, this being an arrangement often adopted with small growing things, as *Odontoglossum Rossi* *major*, *O. membranaceum*, *Sophranites grandiflorum*, and others. One of the finest plants of *O. Pescatorei* in the country is carrying a splendid crop of spikes; the newer importations of this species show finer qualities as regards colour and form than the older ones. *O. citrosum* *superbum*, *O. triumphans*, *O. Halli*, and *O. Ruckerianum*. A new *Odontoglossum* resem-

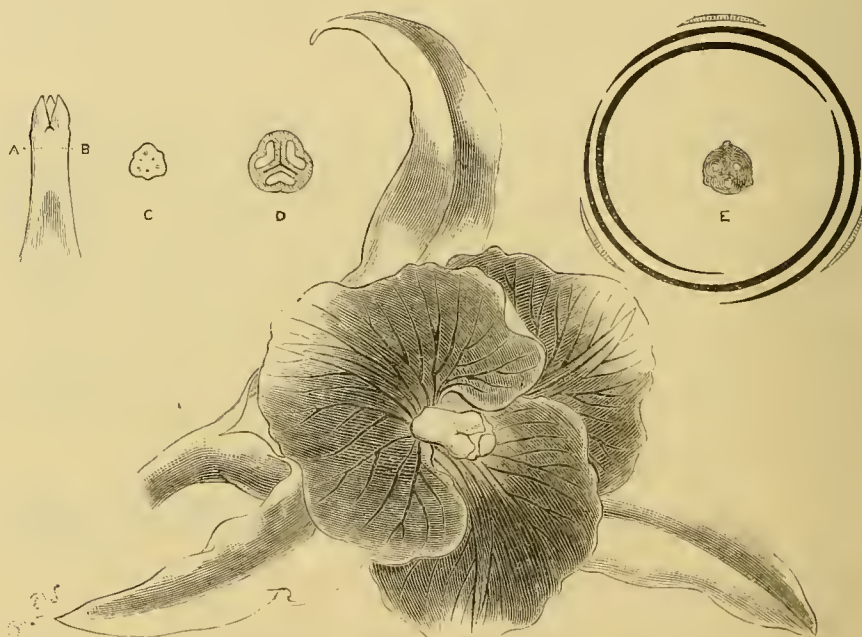


FIG. III.—A REGULAR-FLOWERED LÆLIA. (SEE P. 596.)

REFERENCES:—C, Section of column along the line A B; D, Section lower down; E, Plan of Flower.

being pale yellow, spotted red and brown. Several *Phalaenopsis* were bearing seed-pods, *P. rosea* being usually made use of as the male parent.

### MR. BULL'S NURSERY, CHELSEA.

The display of Orchids during the early summer months, which has now become a regular occurrence at this nursery, is if possible finer than that witnessed last year, whether estimated by the number of plants of choice species and varieties or by the excellence of the plants themselves. The arrangements, which must have cost no small amount of trouble, indicate excellent taste, and show the teachings of experience, consequently with results that strike the observer as being very pleasing. The centre table, running down the length of the span-roofed house, has a row of plants, consisting of *Palms*, of which a nice piece of *Phœnicophorium seychellarum* faces the visitor on entering; *Philodendron nobile*, *Anthurium Veitchii*, *A. elephantipes*, both with beautifully developed foliage; and *Ferns*. These plants, standing in a line, divide the house lengthwise into two portions, and serve as a background for the flowers.

Of new and comparatively new introductions may be noticed *Saccolabium miniatum* *citrina*, with orange flowers, and shorter and blunter leaves than

being *Andersonianum* is a gem, as is likewise *O. gloriosum* *pretiosum*, with a rich yellow ground colour and crimson spots. Several other new *Odontoglossums* are to be seen of pleasing tints, notably *O. bellinum*, with a white lip and a dark large blotch on the sepals and petals, the tips being greenish. The *O. vexillarium*, of which this nursery possesses so many, are to be seen in great numbers, and show some striking variations in colour and dimensions of flower—one named *Chelsoni* showing a very deep rose tint, with the uncommon width of 4 inches across the flower; another, named *giganteum*, was still larger. These varieties of *O. vexillarium* form the chief feature at the entrance to the house. The long-blooming *Calanthe veratriflora* is observed in several examples, one plant having thirteen robust spikes; *C. Domia*, resembling *C. masuca*. *Cattleya Mendelii* is conspicuous by the rich colours of the different varieties, especially *C. M. pulcherrima*, a pale kind; as are also the plants of *C. Mossii*, that are in great numbers. A fine plant of *C. amethystoglossa* stands at one end of the house, and compels attention; *C. gigas* *imperialis*, a grand bloom, with rosy-mauve petals and sepals, and a large expanded labellum of deep crimson; *Lælia hesperia*, of pale creamy-white, with a white lip and tube, some purple



stripes going right into the latter, had several fine blooms open; *L. elegans Schilleriana*, having pure white sepals and petals and deep purple lip.

Of *Dendrobiums* there are many examples of *devonianum*, *D. thyrsiflorum*, *D. albo-sanguineum formosum*, with a crimson throat. *Cymbidium Lowi* is represented several very large specimens, one having seven spikes and 154 blossoms. Other plants in bloom are *Chysis Limminghi* and *C. bractescens*, the spotted, small-flowered *Aërides decorum*, that has flowered for the first time; *Cypripedium ciliolare* and *C. Lowi*, *Anguloa uniflora*, *Oncidium cucullatum*, *Cœlogyne Massangeana*, *Lycaste leucantha*, *Lælia purpurata*, *Brassia verrucosa major*, *Oncidium concolor* and *O. sphacelatum*, a very strong plant; several *Vandas*, including *V. Boxalli*, the minute rosy-purple blossoming *Epidendrum Frederici Gulielmi*, with upright flower-stalks; *E. glumaceum*, of a pale rose colour; *Myianthus barbatus*, a green flower,

*D. fimbriatum*, *D. oculatum*, some fine bits of *D. Wardianum*, *D. crassinode*, *D. Bensonæ*, *D. Pierardi*, *D. devonianum*, *D. aggregatum*, *D. moschatum cupreum*, *D. pulchellum*, *D. Farmeri aureum*, and *D. rhodopterygium*, which, notwithstanding its formidable name, has but a small sweet little flower. *Phalenopsis Schilleriana*, *P. Stuartiana*, *P. amabilis*, and *P. Manni* are all carrying good spikes. The late-flowering *Calanthes Sanderiana*, *C. veratrifolia*, *C. Dominiana*, and *C. masuca* are all good subjects to intermix with decorative stuff. *Lycaste virginialis*, pure white; *L. plana*, a fine plant; and *L. Harrisoni rosea*, are all in bloom. The *Vandas* at Holloway just now are looking exceedingly well, and *V. Denisoniana*, *V. suavis*, *V. tricolor*, *V. tricolor superba*, *V. tricolor insignis*, *V. tricolor*, *Dalkeith var.*, *V. tricolor*, *Patersoni*, a fine type; *V. tricolor formosa*, and *V. cœrulescens* had all fine spikes. *Odontoglossums*, too, make a fine show, a

*Mesospinidium sanguineum*, and the botanically curious *Pleurothallis tridentata*. The *Oncidiums* are represented by *O. Gardneri*, *O. pratextum*, *O. fuscatum*, *O. Weltoni*, *O. Marshallianum*, *O. macranthum*, *O. cucullatum*, *O. concolor*, and *O. dasyle*.

This collection of Orchids, owing to the admixture of the different varieties, always presents an agreeable appearance to the visitor, and is in that way an improvement on some collections where the species are kept more by themselves, nor does the health of the plants suffer thereby.

MR. JAMES, CASTLE NURSERY, LOWER NORWOOD.

Here are to be found a goodly number of species and varieties of Orchids in bloom. Mr. James has for a number of years been celebrated for fine highly coloured, fine formed *Cattleya Warneri*, and many are either in flower, or are throwing up their strong sheaths of bloom—one noticeable plant, large and robust, having pushed up three spikes. *C. Mossiæ alba*, a rare variety, is likewise showing for bloom. This is a strong plant, which may be taken to be doing well. *Oncidium Marshallianum*, with flower-spikes measuring from 5 to 6 feet, is seen in several examples; *O. concolor* was doing well in the same house. *Masdevallia Lindenii* and *M. Veitchii* are crowded with flower-spikes, as is *Dendrochilum filiforme*. As a remarkable example of repeated flowering may be mentioned a *Lælia elegans*, which has bloomed three times in the last twelve-months, and is at present throwing up several sheaths of bloom.

Of *Aërides*, there are *A. Larpentæ* showing bloom-sheaths, the long dark green foliage of which well set off the light rose and cream-coloured flowers in due season; *A. roseum*, a much dwarfier species than the foregoing, and with spotted foliage, and *A. Dayanum*, are showing for bloom. *Dendrobium chrysotoxum* is represented by a good specimen bearing thirteen racemes of flowers. Several very fine plants of *Cattleya Trianae* are still in bloom at this rather late period of the year. Mr. James' varieties of *C. Mendelii* include some splendid flowers of rare dimensions. *Oncidium sculptum*, of green and brown-coloured blooms; several *Dendrobiums*, especially *fimbriatum oculatum*; Veitch's variety of *Vanda suavis*, in excellent condition, with foliage down to the pot, and bearing one strong spike of bloom; *Anguloa Clowesii*, with fourteen blooms about to open; *Odontoglossum citrosimum*, *Lycaste eburnea*, *Aërides Fieldingii*, *Oncidium Harrisoni*, with ten spikes not yet open; *Brassia verrucosa*, with a dozen and a half of flower-spikes; and an immense plant of *Cypripedium Stonei*, are amongst the more notable plants to be seen at this little nursery.

MESSRS. HUGH LOW AND CO., CLAPTON NURSERY, E.

have a very extensive collection; they are constantly receiving large importations, and as Orchids in every stage, from those just out of the packing cases to established specimens, are always to be seen, the visitor here can form an idea of the rapid distribution which Orchids have, for unless that were so Messrs. Low would never be able to house the imports as they arrive. In the department devoted to *Cypripediums* there is to be seen at present a remarkable sight. It is a large house, about 80 feet in length, in which is a bed about 10 feet broad, and on this are placed as thick as they can stand fine healthy plants of *C. Lawrenceanum* in full flower; the effect can be more easily imagined than described. In the same house, in flower, but not in such large quantities, are *C. Lowianum*, *C. lævigatum*, *C. ciliolare*, *C. niveum*, *C. Roelzii*, *C. Harrisianum*, and *C. barbatum*. Many houses are devoted to *Cattleyas*, and a nice sprinkling of bloom is to be seen. One house (principally *Trianae*) will be a fine sight in a very short time, as the buds and sheaths are both numerous and strong. Various forms of the following *Cattleyas* are in bloom:—*C. Mendelii*, *C. Trianae*, *C. intermedia*, *C. Aclandii* (very fine), *C. gigas*, and *C. Lodgesii*. A very fine plant, not in bloom, of *C. Dowiana*, was very flourishing. Messrs. Low's large imports of *Odontoglossums* are well known, but in such large batches we certainly expect to have found more "starry" ones than there are; in fact, in a very large houseful of *O. Alexandræ* just flowering there was not a single spike but what would be called a good one. There was a nice selection of these favourites in bloom, consisting of *O. Alexandræ*, *O. claviceps*, *O. Sanderianum*, *O. Coradinei*, *O. triumphans*, *O. pul-*

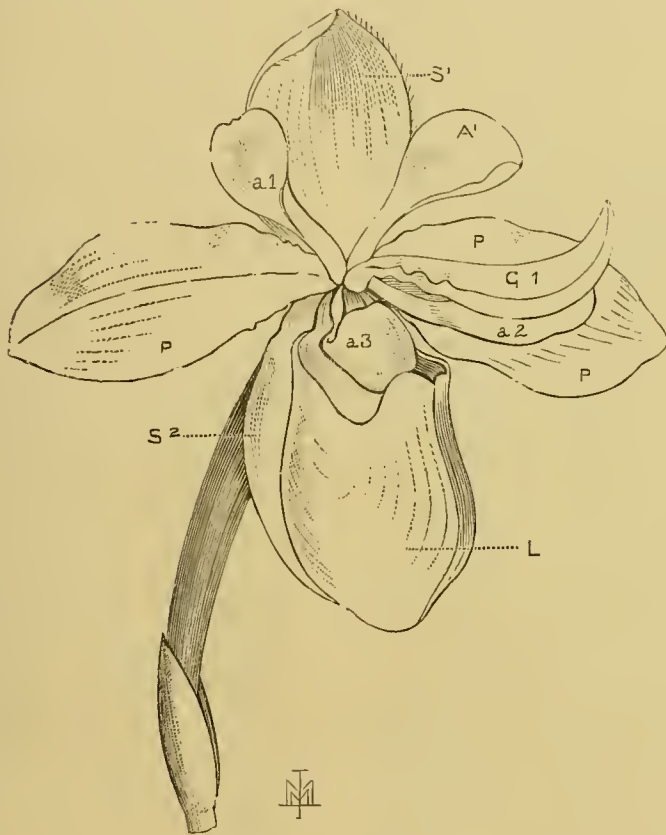


FIG. 112.—A DOUBLE-FLOWERED CYPRIPEDIUM. (SEE P. 597.)

REFERENCES:—*S¹*, *S²*, Sepals; *P*, *P*, Petals; *L*, Lip; *a¹*, one of three outer petal-like stamens; *a²*, *a³*, three inner stamens, of which two are petal-like, one lip-like; *Q¹*, a petal-like style.

spotted with black. Many other plants, too numerous to be detailed, are to be found in the collection.

MR. B. S. WILLIAMS' NURSERY, HOLLOWAY, is, perhaps, as well known and noted for its Orchids as for any other branch of the trade, and at present the display will well uphold the honour of the firm. Amongst *Cattleyas* fine pieces of *C. Mossiæ*, *C. Mendelii*, *C. citrina*, *C. gigas*, *C. Schilleriana*, *C. intermedia*, *C. Skinneri*, and *C. Warneri* are in bloom, also very fine pieces of *C. Mendelii speciosissima*, a large, much spotted variety, very telling; a good lot of *Cypripediums*, including *C. caudatum*, *C. Argus*, *C. ciliolare*, *C. superbiens*, *C. barbatum*, *C. Lowi*, *C. lævigatum*, *C. Lawrenceanum*, *C. Harrisianum*, *C. niveum*, *C. Sedeni*, *C. barbatum Warneri*, *C. longifolium*, *C. vernixium*, *C. villosum*, *C. microchilum*, and *C. Druryi*. A fine lot of *Dendrobiums*, too, is scattered about in various houses, the following are in bloom:—*D. thyrsiflorum*, *D. densiflorum*, *D. chrysotoxum*, *D. Jamesianum*, *D. draconis*, *D. nobile Wallichii*, *D. anosmum*, *D. macrophyllum*,

large number of the different varieties being in bloom, including fine types of the following:—*O. vexillarium splendens*, very fine; *O. citrosimum*, *O. Roelzii* and *O. Roelzii alba*, several very fine; *O. Alexandræ*, *O. luteo-purpureum*, *O. hystris*, *O. Rossi*, *O. Pescatorei*, *O. roseum*, *O. radiatum*, *O. triumphans*, *O. sceptrum*, *O. niveum majus*, fine pieces of *O. Halli* and *O. Halli leucoglossum*, and the pretty little *O. Oerstedii*. *Masdevallias* in bloom are not so numerous, but among them are *igneæ*, *Harryana*, *Veitchii*, *amabilis*, and *Shuttleworthii*. In the cool-houses *Acineta Humboldtii* was in bloom, as was *Ionopsis paniculata*; *Trichopilia coccinea* has a curious colour. Of *Cymbidium*s mention may be made of *C. Lowi* and *C. eburneum*, *Cœlogyne lactea*, a pretty flower; *Lælia elegans evectum*, *Epidendrum vitellinum majus*, a nice piece of *Aërides Fieldingii*, and some specimens of *Camarotis purpurata*. Large pieces of *Sobralia macrantha* are throwing up blooms, as also *Anguloa Clowesii*, *A. Ruckeri sanguinea*, and a very fine piece of *Saccolabium ampullaceum*, the showy *Sophranites grandiflora* and *Ada aurantiaca*,



chellum, *O. roseum*, *O. mirandum*, *O. Ruckerianum*, *O. luteo-purpureum*, the pretty little *O. Oerstedii*, *O. melus*, several forms fine of *O. gloriosum*, *O. Andersonianum*, the gorgeous *O. tripudians*, and in contrast the fine *O. Rossi majus*, *O. Pescatorei*, *O. nebulosum*, *O. Roezlii* and *O. Roezlii alba*, and *O. caudatum*. The bright coloured genus *Oncidium* is well represented by *O. Forbesii*, *O. crispum*, *O. varicosum*, *O. cucullatum*, *O. concolor*, and *O. Weltoni*. Of *Masdevallias*, *M. triangularis* and *M. Wallichii* are in bloom. The *Dendrobiums* are well represented here, and the following were blooming:—*D. tortile rosea*, *D. thyrsoiflorum*, *D. Bensoniae*, *D. devonianum*, *D. onomum* Dayi, *D. Parishii*, *D. eburneum*, *D. albo-sanguineum*, *D. xanthinum*, *D. giganteum superbum*, *D. Lowii*, and *D. Jamesianum*. The *Phalenopsis* at Messrs. Low's have frequently been favourably commented on, and at present they lack none of their former vigour, a piece or two of *P. Sanderiana*, *P. amabilis*, and *P. grandiflora* were in bloom, but of course the majority are over. The following miscellaneous species were also in bloom:—*Camarotis purpurea*, *Aerides Fieldingii*, *Vanda Denisoniana*, the sweetly pretty little *Ionopsis paniculata*, *Gongora grossa*, *Utricularia montana*, *Vanda cœrulescens*, *Epidendrum odoratissimum*, *Saccolabium retusum*, *Burlingtonia fragrans*, *Lycaste aromatica*, the brilliant *Sophronites grandiflora*, and the rare *Rodriguezia Lezana* var. *picta*, something like a beautifully spotted *Burlingtonia*.

## THE FERTILISATION OF ORCHIDS.

THE pollen of Orchids, when it falls on the stigma, undergoes rapid development; it is nourished by the secretion of the stigma. I have frequently seen the pollinia of *Cattleya* grow to five or six times the size of those in the anther in two days when they have been placed on the stigma, and each pollen grain then contains eight or sixteen young pollen grains, which are afterwards set free. This process occurs in other plants in the anther, and not on the stigma. The ovary, or young seed-vessel, in most plants, is closed, and the pollen sends a tube from each grain through the loose tissue of the style; but in most Orchids the style is hollow, and opens by a large pore on the surface of the stigma. In the flowers of *Dendrobium Pierardi* and *D. primum* the tube is as large as the cavity of the ovary, so that the ovules lie, as it were, in a deep open cup. I have not yet traced the pollen-tube into its interior, but hope to do so soon. The whole of this tube as well as the surface of the stigma is covered with fine, very transparent hair-like cells, resembling the mycelium of a fungus more than anything else I have seen. They are undoubtedly concerned in the nourishment of the pollen.

In the Orchid flower we see manifold temptations to catch insects for the purpose of insuring fertilisation; many, it is well known, closely resemble insects, and I could not have so clearly recognised this in a number of cases if I had not cultivated and watched the plants themselves. Take the genus *Phalenopsis*, for instance. I never realised the true import of the name, which signifies like a moth, until I saw the flowers of *Phalenopsis grandiflora* in the moonlight swaying with a fluttering moth-like movement in a gentle breeze. Those of *Gongora* look like a swarm of sand-wasps, and emit a powerful scent of Violets in the early morning when the sand-wasps are at work. This perfume entirely disappears before noon, and every entomologist knows that the sand-wasps go to rest before the middle of the day, like many other hymenopterous insects. The flowers of the curious *Oncidium macrochilum* resemble a flight of large gnats or small crane-flies, and here again the deception is greatly enhanced by the flightlike movements of the flowers in a gentle breeze. It may appear fanciful, but at a distance the flowers of *Cypripedium insigne* look as if a crowd of white butterflies were hovering over them, and the quaint blossoms of *Zygopetalum Mackayi* appear as if a large beetle, *Buprestis*, were just emerging from the flower. Some Orchids are undoubtedly attractive to insects from their abundant nectar, others by their perfume, others by their curious movements, and others because they appear like insects. I am sure that much has still to be learned that will throw light on the purpose of the many bizarre and beautiful modifications of these remarkable plants, and would urge on those who cultivate them for their beauty, to watch them carefully and consider them in relation to their natural conditions. The movements of

Orchid blossoms in a gentle breeze is a subject which has hitherto been completely neglected, and I feel sure it cannot fail to afford many interesting facts and suggestions to the careful observer. *B. T. L.*

## ORCHIDS FOR AMATEURS.

(Continued from p. 546.)

**TEAK BASKETS.**—For many there is nothing so good or so convenient as Teak baskets, and these should never be too large for the plants. One great advantage of a Teak basket is the ease with which it can be taken to pieces, in order to remove the plant, and put together again; another is its perfect drainage. My practice is to fill the basket with small branches of charcoal, to place the plant upon these, and then to cover its roots with living sphagnum or peat fibre, binding it in with a few turns of fine copper wire. The price of Teak baskets with neat wire suspenders is so moderate that few would, I think, attempt to make them for themselves, unless they were required in great numbers. Small pans, flat on one side, which is raised above the pan, and provided with a hole to hang it upon a nail on one of the walls of the house, are very useful, as they enable small plants to be hung up just under the glass, especially for *Sophronites* and the smaller species of *Cattleya*.

As a rule, plants grown upon naked blocks do not do well except in a few cases. Many *Oncidiums* so planted only flower once and never do any good afterwards, but to this there are exceptions: for instance, I find *Oncidium Papilio* and *Krameri* do better upon a piece of virgin cork, hung up, than when placed in a pot, although some growers prefer to place the block on which it grows in a pot. Wood blocks without bark or moss are not, I think, very good for any Orchids, rafts made of Teak with moss bound over the plants are better, but I think baskets or shallow pans are far better than blocks. Pots perforated with numerous holes are especially adapted for Orchids, as they permit a free circulation of air; and whenever there is only one hole, as in an ordinary pot, the pot should stand on two slips of wood to ensure a free circulation of air, a plan invariably adopted in the Orchid-houses at the Royal Gardens, Kew. The free circulation of air in the compost about the roots is essential to the health of the roots, a fact which cannot be too forcibly impressed on the amateur cultivator, and one which cannot be neglected with any chance of success in the case of Orchids. Ordinary plants are dependent on the air absorbed by the surface of the soil, but Orchids, at least the epiphytes, grow on the branches and trunks of trees, so that the air permeates the mass of roots on all sides.

There are some Orchids the flowers of which are produced from scapes which grow downwards into the compost in which they are planted; the buds grow, in fact, in darkness, and are thrust out and developed below the plant. Such are the *Stanhopeas* and *Acinetas*. Of course, these would never flower in pots, as the flower-buds could not pass out into the air, and in planting them in baskets it is necessary to place the charcoal rods on which they are supported so that there is plenty of room for the flowering stalks and buds to pass between them. Other plants, as the *Trichopiliias* and *Gongoras*, have pendent flowers, the scapes of *Gongora* often being a yard or more in length; the plants in that case must be suspended from the roof, and baskets are far more suitable than anything else.

### BASKETS OR POTS.

Many Orchids may be planted either in baskets or pots; such are the *Phalenopsis* and *Dendrobiums*, and there is some difference of opinion as to which is the best treatment. I have already spoken on this subject with regard to *Phalenopsis*, and the very numerous species of *Dendrobium* need different treatment. I think the smaller kinds do best in baskets, and the larger in perforated pots, or even in ordinary pots if these are not too large.

Another group of plants, *Vandas* and *Saccolabiums*, is essentially an epiphyte group and is certainly very ill-suited for pots. Even the large *Vandas* do best in good-sized Teak baskets standing on the bench, or, better still, over a tank in summer and upon a bench in winter. The roots of these plants are chiefly aerial, and in their natural condition, cling to the bark and limbs of trees, or hang freely in the air. I remember seeing a magnificent *Saccolabium* in the house of an amateur friend which produced numerous young

plants and flowered splendidly every year; it was attached to a large piece of cork, and hung over a tank. The roots of this plant will grow to within 2 or 3 inches of the water in the tank. I made a very curious observation with regard to these roots. My tank is filled by the rain-water from the roof, so that the level varies considerably, and I found that as the water rose the roots of a *Saccolabium* suspended above it turned up, so that they always kept about 3 inches above the water, for these roots became straightened as the water fell again. I do not know that this has been observed before. All true epiphytes if planted in pots must be raised well above the rims, for small plants 2 inches, and for large ones 6 or 8 inches, or even a foot. This is not advisable, however, with the semi-epiphyte or terrestrial kinds. *Cattleyas* as a rule do best, I think, in pots, and *Lælias* may either be planted in pots or baskets. A very excellent method with both is to fix several logs of hard wood of suitable size across the top of the pot, in pyramidal fashion.

Very pretty baskets may be made out of branches of any hard wood to fit the corner of a bench, which serve well for *Lælia purpurata*. The corners are always difficult places to deal with, and I know no better method of utilising them. The basket should be raised an inch or two from the bench, to ensure drainage and ventilation.

I always encourage the growth of Ferns and small Heath when they come up spontaneously amongst my Orchids, as they are capital indications of the state of moisture of the compost, and they add much to the beauty and picturesque effect, and I believe their roots are congenial to those of the Orchids. Occasionally, however, plants of large dimensions occur as weeds. A *Yucca* came up once with me in a large pot of *Cattleya*, and I had to cut it out, as it usurped too much room, but I felt very sorry to destroy it, and I should certainly have let it grow on if room had not been an object. I do not think the *Cattleya* would have been any the worse, but in this I may be mistaken. *Cypripediums* are generally all grown in pots, but the Comte du Buysson strongly recommends that the more truly epiphyte forms should be grown in baskets: such are *C. Hookeri*, *barbatum*, and *Lowii*. He says that they do much better in this way, whilst the *Selenipedium section* and *lævigatum*, *Stonei*, and the like should be planted in large deep pots, and well below the rim, just as a *Pelargonium* should be planted; they must, however, be well drained or they will not succeed.

There is one group of Orchids which forms an apparent exception to all others, so far as I know, with regard to drainage—the *Disas*, and the most successful growers recommend that the pots should stand in saucers with a little water always in them even in winter, but the compost must be loose, open, and sandy, or they will not succeed. These are marsh plants, and cannot tolerate any drought; on the other hand, anything like a sodden compost is inevitably fatal to their welfare.

Speaking of sand reminds me that all the most successful growers of *Odontoglossums* and *Masdevallias* add coarse sand to the compost, and I have always found that the roots cling strongly to this sand—a certain indication that it is beneficial to the plants. The sand should be coarse and sharp, otherwise it will impede the drainage. Some growers speak of the unnecessary expense entailed in using charcoal and sharp sand, but surely this is false economy; with such valuable plants no expense of this kind can be of the slightest moment—a few pence expended on each plant is such a trifle that one would suppose no serious person could make such an objection. My own impression is that most amateurs plant *Odontoglossums* in too loose a compost: it is an error I fell into myself, and I am now convinced that it is a serious mistake. *B. T. L.*

(To be continued.)

**ORNITHOGALUM ARABICUM.**—This appears to make a useful forcing plant, judging from what can be seen of it at Ilarefield Grove. A few bulbs potted singly in small pots have thrown up stems surmounted with large white flowers having a glistening black ball-like blotch in the centre. Not only does it make an attractive and useful decorative plant for a warm greenhouse or conservatory, but it has a decided value for cutting from. The bulbs are white, like those of the ordinary white Roman Hyacinth, but larger. In suitable situations it must make a fine subject for the open border. When well grown this charming plant produces large umbels of flowers,



## THE KILMARNOCK ORCHIS.

THE mild winters, followed by the severe frosts of March in the years 1883 and 1884, proved in my garden very destructive to many terrestrial Orchises, especially to the varieties of *O. latifolia* and *O. maculata*, which formerly did remarkably well here in peat beds made for Lilies. The finest of these, which used to be offered in many nursery catalogues by the name of *O. maculata superba* (the Kilmarnock Orchis), is extinct here, and from enquiries I fear it is almost everywhere a lost plant. It was one of those forms, apparently intermediate between *O. latifolia* and *O. maculata*, which are often found where these plants grow together, the two species being confluent, either by crossing or by natural affinity. It was brought into prominent notice a few years ago by the late Miss Ilope, of Wardie Lodge, where it used to flower and increase remarkably well. About ten years ago that lady gave me three bulbs, which flourished and had increased to a dozen, when the frost or a blight attacked them two years ago, and the leaves withered and the bulbs perished. Being lately in correspondence with Kilmarnock I asked whether this Orchis is still in existence there, and received the following interesting notice concerning it:—"I am very sorry that I cannot send *O. maculata superba*; I am afraid it is hardly in existence now. I think it has been killed by kindness. It was found by Mr. Fulton, of Fenwick, growing in Fenwick Moor, and being an extra specimen, he took it home and grew it, when it increased freely, and was given away to friends till a great many to this neighbourhood had it, and our local nurserymen, Messrs. W. & J. Samson, had a large bed, which I saw in fine bloom, and got it from them. After it was figured in the *Garden*, there was such a run upon it that it was entirely exhausted, and I think the repeated liftings to increase it caused it to decay. I have not seen it for many years. I was anxious to get it myself, and last autumn applied to Mr. Fulton, but he could not give it, and I believe that there is not a plant hereabouts. I went yesterday to a gardener who I knew had it and grew it well, as I remember seeing one spike 10 inches in length and as thick as a Hyacinth; but he had lost all. Fenwick is the coldest place in Ayrshire; the harvest of Oats never ready before the middle of October, and in late seasons not ripening; so that the transplanting to warmer regions has apparently not agreed with it."

It is a curious circumstance, bearing upon this last remark, that the only terrestrial Orchis which does not seem to have suffered at all during the seasons so fatal to our native Orchises is the Madeira Orchis, *O. foliosa*. This seems to be less particular about the conditions it requires in order to thrive than any terrestrial Orchis I have ever tried. I have had it for at least ten years, and I do not know that I have ever lost a bulb, and after severe or mild winters it seems equally vigorous. *C. Wolley Dod, Edge Hall, Malpas, March 26.*

## The Flower Garden.

THE time has now arrived when all the spring bedding plants must be removed, to make room for the summer and autumn plants; when the same garden is made to serve the purposes of a spring and summer display there is no help for it, as often before the flowers are past their best the beds will be required for the summer plants. The beds should be manured and well dug and trodden firmly, and all made ready to receive the summer occupants. All plants intended to be used should be ready, so that a commencement may be made when the weather becomes favourable for the operations. Care should be taken in planting out all kinds of bedding stuff to avoid the common error by planting too shallow; and make the soil quite firm round each plant.

I prefer watering newly bedded out plants early in the day, so that they may get dry before night, as then they are not so likely to get hurt by frost. In the removal of such bulbs as Narcissus, Crocus, Hyacinths, Tulips, &c., they should be safely named and laid in some light mould till their foliage has decayed, then the bulbs should be dried in some cool

airy place. All such plants as Pansies, Daisies, Aubrietias, Arabis, Violas, Primroses, Polyanthus, and all winter bedding plants should immediately on removal be cut back and divided where necessary and transplanted into the reserve garden, planted in rows and made firm, and watered for a few days till they root. *W. Smythe, Basing Park, Alton, Hants.*

## Plants and their Culture.

## FLOWERING STOVE PLANTS.

As previously noted, the major part of these delight in sunshine, the growth made under this treatment being conducive to flowering. The foliage itself may not be of so deep a green, but shorter jointed wood and greater substance in both will be the result of such treatment. Allamandas, to be grown and flowered as they ought to be, should never be shaded even when in flower. Bougainvillea glabra, Rondeletia speciosa major, and the Vincas should come under the same régime. Clerodendrons, Stephanotis, Francisceas, and Dipladenias, during the flowering period, may receive partial shade; it is doubtful, however, if much benefit is derived by shading the latter genus even then.

In order to secure an even set of flowers on Allamandas, Bougainvilleas, Vincas, and the shrubby Clerodendrons (as *C. fallax*), it is most essential to pinch the shoots to produce an even break all over the plant. One pinching is sufficient for the two former genera, allowing about twelve weeks from that operation till the plant is needed to be in bloom. The two latter genera grow like weeds when well treated; they may be pinched at every second pair of leaves as long as is desirable, giving them six weeks to come into flower from the last stopping. Whilst this rapid growth is being made two or three shifts may be given, but none after the last pinching. Rondeletia speciosa major requires the same treatment as the Allamandas in this respect, but should be allowed sixteen weeks to get into flower. These hints should be useful to intending exhibitors who have not hitherto adopted this course, having ourselves proved their efficacy over and over again. Particularly is this noticeable in regard to the Rondeletia just named, which, when thus treated, is one of the grandest flowering stove plants that we possess for the autumn months; when thus grown it becomes a dense bush, not a semi-climbing plant, as it is seen more often than not.

Hoyas that have been kept moderately dry during the resting season will now need more water at the root, the old and new trusses will then soon send forth a crop of flowers, which, in the case of *H. carnosa*, will be repeated later in the season, allowing an interval of rest. If there should be duplicates of Stephanotis of flowering size, one or more, as the case may be, can be retarded for later flowering when growth has not commenced, by removing such to a temperate-house and keeping the soil on the dry side, even to the sacrificing of the greater part of the foliage: when the Stephanotis is found to be shy in flowering this will be a good plan to follow, pruning somewhat severely before reintroducing into heat; twelve weeks will be found a sufficient time wherein to get them into flower when thus treated. The Gloriosas, after a winter's rest, ought now to be in active growth; when the plants have attained sufficient strength, a trellis of proportionate size will be necessary; the last shift must, however, be given before that is fixed upon. *James Hudson, Gunnersbury House, Acton, W.*

## The Rosery.

## ROSE MARÉCHAL NIEL.

I ENCLOSE a few blooms of the above for your inspection; they are cut from a plant growing here in the Camellia-house. The plant is trained on the roof, and covers a space of some 54 square feet, all but a few feet at the base being of last year's growth. Recently there were quite 250 expanded blooms, and many buds—a sight to gladden the heart of the most fastidious rosarian. When the bloom is over the

Rose is cut back close to the base of the previous year's wood, and the strong breaks it soon sends out are carried along in place of the wood cut away. I am not at all anxious about getting the wood thoroughly ripened, as I find the soft points of the long shoots give flowers as freely and as fine as the more matured wood at the base. I may mention that the Rose is planted out in good loam, and since the buds appeared has had at intervals liberal supplies of manure-water. *F. Blackburn, Elmstead Grange, Chislehurst.* [Beautiful perfect blooms. Ed.]

## The Hardy Fruit Garden.

## WALL TREES.

ALL protection is better removed now, the weather being milder; continuing it would only encourage weak growth. Insect pests, such as greenfly, should be looked sharply after, and not be allowed to establish themselves on the trees. A ter disbudding the Peach trees, a good syringing early in the afternoon will do them good, and tend to keep greenfly in check, which is often troublesome early in the season; but this should be done early, so as to allow the trees to become dry before evening. Pears on walls have set a fine crop, and orchard trees, on grass are in full bloom, and look most promising.

## ORCHARD TREES.

Trees planted in spring should be carefully staked, as much injury is often done by the trees being shaken by high winds. Where rotten dung cannot be spared to place on the surface of recently planted trees a little long litter will help to keep the ground moist, and save watering. A few small branches placed over the litter and pegged down will keep it from being blown away, and give a tidy appearance. Suckers growing round Plum trees should be removed at once.

## SMALL FRUITS.

Raspberries should have the young shoots thinned out to the number required for each root, say two or three to each, otherwise they crowd each other, and cannot become strong if six or eight are allowed to each root, as is often the case. Gooseberries should be watched for the first appearance of the caterpillar or the magpie moth. Immediately this is detected the bushes should be dusted over with white hellebore powder, and timely attention will prevent it spreading. *F. Smith, Mentmore, Bucks.*

## The Kitchen Garden.

## SEED SOWING.

SEEDS of Chicory, Salsafy, and Scorzonera may now be put in, or be left a couple of weeks later if spare ground be not available. If a succession of Broad or Longpod Beans be desired, a second sowing should now be made; but few appreciate them when other choicer vegetables are at hand. About the middle of the month make the last sowing of Brussels Sprouts, and also a successional one of Cauliflower—not omitting a bed of Veitch's Autumn Giant; this latter will come into use in late autumn; in fact, a still later sowing of this valuable variety is advisable. About the end of the month, or during the first week in June, make a sowing of early Savoy.

## PLANTING OUT, &amp;c.

Forethought will be required in allotting the remaining uncropped ground to the best advantage. Potato planting should be finished by this time. Commence tying Lettuce—the Brown Cos of last autumn's sowing, which will then be well blanched in the hearts and ready, after the Cabbage Lettuce is used up from ground at the foot of walls, or from the frames.

## TOMATOS AND MARROWS.

About the 15th of the month Tomatos should be got out, previously exposing the plants freely to the weather on all favourable occasions. The same remarks apply to Vegetable Marrows. If the Tomatos cannot be accommodated on walls or fences they should be assigned a very sunny position in the open, planted 1 yard apart each way, and should have a stake placed to them of sufficient strength to last throughout the summer and capable of supporting the weight of the fruit. If stakes are plentiful, three may be given later to each plant, thus giving the fruit, by spreading out the branches, more light. Before sticking successional Peas, all weeds should be removed from between the plants in the rows. *G. H. Richards, Somerley Gardens, Ringwood.*



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	May 11	{ Sale of Imported Orchids, at Protheroe & Morris' Rooms. Orchid Conference, and Exhibition of Orchids, at the Royal Horticultural Society's Gardens, South Kensington (two days).
TUESDAY,	May 12	{ Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.; National Rose Society: Meeting of Executive Committee, at 3 P.M.
WEDNESDAY,	May 13	{ Sale of Carnations, Plants, &c., at Protheroe & Morris' Rooms. Special Sale of Orchids in Flower, at Protheroe & Morris' Rooms.
THURSDAY,	May 14	{ Great Clearance Sale of Plants, at the Royal Nursery, Feltham, by Protheroe & Morris.
FRIDAY,	May 15	{ Sale of Imported Orchids, at Protheroe & Morris' Rooms.

AMONGST English growers of Orchids there seems to be a very general prejudice against any attempt to place other plants in the same houses, so that in spite of the great

amateurs can only afford a small number of Orchids, and never expect anything but outlay to result from their favourite pursuit. That a perfect paradise can be produced with a very moderate expenditure is undoubted, as Orchids have been grown, and successfully grown, over and over again, under such conditions. The amateur may, therefore, choose between growing Orchids in the usual way, without regard to the general view presented by his Orchid-house, or he may attempt their culture in a more congenial surrounding, and if he pays sufficient attention to details he will succeed in producing an arrangement which must excite the admiration of every one who sees his collection.

No Orchid grower would consider the Comte DU BUYSSON an unsuccessful cultivator, yet he is most enthusiastic on this

compared with that of the professional horticulturist, where all the Orchids are arranged on stages, and present an *ensemble* of naked stems; and he adds:—"I love Orchids much—perhaps more than any other plants—but I would at once renounce their culture if I were compelled to see them under such an aspect."

The objections to such an arrangement are manifest, as well as its advantages, otherwise we suppose no one would ever have attempted to grow Orchids under any other circumstances, except as a commercial speculation. First, and perhaps foremost, is the difficulty arising from the harbourage of insect foes, and this is a real difficulty, without doubt.

Of all insect foes the West Indian cockroach is the most terrible; but even this dreaded pest may be kept down by a very simple expedient, which has been successful in the great Palm-



FIG. 113.—A BIRD'S NEST OF ORCHID STEMS, AND A BIRD AS A GARDENER. (SEE P. 605.)

beauty of the flowers of their favourites, there is always an air of emptiness and barrenness about an Orchid-house. It is, however, open to question whether, for amateurs at least, the true method of growing and enjoying the beauty of these plants consists in the imitation of the natural conditions in which they flourish, so far as circumstances allow. No doubt there are practical difficulties in the way of culture under such circumstances, yet they are difficulties which are capable of being overcome by judicious selection and proper management. The shade and luxuriance of a tropical forest are the natural home of most of the cultivated species of Orchids, yet the very suggestion of imitating the natural conditions of their native home usually excites ridicule on the part of the English Orchid grower. That such a method of cultivating Orchids would never do for those who grow their plants for profit may be at once admitted, but most

subject; a house devoted exclusively to Orchids seems to fill him with horror. To give these beautiful plants a barren house, showing nothing but benches and rafters, is almost sacrilege in his sight; and he goes so far in his taste for the æsthetic that he has arranged an Orchid-house so that the temperature is graded from one end to the other, without any partitions, except those formed by masses of foliage plants and artificial rockwork. He says:—"One may imagine the difference which a house presents if the plants are artistically arranged, where the glass is masked in parts by climbing plants with showy flowers, where there are domes of verdure of variegated tints formed by the elegant fronds of Palms and Ferns, by the giant leaves of Musas, and where the walls are concealed by a carpet of Ficus repens, and variegated Tradescantias, mixed with Ferns and Selaginella, with a parterre of Gloxinias, Achimenes, and Caladiums, when

house and in the Orchid-stove at Kew. It consists in placing wide glass vessels, about 6 inches deep, with half an inch of treacle at the bottom, about the house. The West Indian cockroach is very greedy for the syrup, and cannot escape when once it touches the tenacious liquid. All that is necessary is to place the glasses so that these pests can reach the brim, and their fate is sealed.

Thrips, scale, and aphids should not appear at all, and when they do it is a certain sign that there is some defective treatment, and affected plants should be at once removed. No one would advocate a crowding together of plants, and amongst climbers a very judicious selection must be made, or the experiment will fail. The luxuriant Passion-flowers and Tacsonias are too free-growing, and the fall of their magnificent blossoms is very destructive to all beneath them. It is amongst the Apocynæ, the Asclepiads, and Mal-



pihiaceæ that the most suitable climbers are found. *Echites nutans*, *Dipladenia splendens*. *Hoya*, *Ceropegia*, *Stephanotis*, and *Banisteria* are perhaps amongst the best for the purpose. Like the Orchids they need abundant water in summer, and little or none in winter.

Whatever arrangement be adopted it is needful that every Orchid should be so placed that it may receive individual attention, and the same may be said of every plant in the house; the idea that a general syringing or watering once a day is sufficient is, of course, the idea of a novice. Whether the horticulturist wishes to grow a variety of Ferns with his *Odontoglossums*, or of tropical forest plants with his *Cattleyas* every plant must have its share of attention. Another objection is that you cannot grow so many Orchids if you divide your attention and your house with other plants, and that is true, but it will be no objection to those who wish to enjoy a few Orchids, rather than to collect a great number.

Those Orchid growers who have ornamental conservatories into which the Orchids are brought when in bloom grow their plants with that object, and need not trouble about their surroundings. We have now in view those only who have but one stove or greenhouse, and especially those who grow their plants themselves, for the ordinary gardener seldom has either the time or special knowledge for the culture of Orchids. We believe that if the cultivation of suitable plants were considered carefully that, now many Orchids are cheap, hundreds might enjoy a luxury which is still almost confined to very wealthy or very enthusiastic lovers of plants. Twenty or thirty well selected Orchids, arranged in a suitable stove, intermediate, or greenhouse, would form a delightful occupation and a never-ceasing source of pleasure to thousands. The benches might be covered with an artificial rockwork with light iron stands for the Orchids, whilst upon the rockwork *Ficus repens*, various *Selaginellas* and Ferns, variegated *Tradescantias* and *Fittonias*, would form a beautiful bank for the reception of the pots of Orchids. To these many other plants, such as *Hoya bella*, and the various *Eranthemums*, may be added, whilst the climbers already named might be planted close to the sashes, and trained over the roof. The centre of the house might contain a group of Palms, Tree Ferns, and Musas, beneath which the shade-loving Moth Orchids could be suspended. The taste and skill of the individual would of course be taxed, and some experience would be needed in arranging the different plants to the best advantage.

One of the great features in the culture of Orchids is the small size of the pans and baskets in which they are easily grown with the greatest success. Since the time of Mr. Dominy, Orchid growers have rather lapsed from the perfection which he attained in potting his plants; blocks and small hanging pots need in no case be unsightly; the *Cypripediums* might be sunk in well-drained receptacles in the rockwork, so that the whole appearance might be of a garden under glass rather than of an unsightly collection of flower-pots, containing what to most is at best, when without flowers, a collection of very uninteresting plants.

— OUR SUPPLEMENT.—With our present number we offer to our readers a special Supplement and Map, prepared by Mr. F. W. BURBIDGE. The map shows the geographical distribution of the genera of Orchids; the Supplement contains a complete list of the genera admitted by Mr. BENTHAM in the *Genera Plantarum*, and is published by the kind permission of Sir JOSEPH HOOKER. References to many illustrative plates are given, as well as to the whole of those figured in the *Gardeners' Chronicle* from 1841 to the present time. Such a condensed mass of information has never before been offered to the Orchid-loving fraternity, and we would fain hope that it may be preserved for reference, and that it may be found useful in every garden where Orchids are cultivated. The cost and labour of production preclude the possibility of reproduction. It is therefore requisite that those who desire extra copies should at once apply to the Publisher.

— OUR NUMBER.—The present issue, in anticipation of the Orchid Conference next week, is largely occupied with matter relating to the conformation, internal structure, and cultivation of these plants.



SIR TREVOR LAWRENCE.

A brief notice of some of the principal Orchid nurseries and private establishments is given, as well as a portrait of Sir TREVOR LAWRENCE, the President of the Royal Horticultural Society and of the Orchid Conference. Of the Supplement mention is made in another paragraph.

— OUR NEXT NUMBER.—In our next number we hope to lay before our readers a double-page engraving, representing a group of Orchids, a portrait of Professor REICHENBACH, a notice of the insects that attack Orchids, by Professor WESTWOOD, a similar notice of the injurious fungi by Mr. WORTHINGTON SMITH; numerous cultural articles, and a full illustrated report of the proceedings at the Orchid Exhibition and Conference.

— THE ORCHID EXHIBITION.—We are informed that the space at command in the Conservatory will admit of the admission of duplicate specimens, should exhibitors desire to send them. Application should be made at once to Mr. BARRON, at the Royal Horticultural Society, South Kensington.

— THE ORCHID DINNER.—If it be not too late to alter the arrangements, it might be well, it is

suggested, to substitute a luncheon at South Kensington, in the club room, on the Tuesday. This has been proposed to us by some who feel that after the labours of the day at Kensington they will not be disposed to assume the dimorphic guise of dinner dress, and rush off into the City to dine. The arrangements for the luncheon could readily be made on the spot at a day's notice.

— THE GARDENER-BIRD.—When the illustration of this bird, and Signor BECCARI's notice of its peculiarities, were first published in our columns, on March 16, 1878, there was such a "run" on the paper that the Publisher soon had to report "O. P."—out of print. We do not anticipate such a result now, but as he is frequently asked for the number in question, we reproduce the engraving on an occasion when it seems specially appropriate. Referring the reader to the number in question for a plan of the nest, and for full details, we may here say that the bird in question (*Amblyornis inornata*), a native of New Guinea, makes a conical nest, entirely of the dry pseudobulbs of a *Dendrobium*, and thus furnishes a *raison d'être* for pruning those organs as recently recommended.

In front of the nest the bird forms a lawn of moss, on which it deposits, for the delectation of its mate, various brightly coloured flowers, insects, fungi, &c. The objects are of varied character, but always brightly coloured. Some Philistine has remarked that Orchids are of no use. The New Guinea bower-bird is of a different opinion, and the Orchid-lover may find vindication for his fancy (should he need it) in the recollection that his taste is a purely natural one, shared in by the fowls of the air—and garden.

— AMERICAN EXHIBITION, LONDON, 1886: BOTANICAL DEPARTMENT.—Among the attractions of the American Exhibition to be held in London next year will be a garden comprised solely of American trees, shrubs, and hardy plants; in fact, it is intended that the whole of the Exhibition grounds shall contain no plants except those of North America. The intention is to make a representative gathering of the United States flora, taken in latitudinal and longitudinal directions. The former will represent the characteristic vegetation of each State taken seriatim from New York to California, the latter from the Canadian frontier to Texas and Florida. The Orange and Citron groves of Florida and other Southern States, together with representations of their Cotton, Maize, and Tobacco fields, will be made. As the

North American flora is of peculiar richness, such an exhibition will not only be novel, but attractive, for no country is so rich in beautiful hardy trees, shrubs, and herbaceous plants, and an idea of the resources of the North American flora will thus be represented to the visitor at a glance. From the opening day in May till the close of the Exhibition in October it is hoped that the grounds will not only prove interesting and instructive to visitors, but attractive also on account of the peculiar nature of American plants to flower in continuous succession. With the ordinary American flowering shrubs, such as *Rhododendrons*, *Azaleas*, *Kalmias*, English people are well acquainted, but it is hoped that this Exhibition will comprise large numbers of trees, shrubs, and plants, which are comparatively little known in this country. The wealth of the herbaceous plant flora of the States will be a special feature, and it is intended to import direct from the States representative collections of wild trees and plants, particularly of the most attractive kinds.

— A FLORA OF THE ENGLISH LAKE DISTRICT.—Mr. BAKER does not allow his researches into the flora of Madagascar, nor his exhaustive monographs of monocotyledonous and other plants, to wean him from



his early love and study of British plants. Of this we may be glad for his sake, for what delight is greater than that experienced by the keen hunter after wild plants?—and glad for the sake of botany, as the larger experience and wider views of a botanist like Mr. BAKER, who has worked over so large a field of systematic botany, must tell favourably on the frequently limited investigation of British plants. The total number of species admitted for the Lake districts is 893 out of 1425 for the whole of Britain, and of the 893 fifty are of the Highland, and fifty-four of the Scottish type, while only eleven are Germanic, and twelve Atlantic. Leaving out of consideration the great mass of plants of the "British," *i.e.*, general type, and the few (five) local plants, the number of Scottish and Highland plants affords a good index to the nature of the country, as also does the fact that no fewer than twenty-eight plants belonging to WATSON'S mid-arctic zone are included in the Lake district, while they are entirely absent from Northumberland, Durham, and North Yorkshire. Such plants, moreover, would be more abundant on the hill-tops, were there any stations for them to grow in. The climate is not unsuitable, but there is, so to speak, no place for the soles of their feet. Mr. BAKER includes several "aliens" and "casuals," and the interest of his volume would have been enhanced had he been able to give us a general notice of the date and source of their introduction and the circumstances of their distribution. In the enumeration of the plants the names are preceded by the number which they bear in the *London Catalogue*, which is rather puzzling at first, though explained in the preface.

— THE WEATHER OF 1884.—Mr. EDWARD MAWLEY has issued his admirable summary of the climatal phenomena of the past year in the vicinity of London, to correspond with those which he has issued since 1879 (STANFORD). These reports have been so exceedingly well contrived for the advantage of cultivators that we learn with great regret that, owing to a change of residence, this is to be the last of the series. The general outcome is that 1884 was "singularly warm, rather dull, and extremely dry, with a dry atmosphere and winds of about average strength. Barometer exceptionally high." It was the warmest year (near London) for twelve years, the driest for twenty, and, with one exception, the least cloudy for eight years.

— *ÆCHMÆA GLOMERATA*.—This plant is figured in the *Voyage of the French Frigate, Bonite*, t. 63, as *Pironneava glomerata*. Of the numerous known species of this genus many are highly ornamental in several respects, and it is to be regretted that their cultivation is not more universal in gardens. Apart altogether from the conspicuous and showy nature of their flowers, the latter are frequently supported or protected by highly coloured bracts that are as attractive as the flowers themselves. When we consider the duration of the bracts (and the species under notice is an excellent instance), the perishable nature of the flowers becomes a matter of less importance than it would otherwise be. The inflorescence is branched and dense, consisting of terminal and lateral heads formed of deep scarlet bracts enclosing the calyx, and persist in good condition for many months. The tips of the calyx and the petals are of a deep blue, forming an attractive contrast to the bracts. The plant is well represented in the *Botanical Magazine*, t. 5668. A plant is in flower in the stove at Kew.

— FLOWERS AND PLANTS FOR THE LONDON POOR.—The Hon. Secretary of the Kyrle Society writes:—"The Kyrle Society will this year again take up the work of distributing flowers and plants among the London poor, and I venture to remind your readers how gratefully any greenery they have to spare will be received for them. The gifts of past years have afforded the greatest delight, and as the Society becomes more widely known it has more requests both for flowers and plants. The latter are greatly needed for the gardens opened in various parts of the metropolis, as not only fresh spaces are secured which require planting, but from the difficulty of keeping plants in the impure atmosphere, those in the older established gardens require frequent renewal. We are very anxious also for plants in pots, for the wards in hospitals, workhouses, and workhouse infirmaries. As in my previous appeals, I will ask those who are kind enough to respond to them, not

to send packages direct to the office, but to write to me in the first place, when I will give the addresses to which they may be forwarded, either of parish, institution, or sick and aged poor in their own homes; and I will ask farther that they will tell me how often or on what day of the week, and what quantity of flowers or plants they will like to send. Especially shall I be glad to know whether the supply would be continued regularly through the season, that I may judge what address it will be best to furnish. F. E. TRIPP, *Office of the Kyrle Society, 14, Nottingham Place, London, W.*

— *ADIANTUM PEDATUM*.—This pretty member of a useful family will succeed in light peaty soil, in sheltered situations, out-of-doors, provided care be taken to protect it from injury to the growth by late spring frosts. It is a very early grower, and shoots up rapidly, so that by the beginning of May, in warm sites, the fronds are 1½ foot in height. In winter they die down to the ground.

— CALIFORNIAN CITRUS FRUITS.—An Associated Press telegram, dated New Orleans, April 4, says:—"To-day California has been awarded the sweepstakes Gold Medal against the world for the best varieties of Citrus fruits; also, two other Gold Medals, eleven silver ones, and thirty premiums. The most formidable competitor was Florida, which had the advantage of nearness to the place of exhibition, and made great efforts to carry off the prize. Her advantage was overcome by the liberality and public spirit of the Southern Pacific Railroad Company, which not only carried exhibits free of charge, but made special efforts to excite the interest of Californian fruit-growers in the contest. Over 100 car-loads of goods were carried gratuitously to the Fair from California. Great strides have been made in fruit-growing within a comparatively recent period. There are now no less than ninety-eight varieties of bearing Orange seedlings in Los Angeles and San Bernardino counties that were unknown to our soil fifteen years ago. California Oranges, Lemons, and Limes are now formally and officially declared to be the best in the world."

— SELF-FERTILISED FLOWERS.—In "*Samenkunde*" Dr. C. D. HARTZ says:—"The facts connected with this subject are very interesting; for instance, there are many plants on which several flowers, and sometimes the whole of them, that are incapable of fertilisation with each other, while the same is easily effected with flowers from other individuals. HILDEBRAND fertilised sixty-three flowers of *Corydalis cava* with the pollen from another plant of the same species, obtaining fifty-eight fruits with four and five seeds in each. He then attempted the fertilisation of sixteen flowers with the pollen from other flowers of the same individual plant, and obtained only three fruits, of which only one contained two seeds. At last he dusted over twenty-seven flowers with their own pollen, and did not obtain a single fruit. GÄRTNER was not able to get seed from two plants of *Lobelia fulgens* by using their own pollen, they remaining always sterile, notwithstanding they were able to be crossed with much success with other species, and the results were similar by *Verbascum nigrum*. The same peculiarity was witnessed in Orchids by SCOTT, FRITZ MUELLER (DARWIN'S *Variation of Species*), while seed-bearing pods were produced when the fertilisation took place by pollen from other species. Still it will occur that the fertilisation of a bloom will remain without any result when the pollen is obtained from another bloom, because the relationship of the two species is not sufficiently near, or from the plants operated on having sprung from seeds formed in the same capsule, while the crossing of the flowers of two not allied or distinctly allied species resulted in abundant fruit and seed formation—so, says F. MUELLER, happened with a Brazilian *Abutilon* and a *Bignonia*."

— JAMAICA FERNS.—Jamaica, as, is well known, is particularly rich in Ferns. Although the island is comparatively so small, it contains about 500 species of Ferns, which is one-sixth of the Ferns of the whole world. To express its richness in another form, it is mentioned in the last report of the Botanic Gardens of Jamaica that within an area about the size of Wales, Jamaica contains twelve times the number of Ferns found in the British Islands, and more than ten times the number of Ferns found in the

whole of the United States. The Jamaica Ferns are remarkable, not only for their number, but also for their great variety and beauty. They are found in all sizes, from those scarcely a quarter of an inch long to large tall-towering trees 40 to 50 feet high, and with stems 6 feet in circumference. Again they are widely distributed and found in all districts, from the arid plains of St. Catherine and Clarendon to the highest peaks of the Blue Mountains; from the calcareous rocks of the northern coasts, bedewed with ocean spray, to the cloud-capped ridges of the highest mountains.

— NARCISSUS EMPEROR AND N. EMPRESS.—These varieties seem quite as much at home in Messrs. J. BACKHOUSE & SONS' nurseries at York as in the warmer Home Counties, judging by some beautiful examples forwarded to us recently from these nurseries.

— POT ROSES.—Mr. WILLIAM PAUL has published a sixth edition of his *Observations on the Cultivation of Roses in Pots* (KENT & CO.). The well-earned repute of the author, and the fact of a sixth edition absolve us from any necessity of commending the book. The autobiography has been revised, and the pot Rose has become a little sarcastic. No Rose without a thorn, but some thorns have the points downwards, and it would have been better if this one had arms reversed also.

— VEGETATION IN HIGH LATITUDES.—According to M. SCHÜBBLER most plants produce seeds of larger size in high northern latitudes than plants of the same species grown further south. The dwarf Bean, taken from Christiana to Drontheim, was found to increase the weight of its seeds 60 per cent. Thyme, taken from Lyons to Drontheim, augmented the weight of its seeds 70 per cent, and a similar increase was noted in the case of Wheat. This increase in weight is manifested in the ternary compounds (such as starch) only, and not in those containing nitrogen. The leaves of trees and shrubs, and especially of fruit trees, are larger and deeper in colour in the North than in the South. The same rule applies to kitchen garden plants and to flowers, plants producing white flowers in the South forming violet flowers in high latitudes. These effects, which are analogous in some respects to those witnessed in the vegetation of mountains, are doubtless due to the greater intensity of the light, and perhaps to a longer period of uninterrupted sunshine. The late Dr. JAMESON, of Quito, published in these columns some statements to a similar effect with regard to the vegetation of the Quitoian Andes, and asserted that the movements exerted by the parts of the flower in opening and closing were more marked at greater altitudes.

— "BEGONIA SOCOTRANA," says M. DU-CHARTRE, "besides its natural reproduction by means of seeds, possesses a rapid means of multiplication, thanks to the abundance with which it produces on the lower and underground portions of the stem bud-shoots of a special organisation, which develop rapidly after a period of repose into a new floriferous stalk. It is also remarkable that, contrary to that which is the case in many other vegetables, this facility of multiplication by means of natural cuttings does not interfere in the least with the accomplishment of the reproductive faculty; but it may be said that other Begonias are even more favoured than this one in these two respects. There is, above all, the charming *Begonia gracilis*, KUNTIL., var. *Martiana*, A. DC. (B. *Martiana*, LINK et OTTO), which not only produces a great quantity of seed, but also gives birth, in the axil of each of its leaves, to a numerous group of true shoots of small size, but nevertheless all equally susceptible to become rooted, and in time to develop into a new shoot."

— THE MANUFACTURE OF CUTCH IN BURMAH.—The manufacture of the well-known astringent substance, Cutch, from the wood of *Acacia Catechu*, so much used for tanning purposes, is carried on in Burma chiefly in the Thayetmyo, Prome, and Tharrawaddy districts. Three men generally work together, one to cut down the trees and to drive the buffaloes that drag them to the site of the furnace, another to clear off the sapwood and to cut the heartwood into chips, and a third to attend to the fires and boil the



chips down. The chips are put into cauldrons filled with water, each cauldron holding 4 gallons, and the whole is boiled for twelve hours. The chips are then taken out, and the liquid placed in large iron pans, and boiled and stirred till it attains the consistency of syrup, when the pans are removed from the fire, but the stirring is continued till the mass is cool. It is then spread on leaves in a wooden frame and left for the night; in the morning the substance is dry, and ready for cutting into cakes for the market. The daily outturn varies from 25 lb. to 36 lb. It is calculated that three men working steadily for eight months can make about 3650 lb. of Cutch.

— **USES OF VEGETATION.**—The proper function, or one of the right uses of all vegetation, is to produce food and clothing for us from the refuse matter of our large towns. Every little green leaf, apart from its individual beauty, has a share in the great work of purification which all leaves carry on. In malarious countries the Blue or Fever Gum tree is now largely planted, because it grows rapidly, and its roots and leaves suck up moisture so rapidly that a few of these trees actually drain any swamp or marsh near or in which they are planted. It is so with our own Poplar trees, which in wet low-lying places act most efficiently as the best of natural drains for a stagnant bit of marsh land. Now, if you drain a swamp in the ordinary way you simply carry pollution from one place and deposit it in another place; but tree roots suck up offensive matter, and tree leaves actually purify it. The leaves throw off pure water by evaporation, and with it life giving oxygen, instead of the poisonous gases of the atmosphere. What is true of large trees is in degree equally true of the smallest window plant. The highest mission of plants is not merely to please our eyes with colour, our mouths with delicious fruits; not only do they do this and more, but they are ever silently but surely eating up what is impure and injurious to ourselves in the atmosphere and in the earth all around our homes; and any dwelling in which plants are well and healthily grown will be more likely to be clean and healthy house than if the plants were not there.

— **BURMAH CHEROOTS.**—The following account of cigar making in Burmah is given in a recently issued official report. Little or none of the native grown Tobacco it seems is used, the only kind made up into cheroots being imported from Madras and Rangoon. The cheroots are made somewhat in manilla shape, but they are about the same thickness at both ends. The leaves are first damped and then put away for a day; they are then rolled very carefully with small wooden rollers to smooth out the creases, and are kept for four or five days wrapped up in a cylindrical form, they are then ready for manipulation into cigars. Women only are employed in this manufacture. One woman can make about 400 to 500 cigars in a day of twelve hours. No machinery is used, the leaves are simply cut into their proper shape by scissors, and then rolled by hand into cheroots. The small ribs are not removed as is often done in Havannah, and this omission often gives the Burmah cheroots a rough uneven appearance.

— **GESNERA MACRANTHA.**—Although the numerous species constituting this genus present almost the same monotonous uniformity of colour throughout there is nevertheless a great variety in the habit and leafage that gives the plants an engaging appearance when scattered about in a mixed collection. The stems are unusually dwarf, not exceeding 1 foot in height, and the broad soft leaves are almost shaggy, with long woolly hairs. The bright scarlet flowers surmount the simple unbranched stems in clusters. Several specimens from the collection of the late Mr. Joad are very conspicuous in one of the stoves at Kew, and one of these presents a curious and interesting anomaly. Two flowers occupying the apex of the stem have become completely fused, so that they stand erect, forming one flower, with a regular shallowly ten-lobed mouth. There are eleven stamens, although in a typical flower of this order there are only four. The two styles are straight and erect instead of being curved at the apex, as they would be normally.

— **GARDENING APPOINTMENTS.**—Mr. W. M. BAILLIE, Gardener to the Earl of WILTON, at Heaton Park, has been appointed Head Gardener to His Excellency the Danish Minister, Luton Hoo Park, Beds.—Mr. ANDREW ROCHE has been appointed Head Gardener to Lord STAFFORD, Coosey Park, Norwich.

## SIR TREVOR LAWRENCE.

THE genial and popular President of the Royal Horticultural Society affords an illustration of the law of hereditary transmission. His father was the eminent surgeon and physiologist, Sir William Lawrence, so well known to old "Barts." men, and who obtained such notoriety by the expression of opinions on scientific matters then thought "advanced," but which now-a-days have mostly passed into the region of admitted facts disputed by no one. Sir Trevor's mother was the well-known Mrs. Lawrence, of Ealing Park, whose specimen plants were the envy of all rivals, and the memory of whose garden parties survives to this day. Sir Trevor himself served as a medical officer in the Indian army, and on his retirement took up Orchid growing with a zest that has resulted in the possession, not only of the finest, but of the best cultivated collection in the country. This result has been attained in no slight degree by the personal attention which Sir Trevor bestows on his plants. He treats them as carefully and conscientiously as if they were patients—and he has his reward.

Sir Trevor is M.P. for Mid-Surrey, and however great may be the esteem in which he is held by his political constituents, it is quite certain that it is not greater or warmer than that experienced by the horticultural community over which he presides.

## LEAF-STRUCTURE OF ORCHIDS.

THE microscopic structure of plants has never been taken up, to any extent, by practical gardeners, nor is it at all wonderful that this should be the case. The lengthened apprenticeship required, the patience and continued observation requisite, the delicacy of manipulation that is essential, all stand in the way of the practical gardener attaining any degree of proficiency in the use of the microscope, and by microscope we mean what we say, and do not intend the ordinary magnifying glass or pocket lens which people dignify with the name of microscope. A magnifying glass of this description can be used by any one without special training, and should be in the possession of all gardeners without exception. But for our present purpose we refer to a "compound microscope," and although circumstances must prevent most working gardeners from themselves using the instrument, there is no reason why amateurs with the requisite leisure should not become proficient in its use, and there can be no reason why gardeners should not avail themselves of the results obtained by their fellow labourers in other departments.

We have at least one public botanical laboratory where research of this kind could be carried on, and we can only wish that before long some competent observer may avail himself of the facilities there offered by investigating the minute structure of plants with special reference to their requirements under cultivation. These considerations have been suggested to us by an examination—a very cursory and incomplete one we admit—that we have made of the leaf structure of some forty or fifty species of Orchids of various genera selected for the purpose, and including evergreen, terrestrial, epiphytic, thick-leaved, thin-leaved species, and so forth.

We may add that, with reference to this question of structure as indicative of the natural conditions under which the plant grows, that a large number of the specimens examined by us in the first instance, were under number only, so that we did not know at the time to what species they belonged. Nevertheless, we were enabled to state the conditions as to light and shade and supply of water that the plants required, and these conclusions were found on consultation with practical cultivators to be near approximations to the truth in almost all cases. Our examination, however, has been so superficial that, in alluding to some of the results, we do so with a full sense of their lack of completeness, and with the sole hope of inducing those interested in the microscopical structure of plants and in Orchid cultivation to follow up the subject. Although the general structure of plants has been known for more than 200 years (by the way, one of the pioneers was our own countryman, Nehemiah Grew—1682), yet it is only recently that attention has been drawn by Naegeli, Hanstein, and others to the development and co-ordination of the several layers of

cells, and still more recently—only yesterday, as it were—that such men as Stahl and Vesque have attempted to show the relation between structure and function. But before proceeding further, let us sketch in outline the generalities of leaf-structure, and then point out some modifications that occur in Orchids. In the leaves of plants this is what we find—a central spongy mass, consisting of cells traversed by threads of woody tissue (the veins so called), and enveloped above and below by a skin. In different plants we find variations in the skin, in the central spongy mass of cells, and in the arrangement and number of the woody threads. The skin is evidently a protective organ, and by means of sundry pores or apertures, generally on the under-surface, and which open or close according to the dryness or moisture of the atmosphere, it allows of the passage in or out of the leaf of air and vapour. The central spongy mass is made up of cells, but it rarely happens that all the cells are arranged in the same way, or have the same size and form—generally they are in easily recognizable layers; generally, too, they vary in the same leaf, in form, in size, in colour and in office. Some are empty or filled with air. Some are filled with water. Some contain food in the shape of starch grains. Some are provided with the green colouring matter, "chlorophyll," to which leaves owe their colour, and in no slight degree their vitality. Some are charged with red or purple-coloured fluids. Some give shelter to crystals of various shapes. The fibrous strings are composed of wood-cells, hard and tough, which serve the part of the bony framework or skeleton of animals, and of sundry thinner, more delicate vessels of various modifications, and which play a part in the transmission from one part to another of nutritive juices or of air.

In the leaves of Orchids we have the component structures apparently arranged with reference to the conditions under which the plants grow naturally. Some grow in full sunshine, and are constructed accordingly. Some would thrive in diffused light. Some would bear a long period of drought uninjured, others could not endure the privation of water for a few hours even. Some would be torn to shreds by a gale of wind, others would withstand a hurricane. Some are so constructed as to adapt themselves to varied conditions with little trouble, and these, of course are the plants, which the gardener finds it easy to cultivate; in others the adjustment is so delicate that they cannot suffer any change without inconvenience. These are the plants the gardener has a difficulty in keeping alive, these are the plants which even in their native countries are dying out, elbowed out by their more robust and less exacting brethren, on the principle of the survival of the fittest.

We may now give a few illustrations of the appearances as seen under the microscope. The illustrations are shown as magnified 40 diameters, but, unfortunately for our own present purpose, the artist has omitted to indicate the presence of the various contents of the cells—an omission we must endeavour to supply in words. This is, so far as cultivation is concerned, the all-important thing. The fibrous strings (fibro-vascular bundles of the botanists) are merely shown diagrammatically, to have done so in correct detail would have necessitated much larger illustrations, and up to the present time the precise relation of the differences in these fibro-vascular bundles to cultural requirements is not in any degree made out.

Fig. 115 shows a cross cut of a leaf of *Dendrobium nobile*, a deciduous species with rather thin leaves. Proceeding from above downwards there is first the structureless cuticle forming an unbroken layer over the whole leaf and resisting evaporation of water from the interior, then a single layer of cells which, in section, look like bricks in a wall and which are the epidermal cells, immediately beneath which is a layer of colourless cells filled with air or water, then follow eight or ten layers of long egg-shaped cells in close approximation, and whose long diameter is transverse—these are filled with green colouring matter or chlorophyll; then follow two or three other layers of shorter cells of similar form with a little chlorophyll, but less closely packed, so that they leave interspaces between them which communicate with the outer air by means of the pores or stomates, of which five are shown breaking the line of the lower epidermis and cuticle. In the centre are indicated three fibro-vascular bundles, F, cut across; these contribute to the strengthening of the leaf and to the passage of fluids, &c. Exposure to direct sunlight would seem not to be needed in this case, for reasons to be



given hereafter; but a copious supply of water is requisite, as the means for storage are not great.

Fig. 116 shows a cross section of the leaf of *Lycaste Harrisoni*. Essentially the structure is similar to the preceding, and needs no detailed explanation further than to call attention to the numerous small fibrous bundles which traverse the leaf immediately above the lower epidermis between it and the larger central bundles. The leaf thus has a very stringy appearance when torn. The structure indicates no necessity for direct solar exposure. *L. Skinneri* has a similar but not identical structure.

Fig. 117 is taken from a transverse section of *Cattleya Lawrenceana*. Above, at A, is shown the cuticle; at B the epidermal cells, at C three layers of globular colourless cells, filled with water; at D three layers of elongated cells, which have a direction at right angles to the surface of the leaf, and which are closely packed. These cells, from their peculiar appearance, resembling the pales of a fence, are called "palisade cells," and they are crammed with chlorophyll. The central tissue of the leaf is formed of oblong cells closely packed above E, less so beneath G, where interspaces may be seen. These cells, or the uppermost of them, contain some chlorophyll, but little as compared with the palisade cells above. One of the principal fibrous and vascular bundles is indicated roughly at F, while at H are shown several minor bundles, consisting almost exclusively of woody fibres, giving great strength to the leaf. At J are shown the epidermal cells, with their investing cuticle, K; and at L the stomata, or breathing pores, communicating with the outer air and with the air cavities left between the cells at G. The important things in this section are the long straight palisade cells at D, which are not present in either of the two preceding plants. These palisade cells are always full of deep coloured chlorophyll when in health, and their numbers, size, and intensity of coloration are always (in other plants as well as Orchids) in direct relation to the amount of light. If these palisade cells be well developed it is a sure sign that in their native countries the plant is exposed to bright sun. At the same time the thick texture of this leaf, its abundant cells filled with water indicate the necessity for a copious supply of water during the growing season, while during the dry season of rest the thick rind impedes the undue evaporation of water from the interior and enables the plant to resist the ill effects of drought. *C. Mossiæ* has a similar structure.

*Cypripedium niveum* (fig. 118) has as usual cuticle and epidermis, immediately beneath which is one layer of long vertical cellular prisms which might be mistaken for palisade cells, but which contain no chlorophyll. In some or all of them is coiled up a fine fibrous thread (not shown in the illustration). These long cells are colourless and filled with water. They give a most striking appearance to the leaf. Beneath them is the chlorophyll layer of globular closely packed cells, in the midst of which are the fibro-vascular bundles; the cells beneath this contain a pinkish colouring fluid. The other points of structure need not be detailed as they are similar to that of other Orchids. Shade and a copious supply of water are the cultural indications to be derived from the structure. *C. insignis* has a similar structure, and so have *Masdevallia othodes* and *M. porcellipes*, the appearances in the latter plant being very remarkable, the thick layers of colourless cells resembling the "icing" on a cake. *C. barbatum* is destitute of these peculiar long cells.

*Dendrobium Jenkinsii* (fig. 119).—The leaves of this plant are small and thick, with cuticle, epidermis, a subjacent layer of colourless water, containing cells, then two layers of palisade cells above the spongy tissue, the cells of which latter abound in clusters of crystals (raphides).

The structural details of this plant point to the necessity for full exposure to light, and a copious supply of water during the growing period.

The chief feature in the structure of *Oncidium Lanceanum* is the presence in its spongy leaf-tissue of large globular or ovoid cells, with a finely reticulated fibrous network. Similar cells occur in many Orchids—*Oncidium pumilum*, *O. pulvinatum*, *Saccolabium*, &c., and are constantly found in the aerial roots (see fig. 117), whose structure also is well worthy of attention, but which must here be dismissed with the mere mention.

The leaves of *Aërides virens* are remarkable for the very long tufted unbranched "spicular" cells which occur in the central tissue of the leaf.

The most important structural peculiarities just alluded to may be thus indicated:—

1. Leaves with well marked palisade cells, presumably requiring full solar exposure, e.g., *Cattleya Mossiæ*, *C. Lawrenceana*, *Oncidium pulvinatum*?, *O. flexuosum*, *Dendrobium Jenkinsii*, &c.

2. Leaves without palisade cells, presumably needing diffused light only:—*Epidendrum crassifolium*, *Oncidium Lanceanum*, *O. pumilum*, *unicorne*, *Vanda tricolor*?, *Phaius grandifolius*, *Dendrobium nobile*, *Aërides virens*, *Cypripedium insigne*, *C. niveum*,

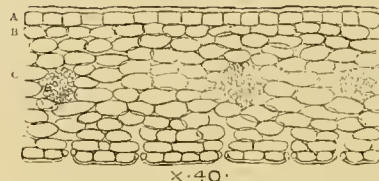


FIG. 115.—*DENDROBIUM NOBILE*: TRANSVERSE SECTION OF LEAF.

A, Epiderm overlain by cuticle; B, Water-cells; C, Green cells; F, Fibro-vascular bundles; G, Spongy tissue.

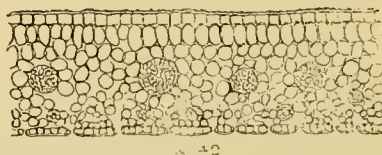


FIG. 116.—*LYCASTE HARRISONI*: SECTION OF LEAF.

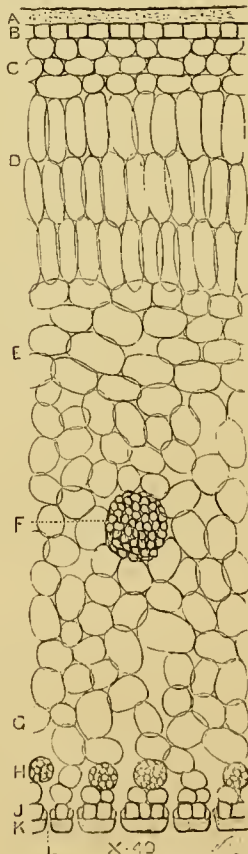


FIG. 117.—*CATTELEYA LAWRENCEANA*: SECTION OF LEAF.

(For explanation, see text.)

*Masdevallia othodes*, *M. porcellipes*, *Lycaste Harrisoni*, *L. Skinneri*.

The above remarks, fragmentary and incomplete as they are, may yet serve to call attention to the subject, and if so the object in writing them will have been obtained. *M. T. M.*

## AMONG THE ORCHIDS.

ORCHIDS AT CAMDEN WOOD, CHISLEHURST.—This remarkable collection of Orchids is looking just now exceedingly well, and contains many novelties in flower. In the East India-house noticeable are *Phalaenopsis Sanderiana*, the varieties of which vary very much, but all are good; *P. Ludemanniana* is also good; *Cypripedium Stonei*, *C. Lawrenceanum*, *C. levigatum*, *C. barbatum*, *C. Boxalli*, *C. Sedeni*, *C. Harrisonianum* are all in flower; also a pretty little *Galeandra*; *Odontoglossum Roezlii* and *O. R. alba* also. The *Cattleya*-house contains fine varieties of *C. Trianae*, one being particularly fine and very distinct, called *rosea*; a fine variety of *Dendrobium nobile*, and *D. pendula*, *D. primulinum giganteum*, a very fine variety; *D. Farmeri aurea*, *Ceologyne ocellata*, *Epidendrum Pseudo-Epidendrum*, *Trichopilia coccinea*, *Odontoglossum citrosum* and *O. roseum*, *Lælia harpophylla*, very bright; and a fine *Cymbidium Lowii*, a good variety, five spikes, over ninety flowers. The cool-house was very gay with *Odontoglossum Alexandræ*, including many fine forms; also *O. Pescatorei*, *O. Cervantesi*, *O. gloriosum*, *O. Sanderianum*, *O. Halli*, *O. maculatum*, *O. citrosum*, *O. deltoglossum*, *O. Wilckeanum*, *O. triumphans*, *O. Rossi majus*, *O. pardinum*, *O. Oerstedii*, *O. roseum*, *O. sceptum* were all flowering freely; *Ada aurantiaca*, *Restrepia elegans*, *Lycaste Skinneri*, many. *Masdevallias* were also good, viz., *M. Chimæra*, *M. Chelsoni*, *M. triangularis*, *M. Veitchii*, *M. ignea* varieties of *M. Lindeni*, *M. Shuttleworthiana*, *M. Estradæ*; the pretty bright *Sophronites grandiflora* also figures conspicuously. There are many other varieties showing flower in the various departments, and a grand succession of flowers will be the result for months to come.

SYLVERDALE LODGE, SYDENHAM: W. COBB, ESQ.

Orchids are here well done; in fact, it would be a difficult matter to particularise any class in which Mr. Cobb, the gardener here, excels, as all plants under his care seem to thrive admirably. At the time of our visit most of the houses were very gay with bloom, as will be seen from further remarks. *Dendrobiums*, unpruned, but still in vigour sufficient to question the advisability of that process, were in strong force, and nice pieces of *D. thyrsiflorum*, *D. Wardianum*, *D. Farmeri*, *D. japonicum* thriving admirably on a block; *D. fimbriatum oculata*, *D. Ainsworthii*, *D. crassioide*, and *D. c. Barberianum*, a very bright variety, from Siam; *D. Pierardi*, and *D. P. latifolia*, a newer species, were in bloom. *Cattleyas*, too, are well done, and several good forms of *C. Meadei* are quite deserving of special notice; *C. Mossiæ*, *C. Skinneri*, one fine piece with seven spikes carrying five blooms each; *C. granulosa*, an uncommon variety of a general dun colour, with dark brown spots and bright lip; nice bits of *C. citrina*, and many other varieties, giving evidence of the care bestowed on them. *Lælia purpurata* and *L. elegans* are well represented. *Vandas tricolor*, *suavis*, and *coerulescens* are all well bloomed. *Masdevallias* and *Odontoglossums* appear to thrive well together here, and a nice selection of both are in bloom. Amongst the former, *M. Harryana*, *M. Lindeni*, *M. Shuttleworthi*, *M. amabilis*, very fine variety; *M. cochiflora*, *M. Harryana regalis*, and *M. Wagneriana*; and the latter are represented by several fine forms and varieties of *O. Alexandræ*, *O. triumphans*, *O. Oerstedii*, *O. Pescatorei*, *O. citrosum*, *O. polyanthum*, *O. maculatum*, *O. gloriosum*, *O. luteo-purpureum*, and *O. Andersonianum*. The majority of *Cypripediums* here receive moderately cool treatment, and appear to thrive under it. The following varieties are in bloom; *C. barbatum*, *C. superbum*, *C. Lawrenceanum*, a good piece; *C. Warneri*, *C. ciliolare*, *C. levigatum*, and *C. niveum*; *Oncidium cucullatum*, *O. concolor*, *O. dasytyle*, and an exceedingly fine variety of *O. varicosum*, with very large bright coloured flowers, are flaunting their showy blooms amongst the other species, and contrasting strikingly with them. *Epidendrum vitellinum majus*, *E. bicornutum*, *Sophronites grandiflora*, *Trichopilia suavis*, *T. crispa*, claret colour; *Maxillaria tenuifolia*, *Miltonia cuneata*, *Lycaste Harrisoni*, and *L. Skinneri*, with bright coloured lobes and a pure white lip; *Phalaenopsis rosea*, *P. grandiflora*, *P. Sanderiana*, and *P. Ludemanniana*; *Chysis Limminghi*, like *Cymbidium eburneum*, very delicately marked with



violet; and *Ada aurantiaca*, marked and dotted with black spots, also contribute towards making this collection attractive.

#### THE FIRS, SYDENHAM: C. DORMAN, ESQ.

The display of bloom is highly creditable. The collection contains some curiosities, besides some fine plants. In bloom are *Dendrobium luteolum*, *D. tenuifolium*, *D. anosmum*, *D. Wardianum*, *D. crassinode*, *D. nobile*, *D. Dalhousianum*, a noble Orchid; *D. Ainsworthii*, *D. Freemanni*, *D. heterocarpum*, *D. Jamesianum*, with fifty flowers on a spike in a 5-inch pot; *D. japonicum*, *D. infundibulum*, and a nice piece of *D. Jenkinsonii* doing very well on a block; and the rarely flowered *D. cambridgeanum*, bad to flower in general, like a yellow *Wardianum* with a heterocarpum lip, very showy, it does not require much water while growing, but when flower-buds are formed is treated to both heat and moisture. Amongst *Cattleyas* several forms of *C. Trianae*, *C. Schilleriana*, *C. Skinneri alba*, *C. Mendelii*, *C. maxima*, *C. citrina*, and some fine bits of *C. Mossiae*, some with sixteen blooms in 8-inch pots; and one very fine one, 8½ inches in breadth, across the sepals 2½ inches, breadth of lip 2½ inches, and length of ditto 3½ inches. *Lælia flava*, fine bright yellow; *L. elegans*, and *L. cinnabarina*, bright deep orange. A small collection of *Anæctochilus* is doing better than is generally seen. *Cypripediums* make a fine show with the following varieties:—*C. Stonei*, *C. concolor*, canary-coloured; *C. niveum*, *C. Swianum*, *C. Lowianum*, *C. Lowi*, *C. Warneri*, *C. lævigatum*, *C. ciliolare*, *C. Dayanum*, *C. villosum*, *C. Sedeni*, and a nice plant of *C. Boxalli*. *Cologyne Massangeana*, with seventeen flowers on a spike, and *C. ocellata*. A fine piece of *Oncidium Marshallianum* has thirty-six flowers; and amongst *Odontoglossums* a large selection are in bloom:—*O. Roezlii* and *O. R. alba*, *O. Pescatorei*, *O. citrosum*, *O. Andersonianum*, *O. Alexandræ*, *O. gloriosum*, *O. Rossi majus*, *O. triumphans*, *O. polyanthum*, *O. sceptrum*, *O. cucullatum*, *O. Edwardii*, *O. Jenningsianum*, *O. Ruckerianum*, *O. Cervantesii*, *O. Oerstedii*, *O. nebulosum*, *O. citrosum*, and *O. Sanderianum*. *Masdevallias* make a gallant show with *M. Chelsoni*, *M. Veitchii*, and *M. V. grandiflora*, *M. Estradæ*, *M. Shuttleworthi*, *M. Arminæ*, *M. triangularis*, *M. Stobartianum*, *M. ignea*, *M. Harryana*, *M. Lindeni*, *M. Houtteana*, and *M. ignea majus*; *Vanda suavis*, *Trichopilia Backhousiana*, a fine white variety; *Cymbidium Lowi*; the pretty little *Leptotes bicolor*; *Aspasia lucata*, a pretty *Miltonia*-looking flower; *Lycaste Skinneri*, *Sophrontes grandiflora*, *Utricularia montana*, and the rare species *Polystachia pubescens*, a small yellow flower, all contribute their beautiful flowers to enrich this interesting collection.

#### LAWRIE PARK, SYDENHAM: A. SILLAN, ESQ.

At this place Orchids in general have found a home suited to their requirements, and some of those known as "bad to do" are here thriving nicely. Such plants as *Barkeria spectabilis* and *Cattleya Acklandii* are doing very well and flowering freely enough. *C. citrina* is here represented by a very fine type of a very deep colour, and of great substance of bloom; *C. Mossie* by a magnificent plant of nineteen flowers of a fine colour and large, the leaves and pseudobulbs being very small. *C. Schilleriana* *Regnelli*, also reckoned by most growers as a "bad 'un" to grow, is here doing very nicely on pieces of Tree Fern. There are large pieces of *Cymbidium Lowi*, *Lælia elegans*, a nice lot of *Dendrobiums*, including *D. thyrsiflorum*, *D. densiflorum*, *D. Jamesianum*, *D. Pierardi latifolia*, *D. tortile rosea*, *D. primulinum*, *D. crystallinum*, *D. microphyllum gigantea*. The *Odontoglossums* are exceedingly well represented here, several of the varieties being remarkable both for size and colour. The following are in bloom:—*O. vexillarium*, *O. Roezlii*, *O. R. alba*, *O. Lehmanni*, *O. Cervantesii*, *O. Oerstedii*, *O. Pescatorei*, *O. hystris*, *O. leucoglossum*, *O. polyanthum*, *O. membranaceum*, *O. Uro-Skinneri*, and some of the most lovely forms of *O. Alexandræ*. *Cypripediums* are represented by *C. Dominionum*, *C. Argus*, *C. villosum*, fine var.; *C. Boxalli*, *C. Pearcei*, *C. caudatum*, *C. Stonei*, and a grand form of *C. Lawrenceana*; *Oncidium sessile*, *O. ampullaceum majus*, and a fine plant of the curious *O. metallicum*; *Masdevallia ignea*, *M. Veitchii*, *M. Harryana*, *M. amabilis*, *M. polysticta*, *M. bella*, *M. Lindeni*, *M. Shuttleworthi*, and *M. triangularis*; *Epidendrum cochleatum*, more

curious than beautiful; *Lycaste cruenta* and *L. Lawrenceana*, *Aërides japonicum*, *Scuticaria Steeli*, a curiosity as regards foliage, but the flower is decidedly

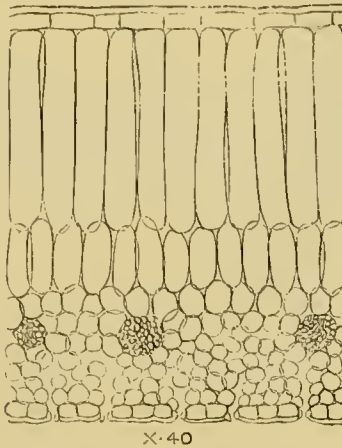


FIG. 118.—LEAF SECTION OF *CYPRIPEDIUM NIVEUM*.

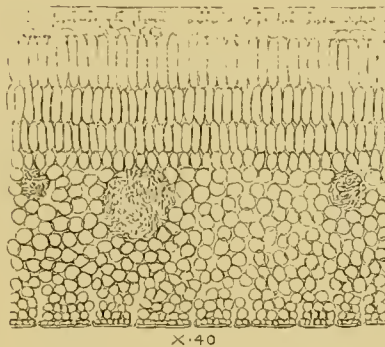


FIG. 119.—LEAF SECTION OF *DENDROBIUM JENKINSONII*.

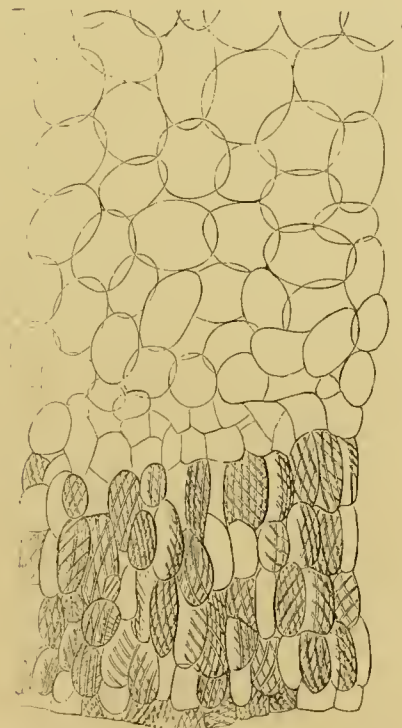


FIG. 120.—SECTION OF ROOT OF *SACCOLABIUM*, SHOWING THE CELLS WITH SPIRAL THREADS.

pretty; *Saccolabium curvifolium* and *Phalænopsis Sanderiana*, all doing well and carrying fine spikes. Many other Orchids here at present not in bloom are well worthy of notice, but space will not allow.

#### GUNNERSBURY PARK, ACTON, MIDDLESEX.

THIS well known place is just now in its early spring raiment, looking exceedingly well both inside and out. In the vineries and Peach-houses the trees are remarkably clean and healthy and carrying large crops. The forced Strawberries, of which 7000 are annually used, are superb. The varieties forced are *Vicomtesse Héricart de Thury*, *Keens' Seedling*, *British Queen*, and *President*. A house of early Melons was carrying a fine crop. The first fruit was cut on April 24. Early Figs were still bearing large quantities of fruit, which they have been doing since the middle of March. In the orchard-house a very fine set of Cherries has been secured, which look very promising.

In the plant-houses the hard-wooded plants, *Cape Heaths*, *Azaleas*, &c., were full of bloom and vigour. In the Orchid-houses a nice display of bloom was to be seen, consisting of *Cypripedium Lowii*, *C. Harrisonianum*, *C. Stonei*, &c.; *Phalænopsis Ludemanniana*, a fine form; and the curious *P. Manni*. A nice show of *Dendrobiums*, including *D. densiflorum*, *D. devonianum*, *D. fimbriatum oculatum*, *D. nobile*, *D. Wardianum*, *D. Farmeri*, *D. F. aureum*, a fine thing; and *D. cirrosum*; *Saccolabium ampullaceum*, *Calanthe veratrifolia*, *Phaius albus*, *Epidendrum bicornutum*, *Trichopilia suavis*, *Oncidium Weltoni*, *Lycaste Skinneri*, *Cymbidium eburneum*, and *Odontoglossum gloriosum*, *O. maculatum*, *O. Rossi majus*, *O. Pescatorei*, *O. tripudians*, and *O. caudatum*. *Gardenias* in pots were looking very clean and healthy; and the large quantity of *Ixoras* were growing like Willows—a marked contrast to the starved looking objects one is accustomed to see.

#### HOME CORRESPONDENCE.

**Amaryllis at Westonbirt.**—Those who admire and are interested in the cultivation of the *Amaryllis* should without delay visit the collection of R. S. Holford, Esq., Westonbirt, Tetbury, Gloucestershire, a pleasant drive of about 5 miles from Malmesbury station on the Great Western Railway. I think I may safely say that Mr. Holford's is the largest private collection in the country, and one of the oldest, if not the oldest cultivated, and many new and beautiful varieties have been the result of Mr. Holford's careful crossing and intercrossing. The object that has been kept in view has not so much been size as shape, richness of colour, and distinctive character. The *Amaryllis*, like many other flowers, may be increased in size until they become coarse, and consequently colours not well defined. It would be useless to give a list of what is in flower at one visit, as the *Amaryllis* are in flower here nearly all the year; this has also been an object Mr. Holford has kept in view—to make them as nearly perpetual as possible. And now the *Amaryllis* has become such a favourite flower it would be a great assistance to cultivators if Mr. Holford would give them the benefit of his experience, also a list of the best and most choice varieties that he has raised and named, with about the time of year for flowering. Mr. Chapman, the enthusiastic gardener, seems perfectly at home among them, knows the parentage of nearly every flower, and seems as if he could never leave off talking about them. *A Visitor*.

**Early Mushrooms.**—It is unusual, is it not, for Mushrooms to spring up on grasslands in the month of April? I had two large dishfuls brought to me very early in last month, and felt a little doubtful at first as to whether they were the true meadow Mushroom or a poisonous kind, but a closer examination satisfied me that they were right, so they were cooked and eaten at breakfast. The only difference I detected between them and the summer kind was that they produced less juice, or catsup; but, nevertheless, they had the real flavour of the *Agaricus campestris*. *Helen Watney*.

**The Hardy Fruit Crop.**—The display of blossom upon all kinds of hardy fruits has this spring exceeded anything I have witnessed during the last quarter of a century. Each kind has vied, not only in quantity, but the quality of the blooms with others. The habitually poor display of blossom made by *Williams' Bon*



Chrétien Pear has given place this year to wreaths of white bloom. Apricots, Peaches, and Nectarines against walls, to which no protective coverings were applied, have set their crops abundantly. All kinds of Apples, even young trees of Blenheim Orange, are a mass of perfect blooms. The old Catshead Apple, one of the finest of our flowering trees, has clusters of immense size. The crop will be so excessive that, unless we experience some frosts to thin the fruit, the trees will be overcropped, to their future injury. As I write (May 4) hail is falling, and some amount of frost may, therefore, be anticipated. *W. Earley.*

**Chemists and Grocers as Seedsmen.**—I have read with much interest in last week's issue Mr. E. Wilson Serpell's opinion on this subject, and agree with him that it is an innovation, and indeed a very common one throughout the country. I do not think it gives professional seedsmen a fair chance, as chemists and grocers, and I may add ironmoogers, consider in most cases the seed business only of secondary importance, and contrive to sell generally at a very low figure. A seedsman who has to contend against some of these opponents in a locality has often to make his prices correspond with theirs, even if his quality of seeds is of a very superior description. With reference to Mr. Serpell's remark, "that the trade in general will unite with me in saying that we will do our utmost to discountenance the firm or firms who supply them by reserving all orders for those who stick to the trade only," I think he would find the latter few and far between. If Mr. Serpell would take the trouble to inquire who supplies seeds to grocers and chemists, he would find that their supplies come from some of the most respectable wholesale houses in the country. I know from several years of experience in one of the largest wholesale houses that chemists and grocers are very valuable customers, not only for vegetable and flower seeds, but also for agricultural seeds. As to the flower seeds in packets at *1d.* each, I think I am not mistaken if I state that several houses make a specialty of these articles for the parties referred to. I hope with Mr. Serpell that this matter may be ventilated, but I myself have not the slightest idea how the state of affairs might be improved, as there will always be plenty of sources from whence grocers and chemists can procure their supplies. *E. F. W. H.*

—We have a grocer here as a seedsman who not only supplies seeds in *1d.* packets but also in any quantity, of many kinds of vegetable and flower seeds, and at about half the prices of any ordinary retail catalogue. This man advertises his seeds in the local newspaper here, and he is supplied by a wholesale seed merchant in London. *A. Watkins.*

**Curious Record of a Hail Storm.**—In a very old farmhouse at Biscot, near Luton, Bedfordshire, the following inscription is engraved on an old stone chimney-piece:—"There was hailstones fell July 23 of this bigness and likeness, 1666. T. T." One "likeness" shows a circular stone, half an inch in diameter, another is oval, and measures an inch in length. *W. G. S.*

**Cattleya gigas.**—I have a plant of *Cattleya gigas* started in a pan last September, now about to expand five blooms on its first-made bulb. I think this is unrivalled. *De B. Craschay.*

**Strawberry Plants for Forcing.**—It seems probable that the old plan of stacking up Strawberry plants intended for forcing in pyramids on their sides during winter will soon become an obsolete practice. No one can look through the forcing houses at Gunnersbury Park and witness Mr. Roberts' Strawberry forcing, or witness what his neighbour, Mr. Hudson, is doing in the garden adjoining, without being struck with the quality of their Strawberry plants, their massive crowns, and the fine crops of fruit they are producing. Now both these clever gardeners have abandoned the practice of piling up their plants in pyramids during the winter, but plunge them in sunken beds either in cocoa-fibre or leaves, thus allowing autumn and winter rains to fall upon them as they like. This appears far better than drying off the plants, and so ripening the crowns to induce an early growth. The plants exposed all the winter make vigorous tufts, and when placed in heat they come away quickly and with a great profusion of bloom, that sets and fructifies into fine fruit. Gar-

deners, in common with other workers in different departments of practical work, are found breaking away from old traditions and practices, and with advantage. During the past few years many old methods have given way to others suggested by new experience and larger knowledge. *D.*

**Cabbages.**—As spring Cabbage are now turning in it is a good time for comparing notes and taking stock as to which are the best; and if this were done annually, or the different kinds got together and compared, many that are now grown would be discarded and the public benefited by the weeding out, as there always is, and must be, a loss from having bad sorts. Among those that stand out superior above all others for first cutting, I should place Ellam's Early, which is a close little Cabbage that has few outer leaves, and a tight conical heart, and which is tender and delicious when cooked. Wheeler's Imperial used to be a great favourite, and is still cultivated extensively in the west of England; but it is very inferior to Ellam's, as is shown conclusively by rows of it we have side by side with the latter, which are regular and good all through, while Wheeler's are the reverse, and many of them bolting although sown on the same day as Ellam's. No doubt much of the great regularity and evenness of the last named is due to careful selection in saving the seed, and it is a good plan for those who are particular in having fine Cabbages to pick out and mark one or two for stock each year and let the stalks stand, by doing which a pure strain may be kept. This is what cottagers usually do, and it is quite common to see them with excellent beds in their garden. The kind they generally run on is the Battersea or Fulham, which is rather large, and a first-rate Cabbage when true. The Enfield Market is also good, but these two turn in later than Ellam's, which may be planted closer than these two and quite as much weight got off from the ground. Atkin's Matchless I shall grow no more, as that is the worst variety we have this year; but I was greatly pleased with a bed of Gilbert's Improved Nonpareil that I saw at the Chantry, near Ipswich, the other day, all the Cabbages in which looked as if they had been cast in one mould, so good were they all through the piece. *J. Sheppard.*

**Gardenias and their Culture.**—Under this heading a great deal has been written of late, and as the results I am now obtaining are satisfactory, perhaps the mode of treatment adopted here may be of service to some, so with that end in view I will briefly give the course of treatment pursued. In the beginning of March last year I had a number of cuttings inserted in 6-inch pots, about a dozen in each pot; they were then plunged into brisk bottom-heat, the result being that they all emitted roots in a short time. As soon as they were struck they were potted off singly into 3-inch pots, and were again plunged into heat. Here they remained until the roots reached the outside of the ball, when they were again potted into 5 and 6-inch pots. They were again returned to the bottom-heat, where they remained until they were ready for their final shift into 7, 8, and 10-inch pots; that being effected, the plants made rapid progress. Through every stage they received a liberal supply of manure-water, and were never allowed to get dry at the roots. At no period was much air admitted to the pit where they were growing. They were kept well pinched until the end of July, and were heavily syringed twice a day. On several occasions they were dipped in a large bath of warm water, to which a mixture of paraffin-oil, soft-soap, and tobacco had been added. They also had some good drenchings of cold water from a hose fixed on an inch pipe with a good force. From the beginning they were potted in good fibrous loam, with a little coarse sand added. Some fifty plants have from sixty to 120 bloom-buds on each plant. As it is only thirteen months since the cuttings were put in I think they are a very satisfactory lot indeed. I may add that one bloom I cut a few days ago measured 4 inches in diameter. *George Malcolm, Willington Hall.*

**Primula Sieboldi.**—This race of fine Primulas was not so well represented at the Auricula show on the 21st ult. as might have been expected, and the illustrations of it seen were of a character to injure it in public estimation. It had been necessary to subject them to some forcing to get them into flower, and it is a plant that does not force well, as leaves and flower-stalks alike take on a drawn and weakened appearance. The plants may be brought on in a cold

frame or house, supposing that air can be freely given when required, and then they show themselves in their natural character. But handsome as they are, and varied in character, it is surprising into how many gardens one may go, and not see a specimen of *P. Sieboldi* itself. Is it because the varieties are not known, or because they are difficult to grow? A few years ago there did appear to be something like a run upon them; but they are now seldom seen, more's the pity, for it is open to doubt whether there is a more useful race of hardy Primulas. It has just been stated they are varied in character. In addition to the varieties raised by Messrs. Dean, Allen, Victor Lemoine, and others, a remarkable advance has been seen in some varieties raised during the past few years by Mr. George Geggie, of the Waterloo Nursery, Bury. This season he announces a batch of twenty new varieties. It must be admitted that Mr. Geggie has been more successful in raising quantities of new varieties than has fallen to the lot of any previous one engaged in this work. *P. Sieboldi* is a somewhat perplexing plant as regards seedling in that fine plump seed-pods develop themselves to all appearance full of seed, but which when gathered, do not contain a single grain. Cross-fertilisation does, undoubtedly, assist in the production of seed as well as ensuring variety of character in the seedlings. Some of the new varieties now in course of distribution by Mr. Geggie were last year seen at one of the meetings of the Royal Horticultural Society, and the high award of a First-class Certificate of Merit was made to two or three of them. The complete list is as follows:—Arthur, deep rosy-pink, stout and of good form; Blushing Bride, white, flushed with rose, very prettily fringed and excellent quality; Blanche, white, the reverse pink—large bold truss and dwarf habit; Brilliant, rich rosy-crimson—an extra fine variety of excellent properties and good habit; Charmer, white, pencilled with pink—large and fine; Crimson King, rich deep crimson—large flowers of extra fine form and substance; Delicata, clear pale lilac—large flowers deeply fringed; Gem, deep reddish-purple—fine stout flowers of the best form and good habit; Harry, crimson and white, large fringed flowers of good form—a very fine and distinct variety; Jane, white, tinted with rose—large flowers of extra fine form; Mars, reddish-purple, handsomely fringed—dwarf good habit; Mrs. Geggie, clear rosy-pink, large fringed flowers of the finest form—an extra fine variety; Mrs. Crossley, pale rose—a charming variety of excellent form; Novelty, pale lilac, softening to white, very prettily fringed—quite distinct and very pleasing; Othello, very dark purple—good habit; Pearl, white, with a delicate tinge of lilac, changing to pure white with age—large and of fine form; Polly, pale rose, large flowers of the finest form, forming a noble truss; Parity, white, perhaps the finest white variety yet raised—flowers stout and massive; Purple King, clear purple, large and well formed flowers of excellent quality; and Victor, rosy-red, large, stout, and extra fine—good habit. With such a remarkable addition to the lists of varieties already being grown there need be no difficulty in forming a very fine and select collection. It is to be hoped that the projected Primula Conference, to take place in April next, will do something towards bringing prominently into notice the value of the varieties of *P. Sieboldi* as hardy spring decorative plants. *R. D.*

**Lux Calor Gas Stove.**—I have had one of these in my flower shop more than a year, and find it heats the shop beautifully without the least injury to flower or foliage, and emits no smell of gas. In the spring I placed it in the fireplace of a sitting-room where a fire was only wanted during the evening, and it answered just as well. *J. Sander, Newnham Nursery.*

**Eucharis Mite.**—What a pity it is there should be so much difficulty or dispute in deciding to whom belongs the credit of having been the first to introduce the *Eucharis mite*, to the great vexation of the plantsman, but evidently to the delight of the enquiring entomologist. Culturists with whom I have been in conversation, seem to incline to the belief that the mite has been invited or created through a predisposition of the plants having that end as the result. The predisposing causes may have been various, such as over or under watering, over or under heating, over or under shading. All these, severally or combined, although given by mistaken kindness, may have brought it all about. It is, I believe, an acknowledged fact that,



both in the animal and vegetable kingdom, every plant and animal has its respective and peculiar parasite existing in the form of either mite, grub or worm, attacking both externally and internally. These are induced or encouraged in the first instance by neglect or mismanagement, carried on amongst healthy individuals by contagion. Were it in remoter days, when witchcraft was more generally believed in than it is now, we might—as would have been the case in those days—have believed that some old lady of that ilk had looked “mityly” spiteful at Mr. Stevens’ *Eucharis*, throwing amongst them those destructive pests which caused the plants to so collapse suddenly. When living in Staffordshire I remember reading, amongst other legends, one which described a farmer as being cruelly tormented by a witch, in the form of a black beetle, which kept constantly buzzing about his head, and so prevented him from ever having quiet and comfortable ruminations on the probable profits of the return of the farm; and in a similar degree it was also said to have very much interfered with the intensity of his usual religious devotions. How long this purgatorial state of torment continued I do not remember; suffice it to say, that after many a futile clutch, the farmer at last made a lucky snatch, captured the black Coleopterous witch, and had the presence of mind of having it at once interned in his snuff-box—so ended his trouble. We sincerely wish the mite of Trentham could be brought to a similar end. *Wm. Miller.*

## FRUIT NOTES.

**FRUIT PROSPECTS IN SOUTH BUCKS.**—In comparing the condition of the fruit crops out-of-doors at the present time (April 25) with those at the same period last year, I find they are at least a week later. This I take to be an advantage, and augurs well for the future this season. Although climatal conditions this springtime have not been very detrimental to the crops, nor perhaps altogether such as might be desired, still frost has not been severe enough to do any material damage, and if we are spared this infliction a week or two longer our fears in this respect will disappear, and our hopes be partly consummated in regard to the fruit crops. In the gardens in this district, generally speaking, Apricots, Peaches, and Nectarines are fairly well set, and promise to yield a good crop. Pear, Plum, and sweet Cherry trees are loaded with blossom. Although the Apple trees are not in bloom they are abundantly furnished with it. Morello Cherries on northern aspects, which suffered much damage from the frost which did so much mischief on the 19th and 20th of last April, are only just opening their blossoms. All sorts of Currants are showing plentifully. Gooseberries are somewhat advanced in growth, and are a fair crop. Raspberries, which were much damaged last year, are now full of promise, and exceedingly strong and clean. The Apple trees in orchards are teeming with buds and flowers, and the Plums, now going off, were most profusely covered with bloom. This county is somewhat famed for its Cherry orchards, which are numerous, and some of them very extensive; the existence of these may doubtless be ascribed to the fact of the species being indigenous, and now the wild Cherry tree abounds in the Beech-woods in this part of the shire, showing unmistakably that the nature of the soil, and other existing matters, are suitable to its development. I gather from this a primary reason for the numerous trees and orchards which were formerly so extensively planted. Neither frost nor rain have impaired or marred the beauty of the Cherry bloom this season; it is therefore exceptionally fine, and in the current week the trees have been a sight of beauty worth a journey of some distance to behold. The appearance of the wild Cherry trees also, in their normal condition in the woods, “where they attain a large size, and form a valuable timber tree,” now presents a pleasing prospect on the otherwise more sombre appearance which the surface of a Beech-wood now naturally presents. *G. T. Miles, Wycombe Abbey*

### TRIUMPH VON JODOIGNE PEAR.

This fine Pear was raised from seed by M. Bouvier, Bürgermeister of Jodoigne, in Belgium. The fruit is large, sometimes very large, and of regular form. The flesh is white, very fine in the grain, with much grittiness near the core, very juicy, almost melting and refreshing, with a fine astringent sweet flavour. Ripe end of November, and keeps good for about four

weeks. The tree does not make a good pyramid, but grows well and fruits early on the Quince. *Oester-ungarischer Obstgarten.*



STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MAY 6, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 48 Years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 48 Years.	Dew Point.	Degree of Humidity. Sat. = 100.		
April 30	29.66	-0.12	62.0	40.0	22.0	50.8	+1.4	39.8	66	W.N.W.	0.00
May 1	29.47	-0.31	59.0	40.5	18.5	48.0	-1.8	45.9	93	S.W.	0.03
2	29.47	-0.30	58.5	42.5	16.0	48.5	-1.6	43.1	82	S.W.	0.02
3	29.47	-0.30	66.1	38.0	28.1	49.7	-0.7	41.3	73	S.E.	0.02
4	29.33	-0.43	65.2	43.8	22.4	50.1	-0.7	47.0	89	S.E.	0.03
5	29.37	-0.39	52.0	43.5	8.5	45.3	-5.0	42.5	90	S.E.	0.24
6	29.23	-0.56	55.5	41.5	14.0	46.5	-5.1	43.9	91	E.N.E.	1.25
Mean	29.41	-0.35	59.9	41.4	18.5	48.4	-2.1	43.5	83	variable	0.55

April 30.—Fine morning. Dull afternoon and night.

May 1.—Very fine and bright in early morning, showers of rain during the day.

2.—Very fine and bright morning, dull afternoon and evening.

3.—Very fine throughout.

4.—Dull morning. Fine afternoon. Dull night.

5.—Frequent showers of rain during the day and night.

6.—Heavy rain in early morning. Showers of rain during the day and night.

**LONDON: Atmospheric Pressure.**—During the week ending May 2, the reading of the barometer at the level of the sea increased from 29.41 inches at the beginning of the week to 29.74 inches by 1 P.M. on the 27th, decreased to 29.73 inches by 5 P.M. on the same day, increased to 29.76 inches by 9 A.M., decreased to 29.65 inches by 5 P.M. on the 28th, increased to 29.87 inches by 9 A.M. on the 30th, decreased to 29.48 inches by 1 P.M. on May 1, increased to 29.68 inches by 5 P.M. on the same day, and was 29.64 inches by the end of the week.

The mean reading of the barometer for the week was 29.69 inches, being 0.18 inch lower than last week, and 0.26 inch below the average of the week.

**Temperature.**—The highest temperature was 69°.5 on the 28th; the highest on May 2 was 58°.5. The mean of the seven high day temperatures was 62°.8.

The lowest temperature was 40°, on April 30; on the 29th the lowest temperature was 47°. The mean of the seven low night temperatures was 43°.

The greatest range of temperature in one day was 27°, on the 28th; the smallest was 15°, on the 29th. The mean of the seven daily ranges was 19°.8.

The mean temperatures were—on the 26th, 53°.7; on the 27th, 53°.4; on the 28th, 56°; on the 29th, 52°.4; on the 30th, 50°.8; on May 1, 48°; on the 2d, 48°.5; of these the first five were above their averages by 5°.2, 4°.7, 7°.1, 3°.3, and 1°.4 respectively, and the last two were below by 1°.8, 1°.6 respectively.

The mean temperature of the week was 51°.8, being 2°.4 lower than last week, and 2°.6 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 132°.5, on the 28th. The mean of the seven readings was 113°.8.

The lowest reading of a minimum thermometer placed on grass was 31°.5 on May 2. The mean of the seven readings was 35°.4.

**Rain.**—Rain fell on five days to the amount of 0.54 inch, of which 0.40 inch fell on April 29th.

**ENGLAND: Temperature.**—During the week end-

ing May 2, the highest temperatures were 69°.5, at Blackheath and Cambridge, 66° at Hull; the highest at Bristol and Liverpool was 59°, at Bolton 59°.8. The general mean was 63°.1.

The lowest temperatures were 33°, at Truro and Hull, 33°.1 at Wolverhampton; the lowest at Newcastle was 42°, at Brighton, 41°.5, at Blackheath, Sunderland, and Preston, 40°. The general mean was 37°.4.

The greatest ranges were 33° at Hull, 32°.5 at Cambridge, 30° at Sheffield; the smallest ranges were 18° at Newcastle, 20° at Preston, 20°.4 at Liverpool. The general mean was 25°.7.

The mean of the seven high day temperatures was highest at Cambridge, 63°.4, at Blackheath 62°.8, at Nottingham and Sheffield 60°.3; and was lowest at Plymouth, 55°.5, at Newcastle 55°.8, at Bolton 56°. The general mean was 58°.6.

The mean of the seven low night temperatures was highest at Newcastle, 45°.5, at Brighton 44°.5, at Preston 43°.9; and was lowest at Wolverhampton, 38°.5, at Bristol 40°.4, at Bolton 40°.5. The general mean was 42°.5.

The mean daily range was greatest at Cambridge, 20°.9, at Wolverhampton 20°.1; at Blackheath 19°.8; and was least at Newcastle, 10°.3, at Plymouth 13°, at Sunderland 13°.3. The general mean was 16°.1.

The mean temperature was highest at Blackheath, 51°.8, at Cambridge 51°.4, at Nottingham and Leeds 50°.2; and was lowest at Bolton, 46°.6, at Wolverhampton 46°.9, at Bristol 47°. The general mean was 48°.9.

**Rain.**—The largest falls were 1.09 inch at Truro, 0.92 inch at Plymouth, 0.71 inch at Hull; the smallest falls were 0.17 inch at Sheffield, 0.20 inch at Cambridge, 0.23 inch at Nottingham. The general mean fall was 0.49 inch.

**SCOTLAND: Temperature.**—During the week ending May 2, the highest temperature was 60°.9, at Leith; at Aberdeen the highest temperature was 57°.6. The general mean was 59°.6.

The lowest temperature in the week was 35°.8, at Aberdeen; at Greenock and Paisley the lowest temperature was 40°.2. The general mean was 38°.6.

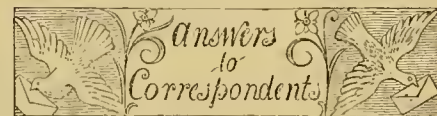
The mean temperature was highest at Edinburgh, 50°; and lowest at Aberdeen, 46°.4. The general mean was 48°.7.

**Rain.**—The largest fall was 1.55 inch at Perth; the smallest fall was 0.73 inch, at Edinburgh. The general mean fall was 1.01 inch.

JAMES GLAISHER, F.R.S.

## Obituary.

WITH regret we announce the death of Mr. GEORGE PHIPPEN, of the Victoria Nursery, and 108, Broad Street, Reading, which took place on the 1st inst., at the age of forty-nine, from cancer. No tradesman in Reading was more deservedly respected than he was for his real goodness of heart, his unassuming manner, and steady assiduity in his business. The Reading Horticultural Society loses in him an efficient helper as its Curator, and the Corporation of the town will also miss him, he having been their contractor for the keeping in order of the Forbury Gardens and recreation grounds.



**BOOKS:** *F. T. Henfrey's Elementary Course* (Van Voorst) contains more recent information and fuller particulars, but is not so well illustrated as the work you mention, which you ought now to buy more cheaply.

**CABBAGES GOING BLIND:** *Exon.* We are not acquainted with the reason for this, and do not think it is owing to insect agency. It is usually observed most where thick seeding has been done, but that may be owing to greater numbers of plants coming up, showing more affected plants, although the proportion of abortive plants to sound ones may be the same as would be observed with their seeding.

**FUNGUS ON SAVIN:** *C.R.* See the answer to a correspondent last week, p. 580.

**FLOWER FROM NICE:** *M. E.* An *Ixia*, but not a native of that place.



**MATERIAL TO PLACE UNDER FRUIT TREES TO PREVENT DEEP ROOTING:** *H. W.* You may use 6 inches of chalk rammed hard and level, or the same thickness of screened coal-ashes—any hard material of the nature of concrete, using lime or cement as the binding material. In some parts of the country, slabs of stone, slate, &c., joined securely at the edges, will be found the cheapest substances to employ. The stations should not be more than 6 feet square, and in the case of dwarf trees 3 or 4 feet is large enough; and the floors ought not to be more than 2 feet from the surface, nor less than 1 foot, and that only in very wet ungenial soils. In dry soils trees with floors under them suffer from drought in summer and autumn, so that abundant watering has to be done to keep the trees in good health.

**MELON LEAVES SPOTTED:** *G. S.* These may have been burned by inferior glass whilst they were wet, or the appearance might be caused by the fumes from strong ammoniacal manure-water.

**NAMES OF PLANTS:** *J. Morton.* *Santolina incana*—not an *Artemisia*, from which *absinthie* is fabricated. —*Ivy Silverton.* *Trachelospermum jasminoides*, white; *Euphorbia splendens*, red; *Forsythia viridissima*, yellow. —*H. C. E.* *Fritillaria meleagris*. —*F. R.* It is barely possible to name *Eucalyptus* from leaves only. It is near both *E. platyphylla* and *E. polyanthemos*, but we think it is *E. cornuta*. —*W. P. Biern.* *Epidendrum fragrans*, and a very good form of it. —*C. W.* *Orchis Morio*, *Magnolia conspicua*, *Omphalodes verna*. —*R. B. White.* *Odontoglossum Alexandræ* variety. —*H. S.* *Fritillaria meleagris*. —*A. S.* *Narcissus Tazetta* variety, near the form called *N. Panizykanus*, but rather larger.

**PEACH LEAVES:** *P. L.* The circular holes, or those with a nearly regular outline, are caused by drip and subsequent exposure to sun; the long jagged holes look more like the work of insects, but may be from drip also.

**POTATOS FOR IRELAND:** *Paddy.* Improved *Ashleaf*, *Monia's Pride*, *Duke of Albany*, as early as *Myatt's Ashleaf* and a heavier cropper; *Magnum Bonum*, *Rector of Woodstock*, *Schoolmaster*, *Paterson's Victoria*, *Champion*.

**VINE ROOTS DECAYED:** *F. W.* The state of the roots could hardly be worse; the tips were dead, and had been so for a year or more, and there were no feeding rootlets. We cannot say what has brought them into this state—bad drainage, water stagnant in the soil, strong pungent manures, would cause it.

**YELLOW BEGONIA:** *J. B. & Son.* A very fine full bloom of a sulphur-yellow tint. Why not call it *Isabella*? We shall be glad to see any varieties you may think worth your while to send.

### CATALOGUES RECEIVED.

COMPAGNIE CONTINENTALE D'HORTICULTURE, Ghent —Plants.

MR. WILLIAM BULL, 536, King's Road, Chelsea—New, Beautiful, and Rare Plants.

COMMUNICATIONS RECEIVED.—*E. C.*—*T. O'B.*—*R. Munro.* (next week). —*T. C.*—*W. D. G. O.*—*N. C. Cookson*. —*T. J.*—*N. E. B.*—*E. M. H.*—*J. Murdoch*. —*R. D.*—*R. P.*—*A. W. W. J. M.*—*R. H. M.*—*J. G. Baker*. —*A. D.*—*R. A.*—*G. S.*—*W. E.*—*C. W. D.*—*H. L. Vilmorin*. —*A. H. K.*—*J. W.*—*J. J. W.*—*Harpenden*. —*The British Consul, Antwerp*. —*U. D.*—*W. H. H.*—*A. Spas*.

**DIED.**—We regret to announce the death, on the 2d inst., of *ANNIE*, wife of *Mr. John WALLIS*, the respected Head Gardener at *Keele Hall*, *Stafford*.

## Markets.

### COVENT GARDEN, May 7.

PRICES hardening on the fall, with a slight improvement in business. Market well supplied. *James Webber, Wholesale Apple Market.*

### FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, 1/2-sieve .. 1 6-5 0	Melons, each .. 4 0-5 0
— Nova Scotia and .. 2 0-2 0	Peaches, per doz. .. 21 0-5 0
— Canadian, barrel 12 0-21 0	Pine-apples, Eng., lb. 1 0-2 0
Grapes, new, per lb. 4 0-7 0	— St. Michael, each 2 6-8 0
Lemons, per case .. 9 0-15 0	Strawberries, per lb. 4 0-8 0

### VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, .. 4 0-6 0	Lettuces, Cab., doz. 1 6-2 0
— per doz. .. 4 0-6 0	— French Cos, each 0 6-1 0
Asparagus, English, .. 3 6-10 0	Mint, green, bunch. 0 9-1 0
— per bundle .. 3 6-10 0	Mushrooms, p. basket. 1 0-1 6
— French, bundle 4 0-8 0	Oignons, per bushel. 4 0-5 0
— Perpignat, nat., .. 2 0-2 0	— Spring, per bun. 0 6-1 0
— per bundle .. 2 0-2 0	Parsley, per bunch. 0 6-1 0
Beans, Eng., per 100 2 0-2 0	Peas, per lb. 1 0-1 0
Beet, per doz. .. 1 0-1 0	Potatoes, new, per lb. 0 6-1 0
Cabbages, per doz. 1 6-2 0	Radishes, per doz. 1 0-2 0
Carrots, per bun. 0 6-2 0	Rhubarb, bundle .. 0 6-1 0
Calliflowers, Eng., .. 2 0-4 0	Salsify, per bud. 1 0-1 0
— lian, dozen .. 2 0-4 0	Seakale, per punnet 2 0-2 6
Celeriac, per root .. 0 4-1 0	Small saladings, per .. 0 4-1 0
Celery, per bundle .. 1 6-2 0	Spinach, per bushel 3 6-4 0
Cucumbers, each .. 0 9-1 6	Tomatoes, per lb. .. 2 0-2 6
Endive, per dozen .. 2 0-2 0	Turnips, bun. .. 0 5-1 0
Garlic, per lb. .. 0 6-1 0	— new, per bunch 1 3-1 0
Herbs, per bunch .. 0 2-0 4	
Horse Radish, bun. 3 0-4 0	

POTATOS.—Old Potatoes still very heavy trade new do., coming from Jersey, 4d. to 6d. per lb.

### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Aralia Sieboldi, doz. 6 0-24 0	Ferns, in variety, per .. 4 0-18 0
Arbor-vitæ (golden), .. 6 0-18 0	Ficus elastica, each 1 6-7 0
— (common), dozen 6 0-12 0	Foliage Plants, vari- .. 2 0-10 0
Arum Lilies, dozen 9 0-15 0	— each .. 2 0-10 0
Azaleas, per dozen .. 18 0-42 0	Fuchsias, per dozen 9 0-12 0
— Ghent, per doz. 12 0-24 0	Genista, 12 pots .. 6 0-18 0
Begonias, per doz. .. 6 0-12 0	Hydrangeas, doz. .. 12 0-18 0
Bouvardia, dozen .. 9 0-18 0	Lily-of-the-Valley, 12 .. 12 0-18 0
Calceolarias, doz. .. 6 0-9 0	— pots .. 12 0-18 0
Cinerarias, per doz. .. 8 0-12 0	Marguerite Daisy, .. 8 0-15 0
Cyclameus, per doz. 9 0-24 0	— per dozen .. 8 0-15 0
Cyperus, per dozen 4 0-12 0	Musk, per dozen .. 3 0-4 0
Dracæna terminalis, .. 30 0-60 0	Myrtles, per doz. .. 6 0-12 0
— viridis, per doz. 12 0-24 0	Narcissus, 12 pots .. 12 0-18 0
Erica, various, doz. 9 0-18 0	— each .. 2 6-21 0
— Cavendishii, doz. 30 0-48 0	Pelargoniums, per .. 9 0-18 0
— ventricosa, doz. 36 0-60 0	— dozen .. 9 0-18 0
Euonymus, in var., doz. 6 0-18 0	— scarlet, dozen .. 4 0-9 0
Evergreens, in var., .. 6 0-24 0	Spiræa, per dozen .. 9 0-18 0

### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilon, 12 bunches 2 0-4 0	Mignone, 12 bun. 3 0-9 0
Anemone, 12 bunch. 1 6-4 0	Narcissus, various, .. 2 0-4 0
Arum Lilies, 12 blms. 3 0-6 0	— French, 12 bun. 15 0-18 0
Azalea, 12 sprays .. 0 6-1 0	Pelargoniums, per 12 .. 9 0-1 0
Bluebells, 12 bunch. 1 0-1 6	— sprays .. 0 9-1 0
Bouvardias, per bun. 1 0-1 6	— scarlet, 12 sprays 0 4-0 9
Camellias, per doz. 1 0-4 0	Primroses, 12 bunch. 0 4-0 9
Carnations, 12 blms. 1 0-2 0	— double, 12 bun. 1 0-2 0
Cinerarias, per bun. 0 6-1 0	Primula, double, bun. 0 9-1 0
Cyclamen, 12 blooms 2 0-4 0	Roses (indoor), doz. 1 0-4 0
Daffodils, 12 bunch. 3 0-6 0	— coloured, doz. .. 2 0-6 0
Eucharis, per doz. .. 4 0-6 0	— French, per doz. 0 4-0 6
Euphorbia jacquini- .. 3 0-6 0	Spiræa, 12 bunches. 6 0-12 0
— flora, 12 spr. 3 0-6 0	Stephanotis, 12 spr. 2 6-4 0
Gardenias, 12 blms. 1 0-2 0	Tropæolum, 12 bun. 1 0-1 6
Heliotropes, 12 sp. .. 0 6-1 0	Tulips, 12 bunches. 2 0-4 0
Jonquils, 12 bunches 2 0-4 0	— Violets, 12 bun. .. 0 4-0 9
Lagerflora, white, 12 .. 2 0-3 0	— Parme, French, .. 3 0-5 0
— red, 12 .. 1 0-2 0	Wallflower, 12 bun. 2 0-4 0
Lily-of-Val., 12 sprays 9 0-1 6	White Jasmine, bun. 0 6-1 0
Marguerites, 12 bun. 3 0-6 0	

### SEEDS.

LONDON: May 6.—There was but little business doing on the seed market to-day, the attendance being small. The home sowing demand seems about over, but some business has been doing in Clover seeds for export. Stocks generally prove smaller than was supposed, and the movement in prices is upwards, where values show any change. More money is asked for Mustard and Rape seed. There is no variation worthy of remark in the trade for Canary and Hemp. White Millet is firmly held at advancing rates. Blue Peas and Haricot Beans sell on former terms. Feeding Linseed is depressed. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

### CATTLE.

At Copenhagen Fields on Monday trade was decidedly better than last reported, both cattle and sheep realising fully 2d. to 4d. per 8 lb. advance. No improvement was quotable in the calf trade; and in the absence of supply, quotations of pigs were nominal. Quotations:—Beasts, 3s. 8d. to 4s. 8d., and 4s. 10d. to 5s. 4d.; calves, 4s. to 6s. 8d.; sheep, 4s. 8d. to 4s. 10d., and 5s. to 6s. 6d.; lambs, 7s. 8d. to 8s.; pigs, 4s. to 4s. 6d. Thursday's trade was very quiet, but prices were maintained.

### HAY.

Tuesday's Whitechapel Market report states that there was a very dull trade, with large supplies. Quotations:—Clover, prime, 80s. to 105s.; prime second cut, 85s. to 110s.; inferior, 45s. to 75s.; hay, prime, 70s. to 96s.; inferior, 25s. to 60s.; and straw, 22s. to 35s. per load.—On Thursday there was a rather larger supply, and trade very dull, at previous prices.—Cumberland Market quotations:—Clover, best, 85s. to 102s. 6d.; inferior, 60s. to 84s.; hay, best, 84s. to 94s.; inferior, 45s. to 75s.; and straw, 30s. to 34s. per load.

### POTATOS.

The Borough Market report states that trade is slack, and supplies fully adequate to demand. Quotations:—Scotch Regents, 80s. to 95s.; Kent ditto, 70s. to 85s.; Champions, 40s. to 50s.; Magnum Bonums, 50s. to 60s.; and Victorias, 70s. to 90s. per ton.—The imports into London last week consisted of 556 bags from Malta and 15 sacks from Rouen.

### COALS.

The following are the prices current at market during the week:—Ravensworth West Hartley, 14s. 9d.; Walls End—Tyne (unscreened), 11s. 3d.; Hetton, 15s. 6d.; Hetton Lyons, 14s.; Lambton, 15s.; Wear, 14s.; East Hartlepool, 14s. 9d.

**Government Stock.**—Consols closed on Monday at 97½ to 97¾ for delivery, and 97½ to 97¾ for the account. The final quotations of Tuesday were 98 to 98½ for both transactions. Wednesday's prices were 98½ to 98½ for both delivery and the account. The closing prices on Thursday, for both delivery and the account, were 98½ to 98½.

## R. HOLLIDAY, HORTICULTURAL IRON AND WIRE WORKER, GARDEN IMPLEMENT MAKER. SWING WATER BARROWS.



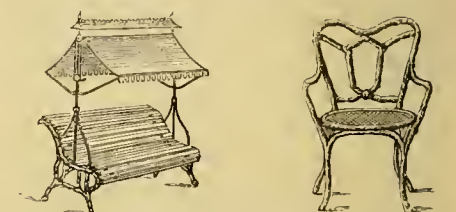
GARDEN ENGINES and ROLLERS.



GARDEN PLANT TRUCK and WHEELBARROW.



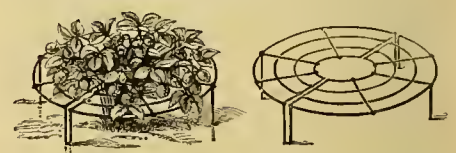
GARDEN SEATS and CHAIRS.



SEATS with Awning.  
CHAIRS with Spring Bottom and Back.  
CHAIRS in Rustic Iron Work.

A GREAT VARIETY ON SHOW TO SELECT FROM.

### PAXTON'S STRAWBERRY CRINOLINE.



Extensively used for Growing Strawberries to preserve them from Slugs, Contact with the Soil, Superfluous Moisture, and other Nuisances, dispensing with the usual litter. See Testimonials.

## R. HOLLIDAY, HORTICULTURAL IRON AND WIREWORKER, The Pheasantry, Beaufort Street, Chelsea, S.W.

12-oz. Sample Packets, free by post, 12 stamps.  
**FIBROUS PEAT FOR ORCHIDS, &c.**—**BROWN FIBROUS PEAT**, best quality for Orchids, Stove Plants, &c., 266s. per Truck. **BLACK FIBROUS PEAT**, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bag, 5s.; 5 Bags, 22s. 6d.; 10 Bags, 45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per Bag. **SILVER SAND**, Coarse or Fine, 52s. per Truck of 4 tons. **WALKER AND CO., Farnborough Station, Hants.**

## TO FARMERS, FLORISTS, FRUIT GROWERS, AND MARKET GARDENERS.



This Non-poisonous Preparation will destroy in a few moments Hop Flea, Green and Black Fly, Mealy Bug, Thrips, Red and White Spider, Brown and White Scale, American Blight, Woolly Aphis, Aots, Mildew, and all Insect Pests, Fly on Turnips, Wasps, &c., and every kind of Caterpillar that infest Trees and Plants. Growers can Save Hundreds of Pounds by using it.

Of all Nurserymen, Seedsmen, Chemists, &c., or direct from the Manufacturers—1 lb. Tin, 1s. 3d.; 5 lb. Tin, 6s. 6d.; 7 lb. Tin, 5s. 6d. Special quotations for large quantities.

### STEVENS' AMORTISER

We particularly recommend for Greenhouses, it being so pleasant for use and for its perfume.

We guarantee, if used as per directions, this preparation will not injure the most delicate Foliage or Blooms any more than Water, 1s., 2s., and 3s. per Bottle. Manufactured (only) by STEVENS AND CO., 67, High Street, Borough, London, S.E.



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LONDON, W.C.

1885.

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commencing \_\_\_\_\_, for which I enclose P.O.O. \_\_\_\_\_.



Please Note that all Copies Sent Direct from this Office must be paid for in advance.



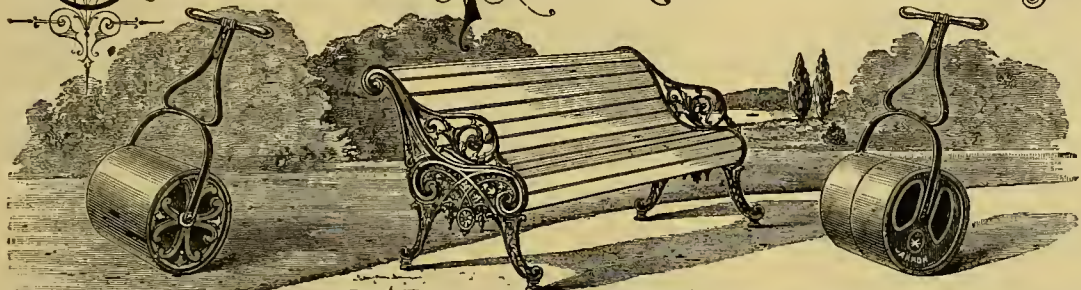
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SINGLE CYLINDER ROLLERS, 16x16, 20x20 AND 24x24 DOUBLE DO SAME SIZES.

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OF EVERY DESCRIPTION  
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MESSINGER & CO.'S GREENHOUSES are constructed so as to obtain, with the least obstruction to light and sun, the greatest strength and rigidity.  
The best materials and workmanship, at prices which, owing to their facilities, defy competition.

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## JEYES' "GARDENER'S FRIEND."

One Gallon of this Fluid, diluted with water according to directions, and applied with an ordinary watering-can,

Effectually Removes all Weeds, Moss, Worms, and Insects on Gravel Walks, Lawns, &c.

Price, 3s. 6d. per gallon, including drum; 40-gallon casks, £4 10s. Carriage paid.

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## FIR TREE OIL INSECTICIDE

(Soluble in Water)

Effectually clears all Insects and Parasites from the Roots or Foliage of Trees and Plants. Kills all Vegetable Grubs, Turnip Fly, &c. Cures Mildew and Blight. Clears Grapes from Mealy Bug, &c., and makes a good Winter Dressing. Of all Seedsmen and Chemists, 1/6, 2/6, 4/6 a bottle. Per gallon 12/6, or less in larger quantities. *A Treatise on "Fir Tree Oil" and its application, sent free on receipt of address, by the Manufacturer, E. GRIFFITHS HUGHES, MANCHESTER.* Wholesale from HOOPER & CO.; CORRY, SOPER, FOWLER and CO.; C. E. OSMAN & CO., and from all the London Seed Merchants and Wholesale Patent Medicine Houses.

GISHURST COMPOUND, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft water; 4 to 16 ounces with winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

GISHURSTINE keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s., from the Trade. Wholesale from PRICE'S PATENT CANDLE COMPANY (Limited), London.

TOBACCO PAPER, strong and good, for Fumigating Greenhouse Plants, 56s. per cwt. Also TOBACCO WATER, for Syringing Plants, Bushes, 2s. 4d. gallon.—STEAM TOBACCO WORKS, Inverness.

TOBACCO CLOTH and PAPER, finest and most effective, 14 lb. for 9s.; 28 lb., 18s.; cwt. 70s. Special quotations for the Trade.

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## ROLL TOBACCO PAPER, Cloth, and Fibre for Fumigating.

The best and strongest it is possible to obtain. 6lb., 1s. 6d.; 14 lb., 2s.; 28 lb., 4s. Good strong TOBACCO PAPER or CLOTH, 6lb., 2s. 6d.; 14 lb., 5s.; 28 lb., 10s. Carriage paid to London or any Railway Station in Kent. All our articles contain the pure essence of Tobacco only. Used in Royal Nurseries, the Gardens of the Nobility, by Leading Men of the Profession, &c.

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Old TOBACCO ROPE, very strong, for fumigating, 14 lb., 4s. 6d.; 28 lb., 8s.; 56 lb., 15s.; cwt., 28s.

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THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they barbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

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SILVER SAND, fine or coarse grain as desired. Price, by post, per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post. FLINTS and BRICK BURS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

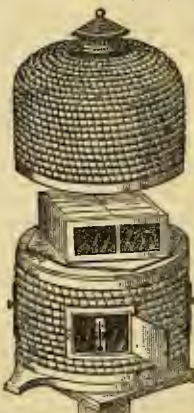
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## COTTAGE BEEHIVE,

as originally introduced by them, working three bell-glasses or a tray of sectional supers, is neatly and strongly made of straw; it has three windows in the lower Hive.

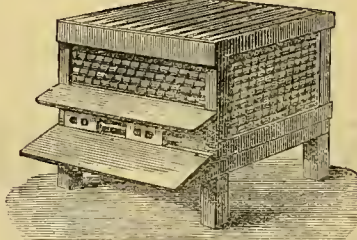
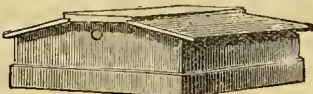
This Hive will be found to possess many practical advantages, and is more easy of management than any other that has been introduced.

Price .. .. £1 15 0  
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This hive has been designed to supply a want long felt by those who desire a Hive at once tasteful in appearance and moderate in price. The walls are built of straw neatly bound with cane. Ample means for ventilation in summer, and sufficient warmth in winter are thus secured. Nine Frames, of the standard size, fitted with metal ends, and a dummy for reducing the Hive, are enclosed therein, a double quilt to place over the Frames, a case of American one-piece sections for supering, and a substantial



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Also BAR-FRAME HIVES, from 7s. 6d. to 42s. each.

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Made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three years, and every one who sees my plants is astonished to see how healthy and well they are without the use of glass."

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2 yards,

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Proprietor and Maker,

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GARDEN NETTING, 2 yards wide, 1½d., or per 100 yards, 10s.; ditto, 4 yards wide, 3d., or per 100 yards, 20s. SCRIM CANVAS, 1 yard wide, 3d.; 1½ yard, 4½d.; and 2 yards, 6d. per yard. TIFFANY, 38 inches wide, in 20 yard pieces, 3s. 6d. per piece. SHADING BLINDS made up any size. RICK CLOTHS, TARPULINS, Corn and Potato SACKS, FLAGS, TENTS, &c., for Sale or Hire. From H.V. VAN AND CO (the oldest London House in the Trade, established 1780), 17, Tooley Street, London Bridge, S.E.

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8 yards square, to cover 18 loads, No. 1 quality	..	£6	0	0
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10 ditto	"	30	"	"
10 ditto	"	2	"	"
10 ditto	"	3	"	"
11 ditto	"	40	"	"
11 ditto	"	1	"	"
11 ditto	"	2	"	"
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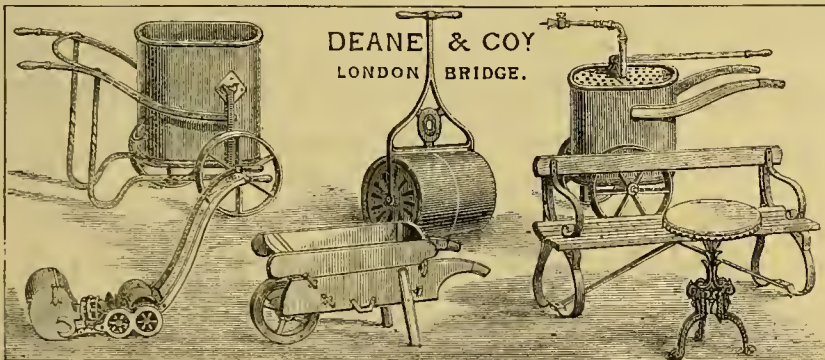
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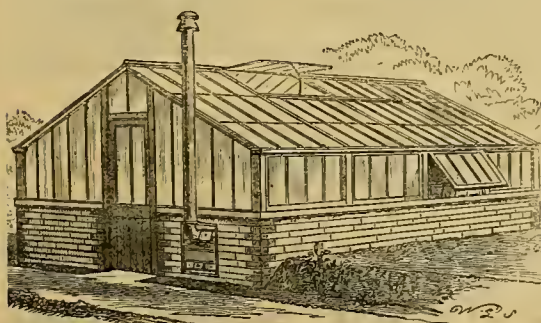
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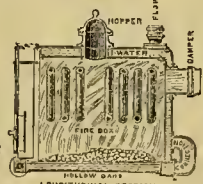
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They are the **nearest, cheapest, most effective, and durable**  
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The Tubular ones are remarkable for their great heating  
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Had the First and Highest Prize, a Silver Medal,  
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The *Journal of Horticulture* of June 9 says:—  
"HEATING APPARATUS.—A great number of boilers, valves,  
&c., were exhibited by eight competitors, and considerable in-  
terest was manifested in the verdict of the judges, and much  
discussion was brought to bear on the merits and shortcomings  
of the different boilers. The apparatus for which the Silver  
Medal was awarded was a wrought-iron saddle boiler, with a  
series of intersecting tubes, somewhat in the form of a letter X,  
but the tubes in ogee form, in the crown of the boiler. Most  
gardeners who examined the boiler expressed a favourable  
opinion of it. It is no doubt a quick and powerful boiler with-  
out being complex, the latter condition having, no doubt, had  
weight with the judges."

The *Garden* of June 11 says:—  
"The premier prize, a Silver Medal, was taken by Messrs.  
Green & Son for their new patent tubular saddle boiler. It is a  
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not so high. It is found to be a powerful and efficient boiler, and  
beats a large quantity of water quickly with a small consumption  
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**DOUBLE EDGED SOLE PLATE**  
 ENABLING THE CUTTING PARTS  
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Easily worked  
 Making the Lawn like Velvet  
 Does not get out of order

PRICES.	
To cut 10 inches wide, £3 10 0	To cut 19 inches wide, £8 0 0
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**ALEX. SHANKS & SON**  
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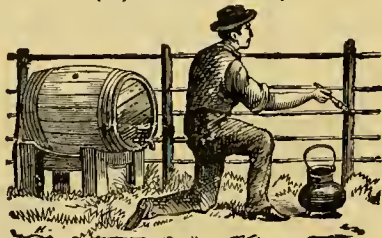
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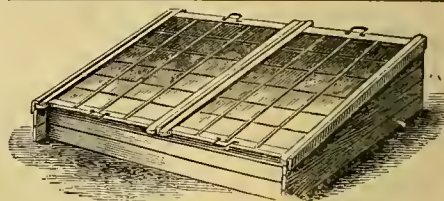
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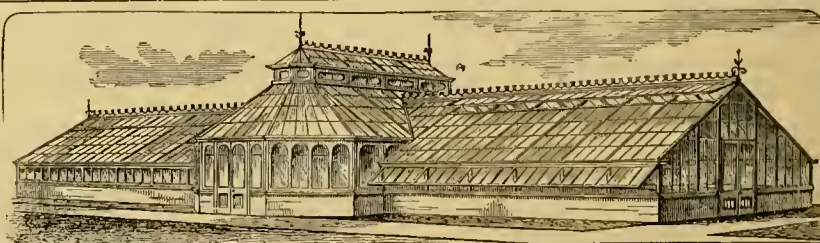
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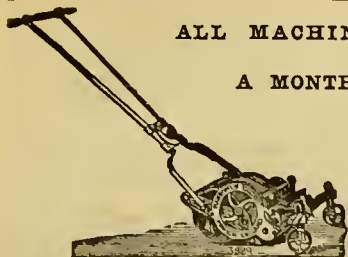
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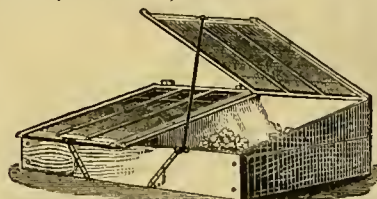
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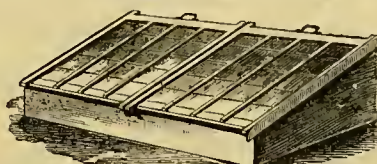
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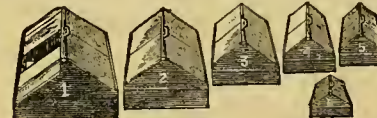
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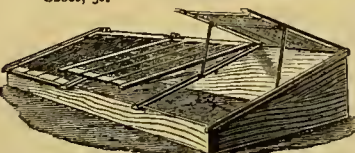
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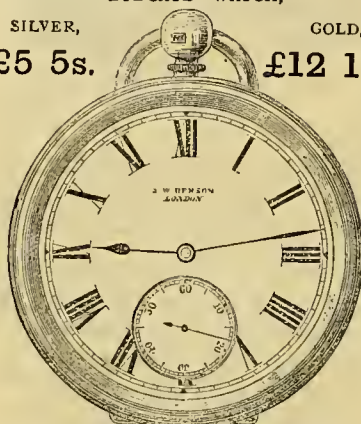
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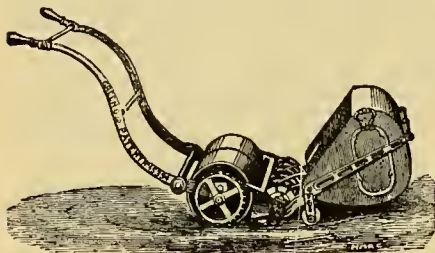
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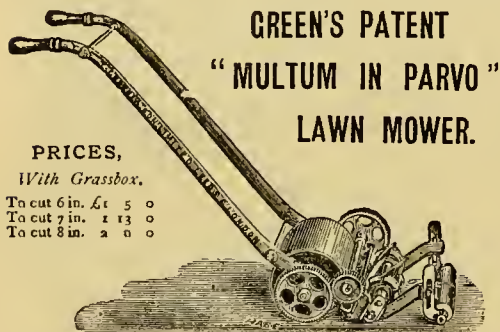
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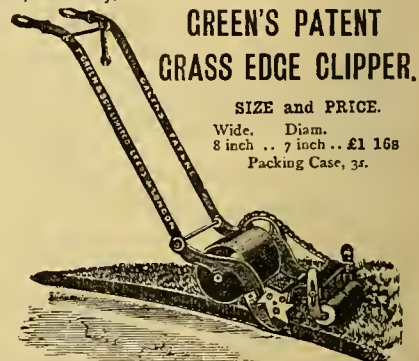
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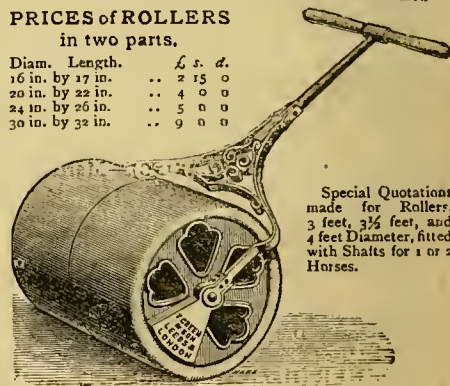
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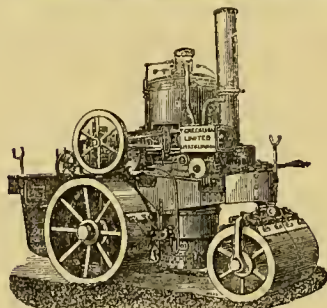
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On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6912.)

**MR. J. C. STEVENS will SELL by AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY** NEXT, May 20, at half-past 12 o'clock precisely, by order of Messrs. Shuttleworth, Carder & Co., **IMPORTED ORCHIDS** in splendid condition, comprising *Odontoglossum madrense*, *O. citrosum*, *O. crispum*, *O. inslayei leopardinum*, *O. Cervantesi*, *Laelia furfuracea*, *L. autumnalis atrobubens*, *Epidendrum nemorale*, and the beautiful new *Barkeria Lindleyana* centera, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6913.)

**MR. J. C. STEVENS will SELL by AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on **THURSDAY** NEXT, May 21, at half-past 12 o'clock precisely, splendid importations of *Brazilian* and *Mexican ORCHIDS*; and some very fine *ODONTOGLOSSUMS* and *CATTLEYS*, &c.

On view morning of Sale, and Catalogues had.

Massmyan Hall, Caerwys, Flintshire.

About five minutes' walk from the Caerwys Station. **IMPORTANT CLEARANCE SALE** of a Valuable Collection of *STOVE* and *GREENHOUSE PLANTS*, &c.

**MESSRS. PROTHEROE AND MORRIS** (in conjunction with Mr. John Pritchard) are instructed by Wm. Pickstone, Esq., to **SELL by AUCTION**, without reserve, on the Premises, as above, on **TUESDAY** and **WEDNESDAY**, May 19 and 20, at half-past 11 o'clock precisely each day, the whole of the celebrated **COLLECTION OF STOVE and GREENHOUSE PLANTS**, comprising several handsome Tree Ferns, Palms, splendidly grown *Fuchsias*, *Geraniums*, and *Pelargoniums*, fit for exhibition; *Camellias*, *Azaleas*, fine *Eucharis*, Tea and other *Roses*, Vines, several thousand plants for Bedding purposes, a large and complete collection of 2000 *Chrysanthemums*, a considerable number of *Rhododendrons*, several tons of *STALACTITE*, *MOWING MACHINE*, *GARDEN POTS*, &c.

On view the day preceding the Sale. Catalogues (6d. each, returnable to purchasers) may be had of Mr. JOHN PRITCHARD, Auctioneer and Land Agent, Boddyhyrd, Bangor; and of the Auctioneers and Valuers, at their Central Auction Rooms, 67 and 68, Cheapside, London, E.C.

N.B. The Massmyan FREEHOLD ESTATE, of about 1200 Acres in extent, with the Mansion, the Manor and Court Leet, will be offered for **SALE by AUCTION** in **JULY** NEXT, unless previously Sold by Private Treaty.

Wednesday Next.

**CARNATIONS, PICOTEES, TEA ROSES, PLANTS IN FLOWER.**

**MESSRS. PROTHEROE AND MORRIS** will **SELL by AUCTION**, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **WEDNESDAY** NEXT, May 20, at half-past 12 o'clock precisely, 100 lots of first-class named *CARNATIONS* and *PICOTEES*, from Mr. T. Ware, Tottenham; an assortment of *GREENHOUSE PLANTS*, many in flower: *FERNS*, 150 *TEA ROSES* in Pots, fine plants; *PINKS*, *CLOVES*, *GLADIOLI*, *LILIES*, and a variety of *PLANTS* and *BULBS*; also 400 *GOLD FISH*.

On view morning of Sale, and Catalogues had.

Harlesden, N.W.—Clearance Sale.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. J. Tibbles (who is relinquishing the business through ill health) to **SELL by AUCTION**, on the Premises, the St. Mary's Nursery, Harlesden, N.W., ten minutes' walk from Willesden Junction Station, on **THURSDAY**, May 21, at 12 o'clock precisely, the first portion of the well grown stock, comprising 5000 *ZONAL GERANIUMS*, in 40 and 48 pots, of the best sorts; *AMARYLLIS*, *AGAPANTHUS*, 200 *ORCHIDS*, 170 *IMANTOPHYLLUMS*, and 100 *ANTHURUM SCHERZERIANUM*, all fine plants; 2000 *LOBELIAS*, and other *BEDDING PLANTS*. May be viewed at Catalogues had on premises, and of the Auctioneers and Valuers, 67 and 68, Cheapside, E.C.

N.B. The **NURSERY with DWELLING-HOUSE**, to *GREENHOUSES*, all heated upon the best principles, *PITS*, &c., will be **SOLD**. Apply to the Auctioneers.

Friday Next.

By order of Messrs. Shuttleworth, Carder & Co. **MESSRS. PROTHEROE AND MORRIS** will **SELL by AUCTION**, at their Central Sale Rooms, on **FRIDAY**, May 22, at half-past 12 o'clock precisely, grand importations of *ODONTOGLOSSUM MADRENSE*, *O. CITROSUM*, *O. CERVANTESI*, *O. INSLEYI LEOPARDINUM*, *LELIA AUTUMNALIS ATRO-RUBENS*, *L. FURFURACEA*, *ONCIDIUM TIGRINUM*, *EPIDENDRUM NEMORALE*, *ODONTOGLOSSUM CRISPUM* (ALEXANDRE); and *BARKERIA LINDLEYANA* CENTERA, a very beautiful variety in the way of B. elegans, but superior in size of flower and colour; also, from Mr. Gen. Marriott, a splendid lot of *ODONTOGLOSSUM ROSSI MAJUS* and *CATTLEYA CITRINA*, and about 100 lots of choice *Established ORCHIDS*, including many fine and rare species.

On view morning of Sale, and Catalogues had.

Friday Next.—*Laelia monophylla*.

**MESSRS. PROTHEROE AND MORRIS** will include in their **SALE for FRIDAY** NEXT, May 22, an importation of the rare *LÆLIA MONOPHYLLA* received direct from Jamaica, and comprising about 200 plants. The species is very scarce in its native habitat, and no such lot has ever been imported to this country.

On view morning of Sale, and Catalogues had.

Leytonstone, E.

**IMPORTANT UNRESERVED SALE of BEDDING and GREENHOUSE PLANTS.**

**MESSRS. PROTHEROE AND MORRIS** will **SELL by AUCTION**, on the Premises, the American Nurseries, Leytonstone, E.C., on **SATURDAY**, May 23, at 2 o'clock precisely, about 15,000 *BEDDING and GREENHOUSE PLANTS*, remarkably healthy and well grown. Full particulars in Catalogues, which may now be had at the Nursery; and of the Auctioneers, 67 and 68, Cheapside, E.C.

Flowering Orchids.—Special Sale.

**MESSRS. PROTHEROE AND MORRIS** beg to announce that in consequence of the Whitsun Holidays their **NEXT SPECIAL SALE of ORCHIDS** in Flower will take place on **TUESDAY**, June 3, for which they will be glad to **RECEIVE NOTICE of ENTRIES** as early as possible.

Wednesday Next.

**NOTICE of IMPORTANT SALE of WELL-GROWN BEDDING and GREENHOUSE PLANTS, &c.**

To Owners of Ornamental Grounds, Gentlemen, Florists, Nurserymen, and Others.

**MR. J. A. SMITH** having received instructions from Mr. F. Herridge, will **SELL by AUCTION**, on the Premises, known as the Nursery, 47, Fulham Palace Road, Hammersmith, W., on **WEDNESDAY**, May 20, at 1 o'clock punctually, about 25,000 *PLANTS*, splendidly grown, for Bedding, Greenhouse, and Window Decoration, comprising *Geraniums* (including Prince of Wales, Henry Jacoby, Atala, Leander, Niobe, Iris, Guido, Eureka, Olive Carr, Miss Herridge, Gloire de Cerbeay, Master Christine, Madame Vaucher, Madame Crousse, Vesuvius), double pink and white *Ivies*, &c., *Pelargoniums*, *Fuchsias*, *Calceolarias*, *Golden Gem*, *Mesembryanthemums*, *Lobelias*, *Alternantheras*, all ready for sale removal. Viewed the day prior and morning of Sale. Catalogues on the Premises, and at Mr. J. A. SMITH'S Auction, Land, and Estate Offices, 58, King Street East, Hammersmith, W.

To Gardeners and Others.

**TO BE SOLD**, with Gardening and Florist's Business, a 4-roomed **FREEHOLD COTTAGE**, with handsomely fitted Conservatory for Sale of Plants, &c.; Shed and Yard in rear, front and back entrance. Good opportunity for beginners. Owner going abroad on account of ill-health. Price £550; could be mortgaged for nearly the amount. Apply, by letter, to S. JACOB, Nurseryman, Garden Road, St. John's Wood, N.W.

Acton, W.

**FOR SALE**, the **FREEHOLD PROPERTY**, known formerly as Sir John Sebright's Fancypoultry Farm, comprising a nice old-fashioned Residence, with three Reception Rooms, five Bedrooms, Dressing-room, and fitted Bath-room, beautiful Gardens planted with Ornamental Trees and Shrubs in luxuriant growth, Fruit Trees, and some 2000 specimen Rose Trees of the best varieties, Glass Houses and Forcing Pits, Poultry Houses and Run, Yard, two-stall Stable, Gig-house, &c.

May be viewed, by cards only, which, with full particulars, may be obtained of Messrs. FAREBROTHER, LYE AND PALMER, 8, Lancaster Place, Strand, London, W.C.

**NURSERY FOR SALE**.—Five Houses, new and well stocked. Only 5 miles from City. Doing a good London and home trade. Rent £50. Lease twenty years unexpired. Sufficient ground for several more erections. Ill-health the cause of leaving; or would **TAKE PARTNER** on easy terms: should prefer one who would work the business.

Address A. H. GARDENERS' Chronicle Office, 41, Wellington Street, Strand, W.C.

**FOR SALE**, a **FREEHOLD MODEL**

**FARM**, within 8 miles of London and seven minutes of rail, comprising a well-built eight-roomed Villa Residence, a Cottage, Dairy, Two-stall Stable, Coach-house, Cow and Cart Sheds, Figgeries and Fowl-houses, large well-stocked Garden, Meadow and enclosure of rich Arable Land. Price £1800. Part can remain. Stock, if required, at valuation. Owner leaving country.

Apply to A. AND G. GUIVER, Land Agents, Ponder's End, Middlesex

**To Nurserymen, Landscape Gardeners, Florists, and SEEDSMEN.**

**FOR SALE**, an **OLD ESTABLISHED BUSINESS**, in one of the best suburbs of Birmingham, owing to a very serious accident in the present proprietor. The Nursery contains about 2½ Acres, and is well stocked with Shrubs, Trees, and Herbaceous Plants, and Four-Glass Houses, Seed Warehouse, Frames, &c., together with a Stall in Market Hall. The above is thoroughly genuine, and will be sold as a going concern. Possession can be had at once. Price £750. Full particulars from FLEETWOOD AND GOODEVE, Auctioneers and Valuers, 42, Cherra Street, Birmingham.

**TO BE SOLD or LET**, the well known **FREEHOLD MARKET GARDENS**, 9 miles north of London, and five minutes from Whetstone Station (G.N.R.), on account of the ill-health of occupier. They contain about 80,000 feet 21-in. Glass, with every modern improvement, erected within the last few years. Large Boilers, thousands of yards of Hot-water Pipes. Well stocked with Vines, Camellias, Cucumbers, Plants, &c.—noe *Camellia* 20 feet by 20 feet through; all in a high state of cultivation. Good House and Out-buildings, Cottages for men, Vans, Horses, Tools, &c.; occupying about 5 Acres. Part of Purchase-money can remain on Mortgage. There are, further, 13 Acres of Land which may be reserved for Building purposes.

May be seen by applying to Mr. DAVIS, on the premises; or Mr. DAVIS, Friern Lodge, Hereford; or Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, London, E.C.

To Florists.

**TO BE LET**, Rent Free, **EXTENSIVE SPACES and CONSERVATORY** in the **ROYAL AQUARIUM**, for Exhibition and Sale of Flowers, Shrubs, and Plants.

For conditions and other particulars, apply personally to the MANAGER.

**TO BE LET, on LEASE**, a **NURSERY**, comprising 2 Acres of good Garden Ground, Dwelling-house, nine Greenhouses (heated), Pits, Frames, &c. On opposite side of road, 12 Acres of Ground, large Dwelling-house, Stable, Barn, &c. Part stock taken at valuation. Established 20 years.

For particulars, address 31, Market Hill, Cambridge.

**T. HARPAM, PRACTICAL ROCK BUILDER** and **GENERAL HORTICULTURAL DECORATOR** for Caves, Waterfalls, Fountains, &c., 107, Church Street, Edgware Road, London, W.

To Landed Proprietors, &c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the **FORMATION and PLANTING of NEW GARDEN PARK GROUNDS** and **REMODELLING existing GARDENS**. Plans prepared, 115, Listria Park, Stamford Hill, N.

**JOHN KENNARD'S HORTICULTURAL** Sundries, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

Bridge of Allan, N.B.

**DR. A. PATERSON'S TESTIMONIAL**.—It is intended to prove the great respect entertained for Dr. A. PATERSON, as a Physician, a Man of Science, and a Friend of the Horticultural Art generally, by presenting him with a substantial Testimonial. The following are a few among the many subscribers:—

Messrs. PULLAR, Keirfield .. ..	30	Guineas.
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**THE ROYAL NORFOLK NURSERIES** COMPANY (late Ewing's), Eaton, near Norwich, can supply fine Plants of *MARECHAL NIEL*, and best varieties of *TEA* and *NOISSETTES*, *CLEMATIS JACKMANNI*, and others, 12s., 18s., and 24s. per dozen.

**JULES DE COCK, Ornamental Plant** Nurseries, Ghent, Belgium, offers to the Trade, per 100, in store pots:—*ARECA SAPIDA*, 12s.; *CHAMOROPS FORTUNEI*, 4s.; *COCOS WEDDELLIANA*, 40s.; *CORYPHA AUSTRALIS*, 5s.; *KENTIA FORSTERIANA*, 50s.; *PANDANUS UTILIS*, 15s.; *PHENIX RECLINATA*, 4s.; *P. TENUIS*, 8s.; *PTYCHOSPERMA ALEXANDREI*, 20s.; *SEAFORTHIA ELEGANS*, 7s.; *ARALIA SIEBOLDI*, 5s.; *DRACENA INDIVISA*, 8s.; *FICUS*, Head Cuttings, 50s.; *CLIVEA MINIATA SUPERBA*, 20s.

**NEW ROSES**.—One dozen of the best NEW *ROSES* of 1884-85 for 30s., including *Gloire Lyonnaise*, the new yellow H.P.; *Sunset*, the fine new American Tea; *Bedford Belle* and *Gipsy*, Laxton's two new varieties; *Bennett's Grace Darling* and *Pearl Bennett*, Etendard de Jeanne d'Arc, white *Gloire de Dijon*; *Perle d'Or*, the yellow *Polyantha*; *Mrs. Caroline Swales*, &c.

Basket and packing free for cash with order.

LIST of Pot Roses, &c., post-free.

Geo. COOLING and SON, The Nurseries, Bath.

**THE LIVERPOOL HORTICULTURAL** COMPANY (JOHN COWAN) Limited, have a large and fine stock of *EAST INDIAN* and other *ORCHIDS*, and they are constantly receiving fresh importations from various parts of the world. Full particulars of Orchids in stock, and also fresh importations, forwarded on application.

The Company have also a large and fine stock of *TEA* and other *ROSES* in pots, *GRAPE VINES*, *FERNS*, and other *ORNAMENTAL PLANTS*, which they offer at extremely moderate prices. LIST with full particulars on application. The Vineyard and Nurseries, Garstow, Liverpool.

To the Trade.

**SWEDE and their TURNIP SEEDS.**

**H. AND F. SHARPE** invite the attention of the Trade to their fine selected Stocks of home-grown *SWEDS* and other *TURNIP SEEDS* of 1884 growth, and raised from transplanted Bulbs. Prices and further particulars may be had on application.

Seed Growing Establishment, Wisbech.

**EIGHTY THOUSAND CLEMATIS** in Pots, of all the finest double and single varieties (some of the flowers of which become to inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.

RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

**SPECIAL CHEAP OFFER** of *VERBENAS*, *ALTERNANTHERAS*, *COLEUS*, &c.:

*VERBENAS*, White, Scarlet, Purple, and Pink. *ALTERNANTHERAS*, amœna, versicolor, Grandæse, magnifica, and pinnatifida majoraurea. *COLEUS* Verschaffeltii. *HELIO-TROPE* Miss Nightingale and President Garfield. All the above well-rooted plants at 6s. per 100, 50s. per 1000. *LOBELIA PUMILA MAGNIFICA*, 2s. 6d. per 100, 25s. per 1000.

Package included. Terms cash.

JOHN SOLOMON, Queen's Road Nursery, Walthamstow.

**NARCISUS**. Four Medals awarded Spring, 1885.

200,000 *NARCISUS TELAMONIUS PLENUS*,  
100,000 " *POTICUS FL-PL*,  
10,000 " *PALLIDA PRECOX*, true.

Above at very low prices.

Also over 100 varieties of the best kinds in cultivation (true to name, stocks proved).

*NARCISUS TRIANDRUS REFLEXUS*, "The Cyclamen-flowered Narcissus." We have secured a large stock of this very rare variety, and can offer very low. Price per 100, 500, or 1000 on application. Gentlemen wishing *Narcissus* or other bulbs to naturalise, kindly write us for prices, stating probable quantity. The Trade supplied.

COLLINS BROS. & GABRIEL,

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**100,000 VERBENAS, VERBENAS.**

Our Verbenas are again this year unusually strong, well-rooted, vigorous, and clean. Quite equal to previous years; which, according to unsolicited testimonials received, have given great satisfaction.

PURPLE, WHITE, CRIMSON, PINK, SCARLET, &c., 6s. per 100, 50s. per 1000. Sample Dozen, 1s.

Carriage Free for Cash with all Orders to  
**MESSRS. FLETCHER, SON & CO.,**  
FLORISTS, &c., CHESTERFIELD.

**ASPARAGUS.**

This delicious vegetable does not require half the expense often incurred; for directions see SEED LIST, free. Strong roots 2s. 6d. per 100; extra strong ditto, 2-yr., 3s. 6d. per 100; forcing, 12s. 6d. per 100.

**RICHARD SMITH & CO.,**  
NURSERYMEN and SEED MERCHANTS,  
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**SPECIAL CULTURE OF FRUIT TREES and ROSES.**

A large and select stock is now offered for sale. The Illustrated and Descriptive CATALOGUE of FRUITS post-free. The Descriptive CATALOGUE of ROSES post-free.

**THOMAS RIVERS & SON,**  
The Nurseries, Sawbridgeworth, Herts.

**TEA-SCENTED, NOISETTE, AND OTHER ROSES.**

The large "ROSEY" is full of Flowers and Buds, and will continue in its beauty for some time. Open to all Visitors from 6 A.M. to 6 P.M.

Vide *Gardeners' Chronicle* of February 28, page 269. "WILD ROSE," says:—"They range from the tiny house of the suburban lover of ROSES to the grand 'UNQUALLED' house of the Cranston's Company at Hereford."

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

**EXTRA CHOICE NAMED CARNATIONS and PICOTEEs,** 1s. 3d. per pair, or 6 pairs 6s.

**PYRETHRUMs,** double, choice named variety, 4s. per dozen.

**PHLOX,** Herbaceous, choice named variety, 4s. per dozen.

**PANSIES,** extra selected, in 12 varieties, both Show and Fancy, 2s. 6d. per dozen, 18s. per 100.

**VIOLAS,** the best varieties of White, Yellow, Peach, Blue, Sulphur, Purple, &c., 1s. 6d. per dozen, 10s. per 100.

**CHRYSANTHEMUMs,** in 12 of the very best varieties, either Japanese, Incurved, or Reflexed, 1s. 6d. per dozen, 10s. per 100; more varieties if required.

The above are all grand plants, from single pots. Send for CATALOGUE. All are Carriage Free for Cash with Orders to  
**MESSRS. FLETCHER, SON & CO.,**  
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**ALPINE AND HARDY HERBACEOUS PLANTS.****STANSFIELD BROTHERS**

Invite special attention to their unrivalled collections. Descriptive CATALOGUE, with Cultural Notes, Free, on application. 100 CHOICE PLANTS, our selection, 25s. 100 SAXIFRAGES, 25s.; 200, 60s.; distinct species. 25 PRIMULAS, 20s.; 50, 50s.; 70, 70s. 12 ERYNGIUMs, 5s.

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**HERBACEOUS And ALPINE PLANTS.**

CATALOGUE of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.

A CAPITAL COLLECTION for Rocks, Stumps and Borders, from 25s. per 100, or 4s. per dozen.

Most of the plants being in pots may be despatched at any time, or by Parcel Post when fit.

**RICHARD SMITH & CO.,**  
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**FERNS A SPECIALTY.**

Hundreds of Thousands of  
**FERNS AND SELAGINELLAS,**  
for Stove and Greenhouse Cultivation, and Outdoor Ferneries.  
**ABRIDGED CATALOGUE**  
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**LAROE CATALOGUE** (price 1s.), containing 75 Illustrations of Ferns and Selaginellas, valuable "Hints on Fern Culture," and other useful and interesting information.

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**1885.—DAHLIAS.—1885.****DOUBLE POMPON VARIETIES.**

A good collection, consisting of the varieties most showy in the borders, and those best adapted for cutting.

**SINGLE VARIETIES.**

The finest collection in the world, including 12 beautiful new varieties of present season.

**CACTUS and other DAHLIAS.**

A most interesting group, consisting of several colours. All are fine decorative plants, and beautifully fitted for cutting.

**DOUBLE SHOW and FANCY VARIETIES.**

All the leading varieties in cultivation, including the new ones of 1885.

Priced Descriptive Illustrated CATALOGUE may be had Gratis and Post-free on application.

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**R O S E S**

IN POTS; all the best New and Old English and Foreign sorts, from 18s. to 36s. per doz.

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**SWEDES, TURNIPS, MANGELS.**

As we are carrying a large Stock, all of our own contract growth, we shall be pleased to quote Special Prices and send Samples on application.

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Wholesale Seedsmen,  
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Splendid Seeds and Bulbs at low prices  
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**CUTBUSH'S MILL-TRACK MUSHROOM SPAWN.**—Too well known to require description. Price 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by Parcel Post, 1s. None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.  
**WM. CUTBUSH AND SON** (Limited), Nurserymen and Seed Merchants, Highgate Nurseries, N.

**CLEMATIS for Bedding.**

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**CLEMATIS for Everything Beautiful.**

Above all have the 10 Clematis awarded First-class Certificates by the Royal Horticultural Society.

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**NEW HAMPSHIRE SEED MAIZE.**

Very hardy. Quick growing. Ears over 6 inches long. Sent Free by Post, 1s.

**CHASE & CO.,**  
ADELAIDE BUILDINGS, LONDON BRIDGE, E.C.  
Exhibitors of Maize at Health Exhibition.

**CARNATIONS AND PICOTEEs.****THOMAS S. WARE**

Has much pleasure in drawing attention to his very fine collection of the above, including SHOW VARIETIES, BORDER VARIETIES, YELLOW GROUNDS, CLOVES, &c.

Priced List may be had upon application.

**HALE FARM NURSERIES,**  
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**NEW CATALOGUE FOR 1885.**

Beautiful Flowers for Indoors, selected from an immense stock. Our Glasshouses cover nearly 2 acres.

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Of the newest and finest varieties of all classes of Plants for Greenhouses, Stove &c., may now be had for two stamps. It includes only the best varieties of their respective classes. Every season new sorts are added. Comparisons of the varieties when in bloom carefully made, and the inferior kinds discarded. Intending purchasers may rely, when selections are ordered as under, on being supplied with varieties of merit only. The following cheap Collections of finest named kinds consist entirely of our selection. Purchasers may select from the Lists at Prices as per CATALOGUE, which please see before ordering elsewhere.

12 Abutilons, 12 sorts, 3s.	12 Geraniums of any or all classes, Zonalas for pots or beds, Ivy-leaf, Doubles, &c., 3s.
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12 Camellias, 12 sorts, 24s.	12 Palms, 6 sorts, 18s.
12 Chrysanthemums of any or all classes, Large Flowered, Pompon, Anemone, or Japanese, 2s. 6d.	12 Pelargoniums, Show, French, Fancy, &c., 9s.
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100 " 18s.	

**W. CLIBRAN AND SON'S NEW CATALOGUE** (free for two stamps) of Hardy Plants and Florists' Flowers for outdoors, is a list of the finest Collections in the Country of Low Priced Plants, and includes only varieties which are annually tested and compared to ensure the weeding out of all inferior plants. The following cheap Collections are of our selection only, all named sorts for Garden or Exhibition:—

12 each of ANTIRRHINUMs, PENTSTEMONs, PHLOXes, for 9s., or 12 of any separate for 3s. 6d.	12 PINKs, 6s.	12 PICOTEEs, 6s.	12 PINKs, 3s. 6d.
12 PYRETHRUMs, 5s.; 12 POTENTILLAs, 5s.; 12 DELPHINIUMs, 7s. 6d.; 12 PEONIES, 9s.; or 12 of each, 22s. 6d.	12 Show or Fancy PANSIES, 3s.; or 12 of each for 17s. 6d.		
12 DAHLIAS of any class, Show, Fancy, Bedding, Bouquet, or Single, 3s.; 50 varieties, 12s. 6d.; 100 varieties, 25s.			
12 lovely IRIS, 3s.; 12 beautiful MIMULUS, 3s.			
12 lovely PRIMROSES, Double, 6s.; 12 SAXIFRAGAS, 3s.			
12 SEEDS, 3s.			
12 Sweet VIOLETS, 2s. 6d.; 12 VIOLAS, 2s. 6d.; or 100 in four colours, 12s.			
12 beautiful Seedling HOLLYHOCKs, 4s. 5s. for 12s. 6d., 100 for 21s.			
12 beautiful PRIMULA SIEBOLDII, 12 sorts, 6s.			
40 Acres fine NURSERY STOCK.			
5 " HERBACEOUS PLANTS.			
2 " GLASS HOUSES.			

The Oldfield Nurseries, Altrincham, Cheshire, and the Seed and Bulb and Cut Flower Depot, 12, Market Street, Manchester.

**Clapton Nursery, London, E.**

Bush Hill Park Nursery, Enfield, N.

At the above-named Nurseries are cultivated, in unusually large quantities, Azaleas, Bouvardias, Camellias, Climbing Plants, Cyclamen, Epacris, Ericas, Ferns, Flowering and Decorative Plants in variety; Fruit Trees, Gardenias, Genistas, Grape Vines, Greenhouse Plants in variety; Palms, Pelargoniums, Rhododendrons, Roses, Shrubs, Stove Plants in variety, &c.

**ORCHIDS A SPECIALTY.**—The stock at the Clapton Nursery is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent. The glass structures cover an area of upwards of 236,000 superficial feet.

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cordially invite Gentlemen interested in Horticulture to inspect the Nurseries.



**SAMUEL SHEPPERSON**, Florist, Prospect House, Belper, Derbyshire, begs to offer the following Plants, all of which he can warrant true to name, and of the very finest strains grown:—

**PANSIES**, a Specialty, the Winners at all the Leading Shows. I can still supply the Leading Varieties from my grand Collection at 3s. per doz., carriage free.

**SINGLE DAHLIAS**, Seedlings, from New Varieties, all the Leading New Colours—cannot fail to produce a grand variety of good Plants, to bloom well. Twelve for 1s. free.

**PENTSTEMONS**, 100 Varieties, including the latest new sorts, from the most noted Scotch Raisers. No garden should be without these gems. Twelve distinct varieties, named, 3s., free.

**PENTSTEMONS**, Seedlings from the above, must produce a grand variety. Twelve for 1s., free.

**CALCEOLARIA** (Bedding) **FIMBRIATA**, the best Yellow yet grown. Twelve good Plants for 1s., free.

**FUCHSIAS**, a Specialty. Light and Dark Doubles and Singles, including the latest New Varieties from Lemoine, Fry, Smith, Lye, and other noted Raisers. Twelve distinct varieties, named, post-free for 2s., six for 1s. 2d.

**ANTIRRHINUMS** (Snapdragon), Striped, Spotted, &c., the very finest Scotch varieties. Twelve distinct sorts, named, 2s. 6d., free. Six for 1s. 6d.

**SAMUEL SHEPPERSON**, Florist, &c., Prospect House, Belper.

**KING'S NEW COLEUSES** for 1885. Now Ready.

**COUNTRESS OF DUDLEY**.—First-class Certificate of the Royal Horticultural Society. Large broad leaves, creamy-white, veined and edged with bright green (grand for exhibition), 5s. each.

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J. K. can supply nice plants of his popular varieties, being the finest coloured Coleuses in cultivation, at 6s. per dozen, post-free. LIST of COLEUSES on application to

**JAMES KING**, Seed Grower and Florist, Rowsham, Aylesbury, Bucks.

**ABUTILON**, new Double, 1s. 9d. each, post-free.

**VERBENAS**, Lemoine's new for 1885, having flowers with large white eyes, 6 for 3s. 6d., post-free.

**DAHLIAS**, Ware's splendid Single of 1884, 6s. per dozen, post-free.

**BEDDING PLANTS**, 14 dozen superior, for 29s., including 84 Geraniums, finest varieties, remainder in Verbenas, Petunias, Calceolarias, and Heliotropes; also 14 dozen for 22s., including 48 Geraniums. Carriage and package free 250 miles on the Great Western Railway or South-Western Railway, or by steamer to Glasgow and Irish Ports. All grown in 3-inch pots, and sent with balls of earth intact.

Descriptive CATALOGUE post-free.

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**CHEAP BEDDING PLANTS**. GERANIUMS, strong autumn-struck plants.

" Vesuvius (scarlet) Jean Sisley, Dazzler (crimson), Master Christine, Madame Vaucher, 1s. 9d. per dozen, 12s. per 100 from single pots, 10s. per 100 from stores.

" Happy Thought, C. P. Gem, May Queen, 2s. per dozen, 12s. per 100, from single pots.

**LOBELIA** (true), from cuttings, "Emperor William," 2s. 6d. per 100, 20s. per 1000.

**DAHLIAS**, Single, White Queen, Paragon, and other named sorts of all shades of brilliant colours, 2s. 6d. per dozen, 15s. per 100, from single pots.

" strong, named seedlings, 1s. 6d. per dozen, 10s. per 100.

" Double, best named show varieties, 3s. per dozen, 20s. per 100, from pots.

Liberal allowance to the Trade for large quantities. Package free. Plants allowed for carriage. Terms cash. CATALOGUE gratis.

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**New and Choice Chrysanthemums**.

**R. OWEN** begs to call attention to his choice collection, which comprises all the best new and old varieties. Strong Plants, twelve varieties for 1885, 5s. 1d. per 100; 18s. 2d. 6d.; best old varieties, 2s. 6d. per dozen—cuttings, 6d. per dozen less, post-free for cash. CATALOGUE one stamp.

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**William BADMAN** offers as under from store pots, all healthy, well-rooted, and fit for present potting:—

**TRICOLORS**—Mrs. Pollock, one of the best, 2s. per dozen, 15s. per 100; Lady Cullum, S. Dumaresque, Sir R. Napier, 2s. 6d. per dozen, 18s. per 100. Twelve choice varieties Tricolors, for 5s.

**SILVERS**—May Queen (Turner's), Flower of Spring, Prince Silverwings, Little Trot and Bijou, 2s. per doz., 10s. per 100.

**GOLD LEAF**—Crystal Palace Gem, 2s. per dozen, 10s. per 100; Happy Thought, 2s. 6d. per dozen.

**BRONZE**—McMahon, Black Douglas, Czar (best bedders), 2s. per dozen, 15s. per 100.

**SCARLET**—Vesuvius, Jean Sisley, Col. Seely, 1s. 6d. per dozen, 8s. per 100.

**PINK**—Master Christine, Mrs. Levers (fine), 1s. 6d. per dozen, 10s. per 100.

**WHITE**—Madame Vaucher and Virgo Marie, 1s. 6d. per dozen, 10s. per 100.

**CRIMSON**—Henry Jacoby, 2s. per dozen, 15s. per 100; Walham Seedling, 1s. 6d. per dozen, 8s. per 100.

**LOBELIA**—Brighton, Blue Stone, Punila magnifica, 3s. per 100, 20s. per 1000.

**HELIOTROPE**—Jean d'Amour, Miss Nightingale and Light, 6s. per 100.

**AGERATUM**—Imperial Dwarf Blue, 5s. per 100, 40s. per 1000.

**CALCEOLARIA**—Golden Gem and Dark Camden Hero, 5s. per 100, 40s. per 1000.

**COLEUS Verschaffeltii** and **IRENE** L'indeni, 5s. per 100.

**TROPÆOLUM**—Vesuvius, dwarf, good bedded, 8s. per 100.

**PELARGONIUMS**—Show and Fancy, in single pots, 3s. per dozen, 20s. per 100.

Packing included. Terms Cash.

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**CELEBRATED KERRY FERNS**, 30 fine Plants, 15 Varieties, including rare Filmy and 12 Rock Creepers, 3s. 1d. Rockery Roots, 5 lb. parcel, 3s. All free.

**FITZPEET**, Rathanny, Tralee, Kerry.

**CHEAP OFFERS OF PLANTS and BULBS.**

LIST sent on application.

**E. G. Henderson & Son**, Pine-Apple Nursery, Malda Vale, London, W.

Will supply any of the following, in choice varieties, selected by them:—

12 ORCHIDS, 12 choice varieties, 21s., 42s.

24 ORCHIDS, 24 choice varieties, 42s., 84s.

100 STOVE PLANTS, choice collection, 100 sorts, 42s., 63s.

12 MARANTAS, 6s., 9s.; 12 CROTONS, 6s., 9s.

12 DRACENAS, 6s., 9s.; 12 DIEFFENBACHIAS, 6s., 9s.

12 EUCARIS AMAZONICA and CANDIDA, 6s., 9s., 12s.

12 NEPENTHES (Pitcher Plants), 42s., 60s.; 12 IXORAS, 6s., 12s.

12 MAIDENHAIR FERNS, 12 sorts, 6s., 9s., 12s.

100 GREENHOUSE PLANTS, distinct collection, 42s., 63s.

12 ABUTILONS, choice, 6s., 9s.; 12 BOUVDARDIAS, sorts, 6s., 9s.

12 PALMS, elegant and graceful varieties, 6s., 9s., 12s., 18s.

12 CARNATIONS and PICOTEEES, 6s.; 12 PENTSTEMONS, 4s., 6s.

12 Tree or Perpetual Flowering CARNATIONS, 6s., 9s.

12 CLOVE CARNATIONS, 3s.; 12 HOLLYHOCKS, 4s., 6s.

12 PINKS, choice, 3s.; 100 ditto, 21s.; VERNAL CARNATIONS, 18s. per dozen, Tree and Garden varieties.

**CALADIUMS.**

**E. G. HENDERSON AND SON'S**

**SUBERB COLLECTION.** Fine bulbs. Post-free. 12 distinct and beautiful varieties, 6s. and 12s.; 12 choice and rare varieties, 21s.; 12 new and golden-leaved varieties, 42s.; 50, choice collection, 50 varieties, 63s.

**ANTHEMIS TINCTORIA**

*var. pallida.*

The most beautiful of all the hardy Margerites, the flowers delicate sulphur-yellow, abundant bloomer. First-class for cutting, and should be grown freely wherever cut flowers are in demand.

9d. each, 8s. per dozen.

Carriage free.

**DANIELS BROS.**, The Town Close Nurseries, Norwich.

**GARDEN REQUISITES.**

**COCOA-NUT FIBRE REFUSE.**

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.

**LIGHT BROWN FIBROUS PEAT**, 5s. 6d. per sack; 5 sacks 25s.; sacks, 4d. each.

**BLACK FIBROUS PEAT**, 5s. per sack; 5 sacks 22s.; sacks, 4d. each.

**COARSE SILVER SAND**, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton, in 2-bushel bags, 4d. each.

**YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD**, 1s. per bushel.

**SPHAGNUM MOSS**, 5s. 6d. per sack.

**MANURE, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c.** Write for Free Price LIST.—**H. G. SMYTH**, 21, Goldsmith's Street, Drury Lane (late 174, Coal Yard), W.C.

**GARDEN REQUISITES.**

**TWO PRIZE MEDALS.**

**Quality, THE BEST in the Market.** (All sacks included.)

**PEAT**, best brown fibrous .. 4s. 6d. per sack; 5 sacks for 20s.

**PEAT**, best black fibrous .. 3s. 6d. " 5 sacks for 15s.

**PEAT**, extra selected Orchard 5s. 0d. " 5 sacks for 15s.

**LOAM**, best yellow fibrous .. 1s. 9d. per bushel.

**PREPARED COMPOST**, best .. 11s. per bush. (sacks included).

**LEAF MOULD**, best only .. 11s. per bush. (sacks included).

**PEAT MOULD** .. 11s. per bush. (sacks included).

**SILVER SAND**, coarse, 1s. 3d. per bush, 12s. half-ton, 22s. ton.

**RAFFIA FIBRE**, best only .. 1s. per lb.

**TOBACCO CLOTH**, finest imported .. 8d. lb., 28 lb. 18s.

**TOBACCO PAPER** (Speciality) 8d. lb., 28 lb. 18s.

**MUSHROOM SPAWN**, finest Milltrack .. 5s. per bush.

**SPHAGNUM MOSS**, all selected, 2s. per bush, 6s. per sack.

**COCOA-NUT FIBRE REFUSE** (by Chubb's special process), sacks, 1s. each; 10 sacks, 9s.; 15 sacks, 12s.; 20 sacks, 17s.; 30 sacks, 25s.; 40 sacks, 30s. Truck-load, loose, free on rail.

25s. Limited quantities of C., special quality, granulated, in sacks only, 2s. each. Terms, strictly Cash with order.

**CHUBB, ROUND & CO.**, WEST FERRY ROAD, MILWALL, LONDON, E.

**BEESON'S MANURE**

Is the best for all Horticultural Purposes.

Sold in Tins at 1s. 2s. 6d., and 10s. 6d. each; also in Sealed Air-tight Bags, containing 1 cwt., 13s.

The 10s. 6d. Tins serve as a strong substantial receptacle to refill from the 1 cwt. bags.

Supplies can be obtained through all respectable Nurserymen, Seedsmen, and Florists in the Kingdom; or, in districts where no Agents reside—Carriage Paid for Cash with Order—direct from the MANUFACTURER.

**W. H. Beeson**, Carbrook Bone Mills, Sheffield.

Testimonials from the Rev. Canon Hole, and most of the leading Gardeners, free on application.

Pure Crushed Unbaked BONES, any size, for Vase Borders, &c.

WHOLESALE AGENTS IN LONDON, **CORRY, SOPER, FOWLER & CO. (Limited).**

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**COCOA-NUT FIBRE REFUSE.**—Reduced price. The same as supplied to the Royal Horticultural Society of England. Truck-load, loose, of 2 tons, 20s. Large quantities contracted for. In sacks:—Ten, 8s.; twenty, 15s.; forty, 25s., bags included. Free on Rail. Cash with all orders.—**J. STEVENS AND CO.**, Cocoa-nut Fibre Merchants, "Greyhound Yard," and 153, High Street, Battersea, S.W.

**COCOA-NUT FIBRE REFUSE.**—Best and fresh only, 1s. per bag; 15 bags, 12s.; 30 bags, 22s., sent to all parts; trucks, 22s., free to Rail. **PEAT and LOAM.**—**A. FOULON**, 39, St. Mary Axe, London, E.C.

**Weeds. How to Destroy them.**—Use **SMITH'S** Celebrated **WEED KILLER**, the cheapest and most effectual preparation ever invented. For testimonials and prices address **MARK SMITH**, Manufacturing Chemist, Louth, Lincolnshire.

**12-oz. Sample Packets, free by post, 12 stamps.**  
**FIBROUS PEAT** for ORCHIDS, &c.—**BROWN FIBROUS PEAT**, best quality for Orchids, Stove Plants, &c., £6 6s. per Truck. **BLACK FIBROUS PEAT**, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bag, 5s.; 5 Bags, 22s. 6d.; 10 Bags, 45s. Bags included. Fresh **SPHAGNUM**, 10s. 6d. per Bag. **SILVER SAND**, Coarse or Fine, 52s. per Truck of 4 tons. **WALKER AND CO.**, Farnborough Station, Hants.

**EPPS'S SELECTED PEAT.**—Forty sacks, 2s. 6d. per sack; 30 ditto, 2s. 9d.; 20 ditto, 3s. 6d.; 10 ditto, 4s. 6d.; sacks, 6d. each. In trucks of 14 cubic yards, 11s. per yard. For Rhododendrons and common purposes, 14s. per ton, not less than four tons; sample sack, 2s. 6d.

**LOAM, SAND, LEAF-MOULD, SPHAGNUM, &c.** See Special List, also for the Trade. Ringwood, Hants.

**GENUINE GARDEN REQUISITES**, as supplied to the Royal Gardens.—Fresh Cocoa-Nut Fibre Refuse, 4 bushel bags, 1s. each; 30 for 25s.—bags included. Two Ton Truck, free on Rail, 25s. Best Brown Fibrous Kent Peat, 5s. per sack; 5 for 22s. 6d.; 10 for 35s.; 20 for 60s. Best Black Fibrous Peat, 4s. 6d. per sack; 5 for 20s.; 10 for 30s. Coarse Bedford Peat, 1s. 6d. per bushel; 14s. per 1/2 ton; 25s. per ton. **SPECIALITE TOBACCO PAPER**, 20d. per lb.; 28 lb., 21s.; cwt., 70s. Second quality, 7d. per lb., 28 lb. 16s. Finest Tobacco Cloth, 8d. per lb.; 28 lb. for 18s. Leaf-Mould, 5s. per sack. Peat-Mould, 4s. per sack. Yellow Fibrous Loam, 3s. per sack. Charcoal, 2s. 6d. per bushel. Bores, Guano, Sphagnum, &c. LIST free. Special prices to the Trade for cash. **W. HERBERT AND CO.**, HOP EXCHANGE WAREHOUSES, SOUTHWARK STREET, S.E. (near London Bridge).

## HORTICULTURAL PREPARATIONS.

The best and most effectual yet introduced.

**FOWLER'S LAWN SAND**, for destroying Daisies, Dandelions, Plantains, Ribbed Grass, Thistles, and other weeds on Lawns, Croquet Grounds, Bowling Greens, Parks, &c.; at the same time acting as a fertiliser, and improving the growth and colour of the grass. Price in tins, 1s., 2s. 6d., and 5s.; kegs, 20 lb. 10s.; 56 lb. 10s.; 112 lb. 10s.

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**EWING'S MILDEW COMPOSITION**, for the prevention or destruction of Mildew on all plants. In bottles, 1s. 6d. and 3s. each.

**ELLIOTT'S IMPROVED "SUMMER CLOUD"** Shading for Greenhouses, &c. For efficacy, economy and lasting effects this article remains unrivalled. In packets, 1s.; 10 lb. 28s.; 28 lb. 50s. See that the Packets have the above Trade Mark, without which none are genuine.

**CORRY, SOPER, FOWLER & CO., Limited**, SOLE MANUFACTURERS, LONDON.

## NORWEGIAN FISH-POTASH GUANOS.

Composed of Pure Flesh and Bone of Cod and Herring and Refined Potash.

A Perfect Fertiliser for Garden and Greenhouse, Lawns and Tennis Courts, Vegetables, Flowers, Exotics and Fruit Trees.

Prices, carriage paid, on receipt of Post-office Order: 28 lb., 6s. 6d.; 56 lb., 10s. 6d.; 1½ cwt., 20s.; 2 cwt., 30s.; 5 cwt., 60s. Bags free.

Larger Quantities at Special Prices, for which, and for Analysis, &c., apply to

**J. JENSEN & CO.**, 10, ST. HELEN'S PLACE, LONDON, E.C. **Manufactory**—**BRETTESENES, LOFFOTEN ISLANDS, NORWAY.**



# PAUL AND SON, THE "OLD" NURSERIES, CHESHUNT, N.,

HAVE THE PLEASURE TO OFFER

THREE NEW ENGLISH-RAISED ROSES for 1885.

*Ready June 1—strong plants in pots—the set for 21s.*

## Hybrid Perpetuals.

**PRIDE OF REIGATE** (Mr. J. Brown and Paul & Son).—The finest striped with white crimson perpetual Rose. Light crimson of Comtesse d'Oxford, from which it sported, charmingly striped with white. As tried here it seems constant and novel, and every care has been taken to fix it permanently. Plants in pots, June 1, 10s. 6d. each.

**MADAME NORMAN-NERUDA** (Paul & Son).—A new flower of the Beauty of Waltham type, but of lighter cherry-carmine. Of medium size, perfect form—a good autumnal. 7s. 6d. each.

**LONGFELLOW** (Paul & Son).—Rich violet-crimson, fine Charles Lefebvre shape: may be called a violet form of that Rose. A desirable addition to the real hardy perpetuals. 7s. 6d. each.

**CHESHUNT-RAISED ROSES** and those sent out by **PAUL & SON**—as **LORD CLYDE**, **DUKE of EDINBURGH**, **CHESHUNT HYBRID**, **ANNIE LANTON**, **SULTAN of ZANZIBAR**, **DUKE of TECK**—named in the *CATALOGUE*.

## PELARGONIUM, "VOLONTÉ NATIONALE ALBA."

Awarded First-class Certificate Royal Horticultural Society, May 12, 1885.

## FREDERICK PERKINS

Has great pleasure to announce that he is now prepared to distribute this splendid new Geranium, which is a sport from the well-known favourite *Volonté Nationale*, with splendid large fringed flowers, of the purest white. A strong grower and continual bloomer, and will be invaluable for cut flowers and every description of decorations.

Strong Plants, 10s. 6d. each. Post-free for cash.

*Sample Flowers sent to intending purchasers.*

FREDERICK PERKINS,  
NURSERYMAN, REGENT STREET, LEAMINGTON.

ROYAL HORTICULTURAL SOCIETY.

### ORCHID CONFERENCE

AT SOUTH KENSINGTON, MAY 12-13.

### TWO SPECIAL NUMBERS

OF THE

GARDENERS' CHRONICLE.

THE

### GARDENERS' CHRONICLE

*for this day, MAY 16, contains a*

DOUBLE-PAGE ENGRAVING REPRESENTING A

### GROUP OF ORCHIDS,

A PORTRAIT OF

PROFESSOR REICHENBACH,  
the Historian of the Orchid Family; and a

### FULL REPORT

OF THE

### ORCHID EXHIBITION

AND CONFERENCE,  
&c., &c.

THE

### GARDENERS' CHRONICLE

*for last Saturday, MAY 9, contains a*

### SPECIAL 8-PAGE SUPPLEMENT,

CONTAINING AN ALPHABETICAL

LIST of all the GENERA of ORCHIDS,

TOGETHER WITH A

### MAP

(2 feet 3 inches by 1 foot 7 inches),

Showing their Geographical Distribution according to

CLIMATE, RAINFALL, &c. ;

PORTRAIT of Sir TREVOR LAWRENCE, Bart., M.P.,

President of the Royal Horticultural Society and

of the Conference,  
&c., &c.

Both Numbers contain a variety of Illustrated Articles relating to

### DOUBLE-FLOWERED ORCHIDS,

to the Structure, Conformation, and

### MODE OF CULTIVATION

of these Plants,

and to the Insects and Parasites that attack them, together with

much information of interest to

AMATEURS AND PROFESSIONAL CULTIVATORS.

Either of the above Numbers will be sent post-free for 5½d. stamps, or both for 11d. stamps.

May be had of all Booksellers and New Agents, and at the Railway Bookstalls.

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

# GARDEN FURNISHINGS



TO BE HAD FROM ALL IRONMONGERS & NURSERYMEN.

SPECIAL ISSUE OF NEW DESIGNS in GARDEN CHAIRS & ROLLERS  
AT REDUCED PRICES FROM FORMER LISTS  
SINGLE CYLINDER ROLLERS, 16x16, 20x20 AND 24x24 DOUBLE DO? SAME SIZES.

LONDON, E.C. ...  
LIVERPOOL ...  
GLASGOW ...



... 15, UPPER THAMES ST.  
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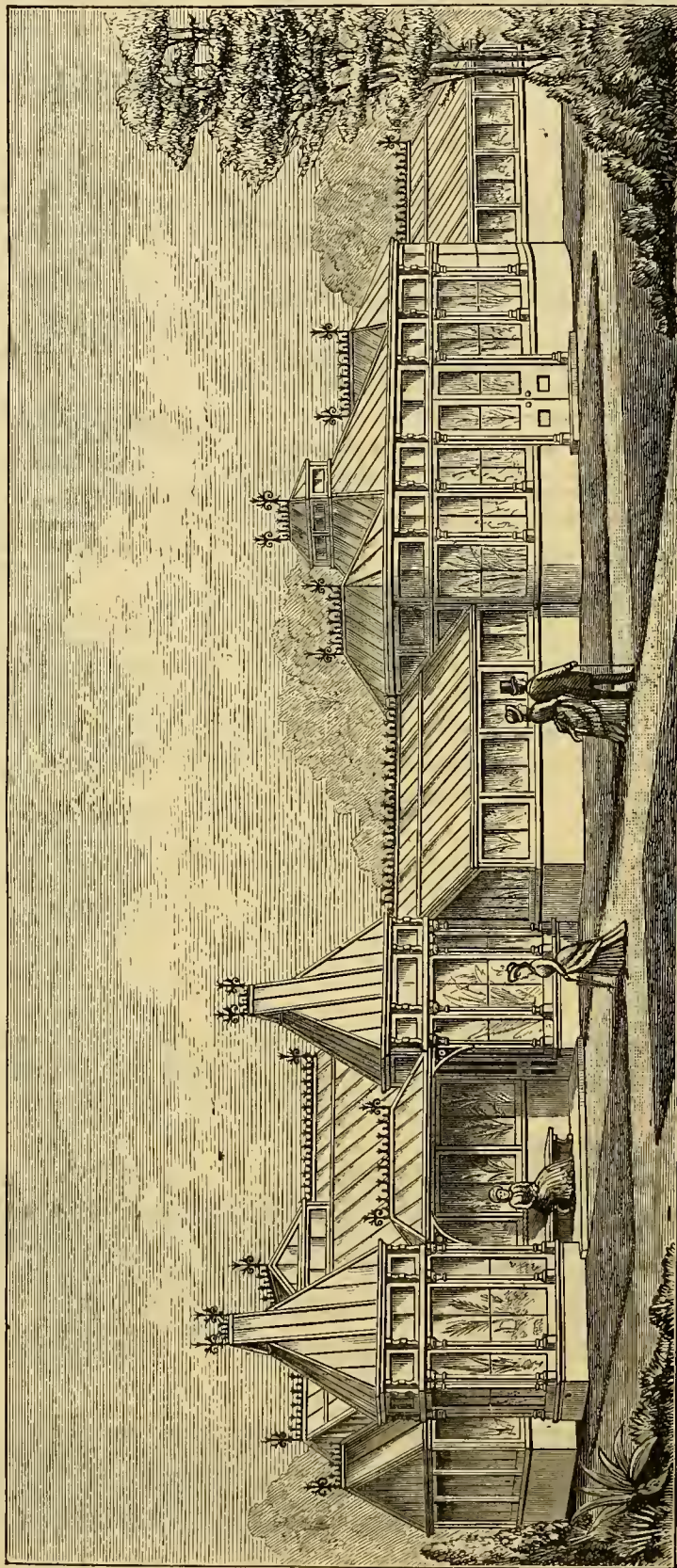
CARRON WORKS, FALKIRK, N.B. DAVID COWAN, MANAGER

Special Quotation for Quantities.

Special Quotation for Quantities.



# RANGE OF PLANT HOUSES



## DESIGNED

and recently erected by J. WEEKS & CO., Horticultural Engineers, King's Road, Chelsea, London, S.W.,  
at Old Sneed Park, Bristol, for F. Tagart, Esq.

*Illustrated "BOOK of DESIGNS" and ESTIMATES Post-free.*

Address, J. WEEKS & CO., as above.





## NEW PLANTS FOR 1885.

## B. S. WILLIAMS

Begs to announce that he is now sending out, for the first time, the undermentioned

## NOVELTIES:—

	s.	d.
ABUTILON, Golden Fleece ... ..	5	0
ADIANTUM macrophyllum bipinnatum ...	21	0
AMARYLLIS, Baron Ferdinand de Rothschild ... ..	21	0
CHRYSANthemUM, Madame Le Crux ... ..	5	0
CROTON, Prince Henry ... ..	21	0
CROTON, Sunshine ... ..	21	0
DAVALLIA fœniculacea ... ..	21	0
DIPLADENIA, Lady Louisa Egerton ...	21	0
DIPLADENIA, Thomas Speed ... ..	21	0
FUCHSIA, Lord Ardilaun ... ..	7	6
FUCHSIA magniflora ... ..	7	6
FUCHSIA, Mrs. Barry ... ..	7	6
METROSIDEROS floribunda alba ... ..	10	6
PELARGONIUM, Mrs. Keiller ... ..	5	0
PHLOX, Thomas Easton ... ..	3	6
RHODODENDRON Williamsii ... ..	21	0

For full descriptions see NEW PLANT CATALOGUE for 1885, now ready, post-free.

## SPECIAL NOTICE.

## GRAND EXHIBITION

OF

## ORCHIDS,

Stove and Greenhouse Flowering and Foliage Plants.

Open to the Public from May 11 to June 30, from 9 a.m. till dusk daily (Sundays excepted).

ADMISSION FREE to those who have received Invitations,

OR UPON PRESENTATION OF CARD.

A large Show House, 100 feet long by 22 feet wide, and an Odontoglossum House, 80 feet long, will be especially devoted to the Orchid Exhibition, and visitors may rely upon seeing these beautiful plants with the greatest degree of comfort, the ventilation and means of ingress and egress, as well as the great width of the paths being all that can be desired. The other Show Houses will be gay with our large collection of Stove and Greenhouse Flowering and Foliage Plants, which have figured at the leading Shows, both at home and abroad, for many years, with uninterrupted success. In addition, the large Winter Garden, 100 feet long by 40 feet wide, will be filled with a fine show of Foliage and Flowering Plants, and will form an agreeable lounge to those wishing to avail themselves of this cool retreat.

## B. S. WILLIAMS,

Victoria and Paradise Nurseries,

UPPER HOLLOWAY, N.

## NEW ROSES.



## WM. PAUL &amp; SON,

Rose Growers by Appointment to Her Majesty the Queen,

## WALTHAM CROSS, HERTS,

respectfully invite attention to the following New Roses:—

## The "WALTHAM CLIMBING" ROSES, Nos. 1, 2, and 3.

Crimson Roses, of different shapes, and distinct shades of colour; No. 1 being the lightest, and No. 3 the darkest. They are seedlings from Gloire de Dijon, possessing all the good qualities of that well-known variety, and are recommended as supplying a long-felt want in the garden, namely, good hardy crimson autumn-flowering Climbing Roses, with fine foliage.

Plants ready the end of May, 10s. 6d. each, or 21s. the set of 3 varieties.

## W. F. BENNETT (Hybrid Tea-scented).

This Rose is recommended by the raiser (Mr. H. Bennett), as the finest red Rose yet introduced for winter blooming and cut blooms at all seasons. The flowers sent to Covent Garden have always realised higher prices than other red Roses in the market at the time. It is of the same colour as Général Jacqueminot, and from its size and the freedom with which the blooms are produced, it has been likened to a crimson "Niphetos."

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LADY OF THE LAKE (H.P.) Peach colour.	
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THE

## Gardeners' Chronicle.

SATURDAY, MAY 16, 1885.

## THE ORCHID CONFERENCE.

IN the following pages we give the text of the papers read at this meeting. The discussion upon them is briefly reported at another page. For the use of the illustrations which accompany Mr. Harry Veitch's paper we have to acknowledge the courtesy of the *Journal of Horticulture*. Professor Reichenbach's communications had reference to the formation of buds on roots, to the occurrence of three lips and of pelorioid flowers, as described and figured in our last issue, and to the affinities of the genus *Luddemania*.

## PROLIFEROUS ROOTS OF ORCHIDS.

There have been various records of buds originating on roots of Orchids lately, as in the instances quoted by Messrs. Lendy and Salter. I have long since attached great interest to such cases, but I have made only a few observations, one plant only having showed me this method of propagation. It is the Bird's-nest Orchid, *Neottia Nidus-avis*, which very often perishes after having flowered, while in other cases it produces fresh shoots from the axils of certain sheaths. In other cases it produces a fresh plant at the very top of a root-fibre. I saw this as long ago as 1849, when I observed the fact at Tharant. I learned very lately that it had been observed before by T. P. E. Vaucher, in 1841. After Vaucher and myself it was seen by Irmisch, Prillieux, Hofmeister—who got it from me; then it was formally denied by Drude, but re-observed and neatly described by Warming, the excellent Scandinavian botanist.

The second case was observed in my *Phalænopsis deliciosa*, gathered in 1843 by Zollinger. My specimen shows a young plant on a root having just emitted a small rootlet of its own as described by Mr. Salter. This specimen can be seen in my herbarium.

The third case is a sad one. A *Cyrtopodium* (if I remember well, a savannah plant from Venezuela) produced a fine shoot from a root in Consul Schiller's collection, under Mr. Schmidt's able management, I believe, in 1867. I watched it carefully, but at length a young assistant gardener broke it accidentally, and threw the shoot and part of the root away, hoping the loss would never be remarked.

The last case is that of *Saccolabium micranthum*, Lindl. Director Lucien Linden lately sent me a fine Cochinchinese plant, with a young two-leaved shoot on a root. The whole plant was boiled and carefully dried. It may be seen in my herbarium.

## THREE-LIPPED ORCHIDS.

I had seen various monstrous accidental cases of this kind. In all these there were no anthers developed at all, and the genuine free style had a terminal upright stigmatic hollow, without the least pronation (deflexion). The finest thing of this kind that ever came in my reach was a grand flower of



*Oncidium Papilio* with three lips, three sepals, and a fusiform Apostasioid style, without the least indication of anthers or filaments. It was most kindly presented me by my excellent second eldest English correspondent, Mr. J. Day. I remember to have seen a very fine Cattleyoid flower of this kind (if I remember aright, *Lælia elegans*) in the hands of Mr. Thistelton Dyer.

All these cases were accidental, and as the stamens were absent I adopted the view of an *antagonismus* [compensation], the column being reduced, and partly made normal, to pay the vast expense of the luxury of three lips.

Some instances have, however, occurred to me, in which, together with three lips, the column was normal. This was observed a second time on the next shoots of the same plants.

The first case was that of *Oncidium prætexum* Leeanum. The Sanderian traveller, Mr. Osmer, was struck by a panicle laden with such flowers, so that he made the laudable, but unusual, attempt to dry them. They are now, thanks to Mr. Sander's liberality, by my side, eight in number. The plant itself is in the glorious collection of Mr. William Lee, where it produced equal flowers, eleven of which lie before me, thanks to the kind possessor, who will, I hope, watch his precious unique, telling us how long it lasts trilabelliac.

The second case was observed by my highly valued correspondent, Major Lendy, both in 1884 and 1885. It is not quite so evident as the just quoted *Oncidium*, inasmuch as the *Phalænopsis Stuartiana* Lendyana has but one normal lip. Yet the petals approach much more lips than petals. The blunt triangular blades are unguiculate, and bear a callus over the mid base of the lamina.

The third case is that of *Dendrobium nobile* Cooksonianum of Mr. Norman C. Cookson. The flowers are very distinct from those of the *D. nobile* Tollianum, having the petals very thick and hairy over the base, and with the same colour as the lip.

#### LÜDDEMANNIA (CYCNOCHES) PESCATOREI.

This so-called "genus" has proved exceedingly vexatious. It was the late Schlim who discovered it near Ocaña when these were fresh hunting grounds. Director Linden sent a plant to the late Pescatore, of La Celle de St. Cloud. There it flowered. I think but one flower is preserved in Dr. Lindley's collection. I have four of that typical inflorescence. Dr. Lindley took it to be a new *Cycnoches*, an opinion we have seen lately re-accepted by an author, who acting on his own principles, should have avoided doing so, as both the leaves and bulbs are those of an *Acineta* in our plant, while all the *Cycnoches* have them like those of *Catasetum* and *Mormodes*. As soon as I obtained both garden and wild-grown materials I published my genus *Luddemannia* in honour of my late friend Luddemann, who had flowered it.

Director Linden having secured what one then called a great supply, let us say thirty plants, sent them to his correspondents, and acquired, by-the-by, a certain stoicism in enduring the most unfriendly letters from his customers, who accused him of sending *Acinetas* for *Cycnoches*, and asking for the genuine plant. I believe Mr. Louis Schlim sent a second lot, all of which flowered as *Acinetas*. I remember to have seen Mr. Kefenstein, of Kröllwitz bei Halle a. S., quite angry about this, my *Acineta erythroxantha*, which he had paid for as a *Cycnoches*, 1856. Director Linden, after having fully acknowledged Mr. Schlim's so often proved accuracy, told me all his bad experiences, finally adding, "*Je n'y vois que du feu.*" As to poor Schlim, who may have got *des lettres à cheval* from Mr. Linden, he expressed his sentence on a label I have, stating, "*monstre d'un Peristeria.*" The case was nearly forgotten: almighty Time had washed away the bad impression.

The "genus" reappeared with Messrs. Veitch. A fine rich plant was literally laden with pendent

young inflorescences, none of which had developed and proved to appear a fresh *Luddemannia*, showing fine marks of distinction. Messrs. Veitch were so very kind to let me have the plant. Unfortunately all the inflorescences perished *en route*, notwithstanding the excellent packing of the firm, but when the plant flowered next year it showed me the abominable inflorescence of *Acineta erythrocantha*.

A quite different *Luddemannia*, the third one, appeared with a stiff erect inflorescence and quite peculiar flowers. It was discovered in January, 1878, by the late Wallis, who stated that it had the bulb of an *Acineta* and the leaf of a *Peristeria*. I am afraid Wallis made a mistake. I suppose Wallis intended to write that it had the bulb of a *Peristeria*, and thus it might be a sexual form of *Peristeria elata*. Grand inflorescences of the old *Luddemannia* *Pescatorei* were collected and admirably dried for me by Mr. B. Roezl.

Finally, good plants of *Luddemannia* were gathered by Messrs. E. Klaboch and Lehmann, perhaps on the same spot. I am not sure who came first. The majestic likeness presented at the sale is well known. I was led to regard Mr. Lehmann's plant as a new type from his representation and description, and the one dried inflorescence. The other inflorescence and two fresh ones proved to be the typical *L. Pescatorei*. I had the first from Consul Kienast Zölly, Hinslanden, Zurich; the other from an English benefactor, whose name will be, I hope, kindly supplied by Mr. F. Sander, who forwarded me a very well grown grand specimen.

It is my ardent desire to receive once more fresh illustrations of the pleiomorphic state of those flowers which may be sexes of *Acineta*, perhaps also of *Peristeria*. I have obtained well developed seeds from the *Acineta erythroxantha* produced from the *Luddemannia* of Messrs. Veitch. I hope much from the most skilful observer, Herr Consul Kienast Zölly, and of the English gentleman who had such fine flowers. I expect Director Linden, of Brussels, will feel a certain satisfaction if reading this note.

#### HYBRIDISATION OF ORCHIDS.\*

HISTORY.—In a communication "On Hybridisation among Vegetables," by Dean Herbert, of Manchester, published in 1847 in the second volume of the *Journal* of the Horticultural Society of London, I find the following remarkable passage:—"Cross-breeding amongst orchidaceous plants would perhaps lead to very startling results; but, unfortunately, they are not easily raised from seed. I have, however, raised *Bletia*, *Cattleya*, *Herminium monorchis*, and *Ophrys aranifera* from seed; and if I were not, during the greater part of the year, absent from the place where my plants are deposited, I think I could succeed in obtaining crosses in that order. I had well-formed pods last spring of *Orchis* by pollen of *Ophrys*, as well as of other species of *Orchis* which had been forced; and if I had remained on the spot I think I should have obtained some cross-bred orchidaceous seed. An intelligent gardener may do much for science by attempts of this kind if he keeps accurate notes of what he attempts, and does not jump at immature conclusions."

This is the earliest authentic information I have been able to obtain of attempts to raise new forms among Orchids by cross-breeding, and with what success the Dean himself has told us in his own words. At that time, and for some years afterwards, there was a prevalent notion among gardeners that muling among Orchids was an impossibility; and, so far as I am aware, no one attempted it besides Dean Herbert till it was taken up by Dominy at our Exeter nursery about the year 1853. The cause of the prevalent belief of that age in the impossibility of hybridisation among Orchids is not, I think, far to seek.

Dean Herbert was a man of science, and was well acquainted with the structure of Orchid flowers; to him their fertilisation by hand presented no difficulty. To horticulturists and gardeners it was quite different; not only had they, in common with many others, not the slightest suspicion of the fertilisation of Orchids by insect agency, but, moreover, very few of them possessed even an elementary knowledge of botany. They could, it is true, distinguish accurately the stamens and pistils of many flowers familiar to them, and they were aware of the functions of those

organs, but the confluence of those organs into the solid column of an Orchid flower was to them a profound mystery. It was unfortunate, too, that Dean Herbert's injunction to keep accurate notes of what was attempted was not followed in the early days of



FIG. 121.—A, SEED OF PHALÆNOPSIS; B, SEEDLING PHALÆNOPSIS, FOUR MONTHS.



FIG. 122.—A, PHALÆNOPSIS, NINE MONTHS; B, PHALÆNOPSIS, FIFTEEN MONTHS.

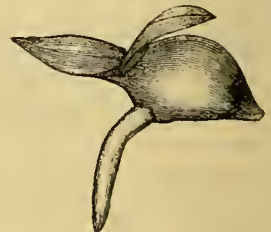


FIG. 123.—PHALÆNOPSIS, TWENTY-TWO MONTHS.

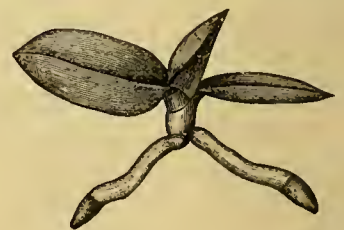


FIG. 124.—PHALÆNOPSIS, TWO YEARS AND A QUARTER.



FIG. 125.—PHALÆNOPSIS, THREE YEARS.

Orchid hybridisation, whence the uncertainty that still hangs over the parentage of some of the earlier acquisitions.

It was Mr. John Harris, a surgeon of Exeter, who suggested to Dominy the possibility of muling Orchids, and who pointed out to him the reproductive organs seated in the column, and showed

\* Paper read by Mr. H. J. Veitch, F.L.S., at the Orchid Conference, held at South Kensington, Wednesday, May 13.



that the application of the pollinia to the stigmatic surface was analogous to the dusting of the stigma of other flowers with pollen. This simple fact being once fairly grasped, the work of hybridisation proceeded apace. The flowers of showy species of *Cattleya*, *Lælia*, *Calanthe*, &c., were fertilised with the pollinia of other species, and even the flowers of supposed different, but of course allied genera, were also operated upon in the same way. Capsules were produced in abundance, which in due course proved their maturity by dehiscing, and thus the long and anxiously desired seed was at length at hand.

#### THE RAISING OF SEEDLINGS.

Then arose a great difficulty—a difficulty which still exists, and which our long experience has enabled us to make only a short step towards overcoming—to discover the most suitable method of raising seedlings and getting them established. The seeds of Orchids are minute chaffy bodies of extreme lightness. So minute are they that an ordinary pocket lens is powerless to enable one to know whether the seeds are likely to contain a germ or are mere lifeless dust. When growing wild it is evident that the contents of the mature capsules after dehiscence are more or less scattered by the wind—perhaps wafted to great distances until they settle on the branches of trees, on shelving rocks, or other suitable situations, where the seeds can germinate, and the seedlings firmly affix themselves.

Following, or at least believing that we were following, Nature so far as the altered circumstances of artificial cultivation allowed, every method or available means that could be thought of was brought into request to secure the germination of the seed. It was sown upon blocks of wood, pieces of Tree Fern stems, strips of cork, upon the moss that surfaced the pots of the growing plants—in fact, in any situation that seemed to promise favourable results. But as it was in the early days of Orchid hybridisation, so it is now, we seem as far off as ever from hitting upon a method by which at least a moderate amount of success may be calculated upon; failures were at first, as now, innumerable, and numberless such are without doubt inevitable.

#### CAUSES OF FAILURE.

Among the most cogent causes of failure in the raising of seedling Orchids there can be no doubt that the altered conditions of climate, especially the deficiency of sunlight, and the artificial treatment to which the plants are necessarily subject in the glass-houses of Europe, are the greatest. The capsules neither can nor do attain the perfection natural to them in their native countries, and it is more than probable that, independently of the capsules grown in our houses being the production of cross-breeding, they do not yield a fractional part of the quantity of good seed they would do in their native land. And so with their progeny; the tender seedlings are brought into life under circumstances so different from what they would have been in their native land that it is not at all surprising that multitudes of them perish in their earliest infancy. The capsules are not only less perfect in our houses than they would be in a state of Nature, but they also require a longer time to arrive at maturity, a circumstance that must tell against the progeny. The cause of this is also climatic—chiefly, of course, the enormous diminution of sunlight and sun-heat.

To make this clear I will adduce one illustration, and for that purpose I select the New Granadian *Cattleyas* of the Labiata group, because they are among the best of subjects for the operations of the hybridist. These *Cattleyas* have their home chiefly in the ravines and valleys of the Cordilleras, at elevations ranging from 2000 to 5000 feet above sea-level, and between the 2d and 10th parallels of north latitude. The plants, by being transferred from proximity to the equator, where on clear days the sun darts his rays either perpendicularly upon the place in which they are growing, or at a comparatively small angle to them, to a high latitude like ours, where the smallest angle at which the sun's rays can fall upon our houses is about 28°, and that only for a few days at mid-summer, an angle which daily increases till at mid-winter it reaches 75°, suffer an enormous diminution of solar light. Now light, in passing through the atmosphere, even under the most favourable circumstances, is subject to absorption, or is intercepted by it, but the amount varies with the angle; thus it has been shown that, of a given quantity of light falling perpendicularly upon a given point, one-fifth of it is



FIG. 126.—SEED OF EUCYPRIPEDIUM.

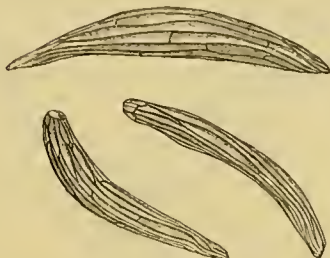


FIG. 127.—SEED OF SELENIPEDIUM.

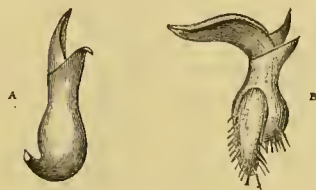


FIG. 128.—A, SEEDLING CYPRIPEDIUM, SIX MONTHS; B, CYPRIPEDIUM, NINE MONTHS.



FIG. 129.—CYPRIPEDIUM, TWELVE MONTHS.



FIG. 130.—CYPRIPEDIUM, SIXTEEN MONTHS.

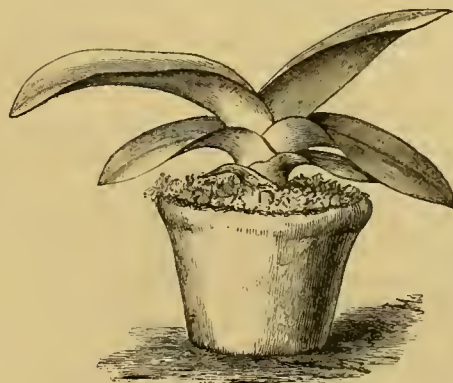


FIG. 131.—CYPRIPEDIUM, TWO YEARS.

absorbed or intercepted by the atmosphere; if it fall at an angle of 50° more than one-fourth is intercepted, and at an angle of 75° fully one-half. Hence in the winter months, even when the days are clear and bright, we can get no more than five-eighths (a little more than one-half) of the solar light these New Granadian *Cattleyas* receive in their native country, on the assumption that other circumstances remain the same. It is quite evident, then, at what a disadvantage we are placed as regards the ripening of capsules of Orchids whose native home is near the equator, to say nothing of local difficulties, such as the smoky atmosphere and fogs of London.

#### TIME REQUIRED FOR RIPENING.

It is not unreasonable to infer, in the absence of more accurate knowledge obtained by direct observation, that the capsules of the New Granadian *Cattleyas* require but a short period to attain maturity in their native country, and that this period extends only over the two or three months of what is there called the dry season, but which in that region is subject to frequent showers. In our houses the time required for maturing the capsules of *Cattleyas* of the labiata group ranges from eleven to thirteen months; for *Lælia purpurata* it is about nine months; for *Phalenopsis Schilleriana* six months; *Cypripedium Spicerianum* eleven to twelve months; *C. insignis* ten months; *Masdevallia* four months; *Calanthe* three to four months; *Zygopetalum Mackayi*, when crossed with *maxillare*, about six months; *Odontoglossum maculatum*, *Dendrobium aureum*, *Anguloa Clowesi*, *Chysis bracteata*, and *Maxillaria Harrisoniana*, each about twelve months. But of course these periods are only approximate; the time required for the ripening of the capsules is considerably influenced by the state of the weather and external circumstances, especially by the amount of direct sunlight during the year. I note that our experience does not differ essentially from that of M. Bleu, of Paris, who has published in the *Journal of the Société Nationale d'Horticulture* the periods of ripening of the capsules of several Orchids crossed by himself, although it might be expected that in the warmer and drier climate of Paris the periods would be somewhat shorter.

Adverse as are some of the influences under which we work to obtain capsules, there is but little difficulty in getting them, and in abundance, too—sometimes even from crosses that, to the systematic botanist, would seem almost beyond belief; but then comes the *crux*.

#### IMPERFECT SEED.

Good seed is the all-important factor in producing healthy seedlings, and this, unfortunately, from causes already partially adverted to, is obtainable but in a very minute proportion of the whole. Seed we get in profusion, but so little of it germinates that the patience of the most persevering is put to a severe test. The seeds of hundreds of capsules have been sown without yielding a single result. In very many cases only a solitary plant had been raised from a capsule that must have contained thousands of seeds; in very few instances indeed has the number of seedlings from one cross reached a hundred. It is true that we have raised many seedlings in the aggregate, but many of them have appeared when least expected, and when we consider the myriads of seeds that have been sown, and the comparatively few plants raised, we cannot be said to have achieved very great success. It may here be noted that, with the exception of *Cypripedium*, which bears the stress of fruit-bearing better than any other genus, many plants bearing capsules become greatly debilitated. During the season the capsule is being matured growth frequently ceases altogether, and when the plant operated upon is not strong it not infrequently perishes even before the seed is ripe. [Diagrams of seeds and seedlings in various stages of development were here referred to. See figs. 121—142.]

#### MANAGEMENT.

If the ripening of the capsules takes place under such adverse influences, the same influences are by no means propitious to the early infancy of the progeny. The period from germination to the formation of the first roots (which, for the want of a better phrase, I will call the thaloid state of the young plants), and which sometimes occupies several months, is the most critical in the life of seedling Orchids raised in glass structures; it is especially so with *Cypripedium*, *Calanthe*, and *Phalenopsis*, and seedlings of these we



accordingly find to be the most difficult to preserve prior to their getting firmly rooted. A succession of dull cloudy days in winter, and even a few hours of London fog, will cause a great mortality, not only among these, but among all seedlings in a similar stage.

The cares and solicitudes of the raiser of Orchid seedlings are by no means diminished when the infant plants are fairly rooted; they must still be constantly tended with the most assiduous care. To neglect the watering, for instance, for a single day, or even for a few hours in the height of summer, may prove fatal; and so, on the other hand, an excess of coddling, giving them too much heat or too much water, by stimulating them into growth before their natural season arrives, is equally a source of danger. Nor is it the only one. We know of an instance of the splendid *Dendrobium nobile nobilis* being crossed with *D. aureum*; the capsule was matured in due course, and the seed sown, but only one seedling was raised. This, as may be readily supposed, was tenderly cared for, but all to no avail; the seedling had grown to about half an inch, when one night a vulgar snail devoured the precious morsel at a single meal. We, too, have had our troubles. Among our earliest *Phalenopsis* crosses we succeeded in raising a single seedling from a capsule of *Phalenopsis amabilis* crossed with *P. rosea*, which we were particularly anxious to save, as it would have solved the question of the parentage of *P. intermedia* or *Lobbi*, which is a supposed hybrid between the same two species. The plant had made three healthy leaves; it was well established in a small pot, which, to be the more secure from danger, was placed upon an inverted pot that stood in a pan of water. One morning, to the great dismay of Seden, it was discovered that a slug had eaten off two of the best leaves, and would, if not trapped, certainly devour the remainder. Anxious to save the treasure, the plant was watched incessantly for hours in the expectation that sooner or later the marauder would make his appearance. To induce him to do so the moss was constantly plunged into water. The repeated duckings had at length the desired effect; the culprit issued from his lurking-place, and the plant was saved. The two little circumstances I have narrated speak for themselves.

#### TIME REQUIRED FOR FLOWERING.

And now, how long must the hybridist wait before his labours are rewarded with a sight of the flower whose appearance he has been awaiting with longing expectation, and upon which many hopes have been built, too often, unfortunately, to end in disappointment?

The shortest periods from the germination of the seed to the production of the flower yet observed are those of *Dendrobium*, that is, *D. aureum* crossed with *D. nobile* and *vice versa*, three to four years; *Phaius* and *Calanthe* about the same; *Masdevallia* four to five years; *Chysis* about the same. Then come longer intervals: *Zygopetalum* five to nine years, according to the cross, thus, *Z. maxillare* crossed with *Z. Mackayi* five years, *vice versa* nine years—a curious but, to us, unaccountable circumstance, as is the case of *Cypripedium Schlimi*, which, crossed with *C. longifolium*, flowers in four years, but the *vice versa* cross takes six years. *Lycaste* takes seven to eight years; *Lælias* and *Cattleyas* may be said to flower from ten to twelve years from the seeds. [Seedlings of different genera at various stages of growth were here shown.]

#### RESULTS.

I will now glance at some of the results obtained by us from muling. Dominy began to hybridise Orchids at our Exeter nursery in 1853, and continued his operations for some time after removal to Chelsea in 1864. Seden began at Chelsea in 1866, and has worked uninterruptedly from that time to the present. Our experience, therefore, extends over a period of more than thirty years, during which the field of operations has been greatly enlarged, especially of late years, our experiments being made upon a vast number of cultivated Orchids, including many hundreds of crosses, not only between allied species, but also between species of different genera.

Among the results obtained by Dominy at Exeter, *Calanthe Domini*, raised from *C. masuca* × *C. fucata*, will always be regarded with interest, as being the first hybrid Orchid that flowered. It flowered for the first time in October, 1856, on which occasion the spike was shown by my father to Dr. Lindley, who exclaimed on seeing it, "You will drive the

botanists mad," an expression quite characteristic of the rigid systematists who flourished prior to the publication of Darwin's *Fertilisation of Orchids by Insect Agency*. The first hybrid *Cattleya* that flowered was *C. hybrida*, a plant now lost, but which was soon followed by the flowering of *C. Brabantica*. The first hybrid *Cypripedium* to flower was *C. Harrisianum*, which justly commemorates the name of Dr. Harris. Among other noteworthy acquisitions raised at Exeter were *Cattleya Dominiana*, *Lælia exoniensis*, *Calanthe Veitchii*, and *Lælia Veitchii*. The last-named flowered for the first time at Chelsea. Dominy also raised some seedling *Vandas*, but they were afterwards lost. Seden's acquisitions are more numerous, and many of them unquestionably prove that substantial progress is being made, in spite of the innumerable difficulties that beset the raising of seedling Orchids. To any one who has compared *Cypripedium cardinale*, *C. Schroderæ*, and *C. Sedeni candidulum*, with the original *C. Schlimi*, this progress is manifest enough. And so with *C. cænanthum superbum*, *C. Leeaeum superbum*, and *C. Morganæ*; nor ought I to omit mention of *Lælia flammea* (still unique in colour among Orchids), *Masdevallia Chelsoni*, *Calanthe Sedeni*, also obtained by other operators, and *Dendrobium micans*.

The following details may prove to be of some interest. Among *Cattleyas* we find that all the members of the *labiata* group, and also the Brazilian species with two-leaved stems, as *C. intermedia*, *C. Aclandiae*, *C. superba*, &c., cross freely with each other, and with the Brazilian *Lælias*, which also cross freely with each other. It is worthy of note, too, that those hybrids which have a two-leaved *Cattleya* for one parent, and a one-leaved *Lælia* or *Cattleya* for the other, have some stems with one, and others with two leaves, and the flowering does not seem to be affected thereby. [A plant with this peculiarity here shown.] But neither the *Cattleyas* nor the Brazilian *Lælias* will cross freely with the Mexican *Lælia albida*, *autumnalis*, *majalis*, *rubescens* (better known in gardens as *acuminata*), &c. Numerous crosses have been effected both ways, and capsules have been produced, but the seed has always proved barren. *Lælia anceps* appears to be an exception, for it seeds freely whether crossed with a *Cattleya* or with any of the Brazilian *Lælias*. The period from the germinating of the seed to the appearance of the first flower varies immensely in the different crosses; thus, *Lælia triophthalma*, raised from seed sown in 1875, flowered in 1883—this is the shortest period known to us; *Lælia caloglossa*, from seed sown in 1858, flowered for the first time in 1877, or nineteen years—this is the longest period known; the others have taken periods that may be said to average from ten to twelve years.

Among *Cypripeds* some very curious facts have been elicited through muling. Thus, the East Indian species cross freely with each other, and a numerous progeny has resulted therefrom. The South American species, the *Selenipedia*, as they are called, also cross freely with each other, and many new forms have been obtained; the hybrids in both sections flower within a few years from the seed being sown. But in the case of the crossing of Indian with South American species, the process has been much slower in producing results. An infinitely smaller percentage of the seed germinates, and those seedlings that survive are so slow in arriving at the flowering stage, that up to the present time not a single plant has produced a flower, although the plants continue strong and healthy in appearance, and increase in size every year. One thing is certain, the three-celled ovary of the *Selenipeds* offers no impediment to fertilisation by the pollinia of *Cypripeds* with a one-celled ovary, for we have plants raised from *C. caudatum* × *C. barbatum*, and many other like crosses between other species have yielded seed.

*Cypripedium Sedeni* was a remarkable cross in many respects, it was in fact raised from two crosses—*C. Schlimi* × *C. longifolium*, and the same two *vice versa*. It will be observed that in this case one of the parents, *C. longifolium*, is much more robust in habit and growth than the other parent, *C. Schlimi*. [Plants of *C. longifolium*, *C. Schlimi*, *C. Sedeni*, here shown.] No perceptible difference was observed between the plant raised from the two separate crosses, they agreed in habit, foliage, colour of flower, in fact in every particular. No such similar result has been obtained by us among *Cypripeds*. A *vice versa* cross between the same two species produces seedlings that vary more or less from those produced from the first

cross. Thus *C. tessellatum* resulted from *C. barbatum* × *C. concolor*, and *C. tessellatum porphyrium* from *C. concolor* × *C. barbatum*. We have also an instance of two recognised species each being crossed by a third, but both crosses producing like results, thus *C. longifolium* × *C. Schlimi*, and *C. Roezlii* × *C. Schlimi* produced seedlings whose flowers are undistinguishable from each other, although, as might be expected, the foliage of the *C. Roezlii* progeny is like that of its parents, the more robust of the two; hence the specific rank of *C. Roezlii* is very questionable.

Not only do recognised species of each section, East Indian and South American, cross freely *inter se*, but the hybrids also cross freely with them. The beautiful *C. cænanthum superbum* has for its parents *C. Harrisianum*, itself a hybrid, and *C. insignis Maulei*. As regards the habit and foliage of hybrid *Cypripeds*, the progeny usually takes a form intermediate between the two parents, but sometimes it is more robust than either. [Plants of *C. grande* and its parents were shown.]

Large as is the field offered by the great genus *Dendrobium* for the operations of the hybridist, comparatively little has yet been effected. Dominy raised the hybrid that bears his name many years ago in our Exeter nursery. It was followed some years later by *D. Ainsworthii*, which appeared in Dr. Ainsworth's collection at Manchester in 1874—plants of the same cross raised by West having appeared about the same time in the Fairfield Nursery, near Manchester, and later, in the collection of Mr. Brymer, at Dorchester, by another operator, the parents being *D. aureum* × *D. nobile*. Subsequently Seden raised *D. splendissimum* from the same cross, and still later Mr. Swan obtained *D. Leechianum* from *D. nobile* × *D. aureum* or the *vice versa* of the others. The seedlings raised from all the crosses are found to be variable; members of one progeny approaching so closely varieties among the others that the original distinctions set up between them cease to be appreciable, but without egotism I venture to claim for *splendissimum* larger flowers with more substance in sepals and petals, caused probably through our having hybridised finer varieties of the two parents. Nevertheless, to avoid confusion, the progenies should, I think, to use an academical expression, be bracketed.

Of the eight hybrid *Dendrobes* that have already flowered *D. nobile* is one parent of five, and *D. aureum* of three of the same five, and of one other, so that only two, *D. micans* and *D. rhodostoma*, have yet flowered that have a parentage in which neither *nobile* nor *aureum* participated.

Crosses between species of *Phalenopsis* have been effected by several operators, and capsules readily obtained. We only know, however, of three instances besides our own where seedlings were raised; the first by Dadds, in 1868, in the collection of Sir John Greville Smyth, at Ashton Court, near Bristol, but they were afterwards lost; then Grey, gardener to the eminent orchidologist, Mr. Corning, of Albany, New York, raised some seedlings, but they, too, were afterwards lost; and, lastly, Mr. Hollington, at Enfield, who has, I believe, one seedling still living. Our own experience with *Phalenopsis* dates from 1875; our first cross was between *P. grandiflora* and *P. Schilleriana*, but with that and with several succeeding crosses no results beyond the capsules were obtained. The first capsule to yield seedlings was gathered from *P. grandiflora* × *P. rosea*; a few of these are still living. Then we obtained a few from *P. amabilis* × *P. rosea*, which grew with more vigour than their elder brethren, and may not improbably flower within the next two years. Still later we obtained seedlings from *P. Schilleriana* × *P. rosea*, *P. grandiflora* × *P. Luddemanniana*, and from two or three other crosses.

*Calanthe* has probably received attention from more operators than any other genus in the great orchidean family, a circumstance that can be best accounted for by results being obtainable in a shorter period than from any other genus. It may be that the *Calanthe* being more terrestrial than epiphytal, there is a predisposition to earlier maturity. The capsule of *Calanthe* usually ripens in three to four months, and the seed takes from two to three months more to germinate; the seedlings under favourable circumstances will flower in the third or fourth year; hence it happened that, although seedling *Cattleyas* were in existence before seedling *Calanthes*, the first hybrid Orchid to flower was a *Calanthe*. *Calanthe Veitchii* flowered



for the first time in 1859, and was at that time believed to be a true bigeneric cross, but as such it cannot be now regarded, as Mr. Bentham, in the *Genera Plantarum*, has referred the pollen parent, *Limatodes rosea*, to *Calanthe*. Not so, however, is *Phaius irroratus*, raised by Dominy from *P. grandifolius* × *Calanthe nivalis*, and *P. irroratus purpureus*, raised by Seden from *P. grandifolius* × *Calanthe vestita rubro-maculata*; and a third progeny that has not yet flowered, which was obtained by the last-named hybridiser from *Phaius grandifolius* and *Calanthe Veitchii*. These are entitled to be called bigeneric crosses. In one of the cases only a single

of the last ten years. Numerous crosses between various species, both Mexican and New Granadan, have been effected, and capsules with apparently good seed have been produced, but with the utmost care that could be bestowed no progeny has yet been raised. Mr. Cookson, of Newcastle, has, indeed, stated in *The Garden*, of February 10, 1883, that he succeeded in raising a fine lot of *Odontoglossum* seedlings, of which the pollen parent was *O. crispum* and the seed parent either *O. gloriosum* or *O. Uro-Skinneri*, but which he was not quite sure. He has

experience is the very opposite of this. *Vexillarium* crosses readily with the flat-tipped *Miltonias*, as *spectabilis*, although thus far we have failed to raise any progeny from these crosses, but not with the true *Odontoglossum*; often as it has been attempted, no capsules are produced. Thus, while our experience in muling among *Odontoglossum* goes far to disprove the statement I have just quoted, it at the same time confirms unmistakably Mr. Bentham's view as to the proper generic place of *vexillarium* and its allies *Roetzlii*, *Phalenopsis*, and *Warszewiczii*.

I have already taken up so much of your time that I must forbear entering into details of the crossings, and results of them, among other genera, and into the scientific aspects of hybridisation it is not my province



FIG. 132.—A, SEED OF DENDROBIUM; B, SEEDLING DENDROBIUM, FOUR MONTHS.

progeny is well nigh intermediate between two parents, being neither evergreen like *Phaius*, nor deciduous like *Calanthe*.

*Masdevallias* were taken in hand at an early date, but failures were frequent, caused, probably, by the plant was raised, and in each of the other two the number was very restricted. It is a curious fact, too, that in habit, aspect, and in other respects the



FIG. 133.—A, DENDROBIUM, SEVEN MONTHS; B, DENDROBIUM, TWELVE MONTHS.

*Masdevallia*, as a genus, is far more heterogeneous than was at first supposed, whence a mixture of the different sections may not possibly be effected. *M. Chelsoni* was at length raised from *M. amabilis* × *M. Veitchiana*; then *M. Fraseri* from *M. ignea* × *M. Lindlei*, by Mr. Fraser, of Dornie, Aberdeen; but the seedlings were reared by



FIG. 134.—DENDROBIUM, EIGHTEEN MONTHS.



FIG. 135.—DENDROBIUM, TWO YEARS.

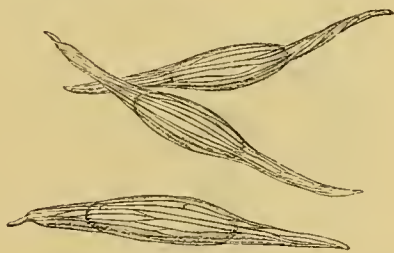


FIG. 136.—SEED OF CATTLEYA.

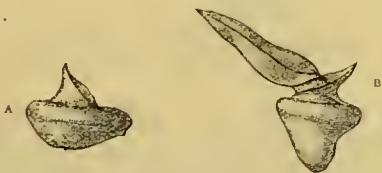


FIG. 137.—A, SEEDLING CATTLEYA, SIX MONTHS; B, CATTLEYA, NINE MONTHS.



FIG. 138.—CATTLEYA, TWELVE MONTHS.



FIG. 139.—CATTLEYA, SIXTEEN MONTHS.

to lead you. Nevertheless, I may be permitted to refer to a few facts that have come under our observation, that have a practical bearing as well as a scientific one.

It will be gathered from what I have already said that our hybridising operations have extended over a rather wide field; that they have not been confined



FIG. 140.—CATTLEYA, TWO YEARS.

us; and lastly, *M. Gairiana* from *M. Veitchiana* × *M. Davisii*. Capsules have been obtained from *M. Veitchiana* × *M. infracta*, *M. polysticta* × *M. tovarensis*, *M. Harryana* × *M. Veitchiana*, and a few others, but all attempts to intermix *M. chimera* and its allies with the brilliant flowered species have proved fruitless.

Great as is the difficulty of raising seedlings from Orchids requiring a high temperature for their cultivation, it is still greater in the case of those that receive "cool treatment," if we except *Masdevallia*. *Odontoglossum* affords a striking instance of this, paradoxical as it may seem, especially as so many undoubted natural hybrids between different species of this genus have appeared among the importations

since informed us that all of them have perished. And so with the *Miltonias*, usually classed with *Odontoglossum*, and grown in an average higher temperature, as *vexillarium*, *Roetzlii*, and *Phalenopsis*. The only seedlings we have been able to raise were obtained from a cross between the two last named, and these were unfortunately lost within a few months after the germination of the seed. I may here note that the late Mr. Bentham, when working up the Orchidæ for the *Genera Plantarum* must, I think, have been misinformed when he states under *Miltonia vexillarium*, p. 563, that "*sede hortulanorum facile cum Odontoglossis variis nec cum Miltoniis generis proles hybridæ gignunt.*" Our

to the crossing of different species of the same genus, but hundreds of experiments have been made between species of different genera. The question thence naturally arises: How will these bigeneric crosses affect the stability of the genera as at present circumscribed? And, what changes of nomenclature will be necessary to place the Orchidæ on an intelligible basis as regards names? Glancing over the whole range of our operations, and the results obtained from them, I may safely reply that thus far the stability of the genera is scarcely affected, and the changes in nomenclature need be very few indeed. Leaving the progeny derived from species of *Cattleya* × *Lælia* out of consideration, the last-named genus being confessedly an artificial one, only two bigeneric hybrids have yet



flowered; these I have mentioned above—*Phaius irroratus* and *P. i. purpureus*. Many years ago Dominy raised *Anæctochilus Domini* from *Goodyera discolor* *Anæctochilus xanthophyllus*, and *Goodyera Veitchii* from *G. discolor* and *Anæctochilus Veitchii*. Plants derived from both crosses are still in cultivation, but the names they bear are simply garden names. We have plants, but which have not yet flowered, raised from *Cattleya Trianae* crossed with *Sophranitis grandiflora*, and from *Cattleya intermedia* crossed with the same species of *Sophranitis*. We have besides a seedling whose parents are *Cattleya Trianae* and *Brassavola Digbyana*, but as the last-named is now referred to *Lælia*, this can hardly be regarded as a bigeneric cross. With these few cases I have exhausted the list. But when we enumerate the capsules with apparently good seed that have been obtained from bigeneric crosses, but from which no seedlings have been raised, the list is somewhat more formidable. Some of the most remarkable of these were produced by *Acanthophippium Curtisii* × *Chysis bractescens*, *Bletia hyacinthina* × *Calanthe masuca*, *Chysis aurea* × *Zygopetalum Sedeni*, *Odontoglossum bictonense* × *Zygopetalum maxillare*, *Zygopetalum Mackayi* × *Lycaste Skinneri*. But, on the other hand, we have obtained a large number of capsules of the normal size, and to all appearances externally perfect, not only from bigeneric crosses, but even from crosses between species of the same genus which contained not a single seed. And, lastly, I may note that *Zygopetalum Mackayi* has been crossed with several species of *Odontoglossum* and seedlings raised from some of the crosses, but every one that has yet flowered has proved to be simply *Zygopetalum Mackayi*.

The hybridisation of Orchids by the hands of the cultivator is still in its infancy, we are but on the threshold; and now that muling among them has become a pastime of absorbing interest with amateurs—amongst whom special mention must be made of Sir Trevor Lawrence, Sir William Marriott, Sir Charles Strickland, Mr. Bowring, of Forest Farm, Windsor, Mr. D. O. Drewett, of Newcastle, and Mr. Goss, of Torquay—it would be rash indeed to attempt to predict what may be in store. But reviewing the sum total of results already obtained, can we, considering the ceaseless watching and assiduous care seedling Orchids require before reaching the flowering stage, look upon them with unmixed satisfaction? How few of the best of them bear favourable comparison with the numberless lovely flowers borne by plants that owe their origin to the unerring instinct of the little winged tribe that unknowingly, and perhaps unconsciously, have performed their allotted task for ages past, and proving by the perfection of their work how inept an operator is man.

I cannot conclude this paper without availing myself of the opportunity the reading of it affords me of publicly expressing my personal obligation to Professor Reichenbach, for the great trouble he has taken in examining, reporting on, and naming our various hybrids, to do which has occupied much more of his valuable time than is generally supposed.

## THE CULTIVATION OF ORCHIDS.\*

THE subject of Orchid culture being almost inexhaustible, I shall only be able to touch briefly upon some of its phases, and in doing so, whilst endeavouring to make some remarks acceptable to all Orchid growers, I shall direct them principally towards the amateur. A glance at what has been written on the subject many years ago proves that there may be rules laid down for the culture of any or all of the Orchids, and that a good result once attained may always be secured by following the same line of treatment. Whenever I read a detailed account of the treatment given to an exceptionally fine plant by some grower of forty or fifty years ago, I find that in our practice of to-day we need not depart from it in the least to ensure the same good results, which ought, however, to be attained by us with much less trouble than by those of olden time, by reason of the much better accommodation we have.

Orchids, from the time of the earliest arrivals, have always been appreciated, and as early as the year 1800,

when the lovely *Aërides odoratum* and many other showy things were introduced, their habits and culture seem to have been understood fairly well, but the bad construction of the houses and their defective heating by means of flues and other contrivances militated sadly against the culture of the small growers and the varieties requiring cool treatment; and hence, while many continued the culture of the more robust kinds, and attracted visitors from distant parts to see them when in bloom, no general progress was made until the period between 1835 and 1850, which was perhaps the richest in importations of fine handsome Orchids.

During that period the fine discoveries of Messrs. Veitch's collector (Lobb) with *Aërides*, *Saccolabium*, and *Vandas*; Griffiths with his *Cymbidiums* and *Dendrobies*; Skinner, Barker, and Hartweg, in Mexico, Guatemala, and along the Andes; and other collec-

covered with bloom; *Epidendrum bicornutum*, with many spikes; *Oncidium ampliatum* majus, with many spikes, forming a head of golden flowers over 4 feet across, and *Odontoglossum grande*, quite worthy of being a leading plant in a collection. J. H. Schroder, Esq., of Stamford Green, is also credited with *Calanthe veratrifolia*, with eighteen spikes, and many other fine plants. J. J. Blandy, Esq., with *Saccolabium guttatum*, with eighteen flower-spikes. R. S. Holford, Esq., of Weston Birt, with *Aërides odoratum*, with twenty-seven to thirty spikes. Sigismund Rucker, Esq., also produced specimens which it is pleasant to read about; and among other things, Robert Hanbury, Esq., in November, 1845, exhibited a robust plant of the autumn-flowering *Cattleya labiata*, with four spikes, bearing sixteen flowers between them, and forming a specimen which any of our best collections would be glad to give room to at the present day.

Of plants described as being very fine in different places forty years ago, but which are yet rare, and in some cases the specimens mentioned are not to be matched, are *Repantia coccinea*, in the gardens belonging to A. Palmer, Esq., at Cheam, with seven panicles on a plant, each bearing from 100 to 110 flowers, and an equally good one of it in the possession of R. S. Holford, Esq., on one of the panicles of which were 117 of its showy scarlet flowers; good specimens are also mentioned of the yellow *Calanthe curculigoides*, from the Straits of Malacca; *Angraecum bilobum*, with a dozen long flower-spikes; the rose-coloured *Eulophia guineensis*; and in the gardens of the Horticultural Society, in 1847, a *Lælia superbiens* with nine large heads of bloom.

These notes show that the love for Orchids, which existed from the time the first plants came into the country, has steadily increased, and that their widely-diffused culture of the present day, far from being a modern fashion in flowers, is but the result of the steady progress of that which always existed, and always will exist, as long as that love for flowers, which is one of the chief characteristics of the inhabitants of these isles, remains. For those who want novelty as well as beauty, too, there is as good a prospect still as for those who wish simply for the beautiful, for if we turn to the works of Dr. Lindley, Professor Reichenbach, and other writers on Orchid lore, we there see such a host of lovely things figured or described, but not yet imported, as to prove bewildering even to one, like myself, who has made Orchids a study from childhood. So far as I am concerned, I never could see that there was any difficulty in growing the greater part of our handsomest Orchids, provided the one who took them in hand had a real liking for them, and a determination to use his own eyes and his best judgment for their benefit. In such a case success follows invariably, for Orchids, like the domestic animals, soon find out when there is one who is fond of them about them, and they seem to be happy and to thrive and establish an understanding with such a guardian, indicating to him their wants in many important matters as plainly as though they could speak.

It is this kind of understanding that should be aimed at, as it goes a great way towards securing success, as well as giving pleasure to the pursuit; and it is the existence or the want of this kind of relation between the plants and their cultivator which makes all the difference between a good grower and a bad one—between a healthy collection and a shabby one. Be sure, that without some one takes an unfeigned and steady interest in the plants, they will not thrive, but if one can be found to be watchful over their interests, and apply what knowledge he can get by what he sees or reads of in other collections, a good measure of success is sure; and hence some of our smaller amateurs, by their diligence and real liking for their plants, often grow things to perfection which have puzzled more scientific men. In growing a general collection of Orchids, however, many stubborn subjects will be met with, but as the bad-doers of the past have given way, those of the present will follow, no doubt, in the case of all who steadily persevere. Every point in Orchid culture is of importance, one neglected item often causing failure in some direction or other. Let us glance at a few of the most important matters, beginning with

### THE ORCHID-HOUSE.

In this particular we certainly have the advantage over those of former years, in that we now have compact, well-ventilated, and comfortably-heated



FIG. 141.—SEEDS OF ORCHIDS IN COURSE OF GERMINATION.

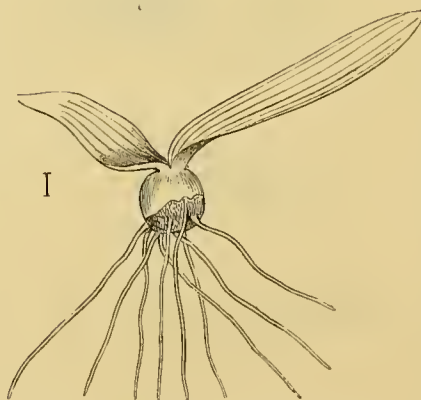


FIG. 142.—SEEDLING PLANT OF *DISA GRANDIFLORA*.

(The line to the left side indicates the real size.)

tors, made quite a revival among the Orchid growers, and the result of new energy being put into the matter was, that with some of the showier Orchids, such perfection was attained that I fear we could not even now match some of the specimens mentioned as being exhibited at the Horticultural Society's shows at the famed Chiswick Gardens, where in those days a good collection of Orchids was to be found. Among the best exhibits for many years appear those from Mrs. Lawrence's renowned collection at Ealing Park, that home where our worthy President, Sir Trevor Lawrence, first acquired that love for Orchids which he has turned to such good account in forming and keeping up, always in good condition, the best representative collection of Orchids which was ever got together.

Among the specimens exhibited in 1845-6-7 are enumerated: from Mrs. Lawrence, Ealing Park, *Aërides odoratum*, with sixteen leading growths and between thirty and forty flower-spikes; *Cattleya crispata*, with over twenty spikes; *Saccolabium præmorsum*,

\* Paper read at the Orchid Conference on May 13 by Mr. James O'Brien.



structures; but these changes were not made until the Orchid-growers themselves took to designing their own houses or advising with the builders about them; and from that time a new era in Orchid culture commenced; the running lights, which were so fond of slipping down in the night, were done away with; the swinging-sashes on a level with the plants on the side-stages were doomed; those neat little sliding-traps at the base of the house, and those convenient top ventilators substituted, and many other sanitary matters arranged, which any one may see to perfection in that fine new Cattleya-house, and those other recently built structures belonging to William Lee, Esq., at Downside, Leatherhead, where one of our largest, best, and best-housed collections will be found, many of the convenient arrangements in those houses being of Mr. Lee's own designing. At Baron Schröder's, too, at The Dell, Egham, some of the best of our modern improvements, combining usefulness and ornament, will be found; and as the plants contained in the houses are of the best and rarest, a visit to them is a great pleasure to any Orchid grower.

In former times it used to be considered imperative to build the Orchid-houses running east and west, and many adhere to that plan still; many also consider that a lean-to or three-quarter span facing north is the best for *Odontoglossums* and cold-house plants. For my part, I cannot say that houses of any other aspect are not as good as these, provided they be properly arranged in other respects. A north house is certainly very cool, and good for cold-house plants, and particularly *Masdevallias* in summer; but, from the very conflicting evidence I have gathered in different parts of the country, I should say any one having houses which they wish to devote to Orchids need not be deterred by their facing this way or facing that, or in building new ones, to greatly inconvenience themselves to make their houses run in any particular direction.

Tolerably low span-roofed houses are the best to build for most Orchids, and in building them no two should be placed together side by side, but such should be built apart, in order to allow of the bottom ventilation being effected by traps opening into the outer air. In some cases, where this has been neglected, chambers from end to end, with openings at intervals, and other intricate contrivances, have been resorted to, but all to no purpose, as the houses have gone back to the style of those of very many years ago, and are practically unventilated, as we now understand the word. It is to the even balancing of the ventilation, by means of the bottom ventilator opening into the outer air, and the top ones at the highest point of the house, that we, in a great measure, may attribute our much better culture of *Odontoglossums*, *Masdevallias*, *Cattleyas*, &c., than the Orchid-growers of former years displayed. Next in importance after the ventilation, comes

#### THE STAGING.

This, by common consent, seems to be best when an open woodwork staging is raised over a close one, containing either water or shingle which is kept moist. Some, indeed, grow moss on this close staging, and Ferns underneath them; but although such arrangement is perhaps beneficial whilst the Ferns keep clean, they are so liable to thrips and other insects that they are better kept out of the Orchid-houses, in my opinion. The open woodwork staging is certainly very good above the close and moisture-supplying one, and great need of it might be seen formerly in the presence of large numbers of inverted flower-pots for raising the plants.

As a further means of giving moisture and storing rain-water, which alone should be used wherever it can be obtained for watering Orchids, too much space cannot be devoted to open rain-water tanks under the stages. Plants watered with rain-water alone have a great advantage over those watered with water from any other source, and Mr. Bateman records his opinion that they are not attacked by those small snails which are so troublesome where they abound. From my own observation I can say that I believe there is a good foundation for the statement.

#### WATERING ORCHIDS.

The watering of Orchids is a matter on which much depends. It is now pretty generally understood that all evergreen Orchids, either terrestrial or epiphytal, require plenty of water when growing freely, and less when not growing; that those which lose their leaves, such as some *Dendrobes*, invariably require a period

of rest, during which water is entirely withheld and a lower temperature given, and that *Odontoglossums*, *Masdevallias*, and the other cold-house things, want water summer and winter, but I find the resting or drying-off system is often overdone, and plants injured accordingly, and that in some collections the plants would be much better if watered all the year round than dried as they are to such an extent that they cannot recover in the growing season what they lose in the so-called resting period.

My own opinion is that any drying-off which causes shrivelling is wrong, and that *Cattleyas*, *Lælias*, and similar plants, if properly potted, do best kept moist, even when not actively growing, but care must be taken to see that they are not in bad peat. As a rule,

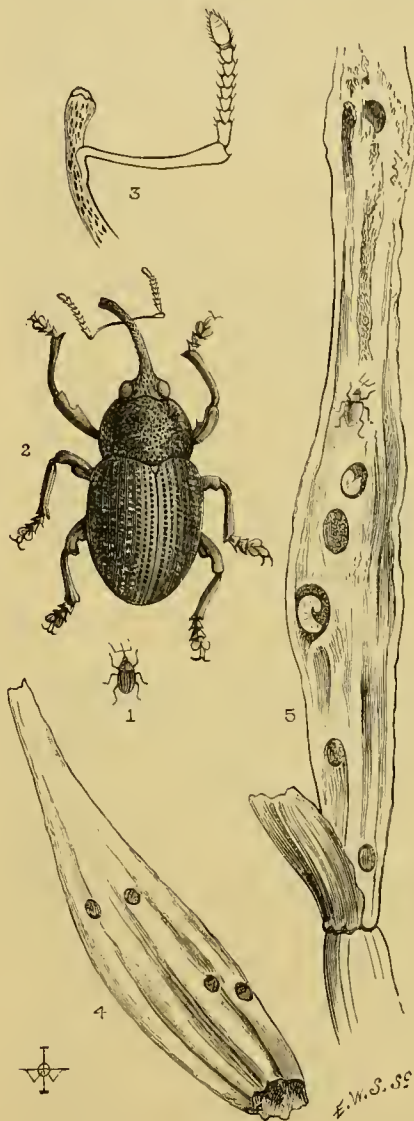


FIG. 143.—CURCULIO ON ORCHID. (SEE P. 635.)

it would be much better for the plants we often see in small collections if they had one-half the quantity of potting material about them and twice the quantity of water they get given them. Syringing a house of Orchids should never be done, and the syringes should be only used for moistening the staging and back walls, or doing any other work on which it can be certainly employed without harm. When used on the plants the operator cannot tell what he is doing, and in the hands of a thoughtless person the syringe is the most mischievous instrument ever introduced. There can be no rule for its use among Orchids as a means for distributing water, and certainly no benefit that can be set against the loss of young growths and decayed flower-spikes which must follow an indiscriminate use of it.

#### ON POTTING ORCHIDS.

And now it will be well to notice a few matters connected with the potting and materials used. For

growing the epiphytal Orchids in the early days of Orchid culture, blocks or logs of wood were largely used, with, in many cases, wire baskets for the more spreading kinds. These baskets were first made of iron wire, but this being found to be objectionable on account of its rusting, copper wire was substituted. Soon it got found out that Orchid roots and young growths did not like metallic substances, and slate was employed to make baskets of different shapes, which were fitted with wire suspenders. Later on the designs were very varied and fanciful, baskets being made of scollop-shells, Cocoa-nut husks, rods of Hazel, Oak, and Maple, all of which were found objectionable for some reason or other.

During all this time the ordinary flower-pot was making way, disguised to meet the case by having holes and slits to accommodate the air-roots. This fashion of flower-pot at length became extensively used, but as it was alleged against it that it harboured insects, it had to give way to the plain, common garden pot, which is now doing such great service. But I am sure that we have allowed the common flower-pot to encroach too far, and that while we beat our predecessors with *Odontoglossums*, *Masdevallias*, and many other things which do perfectly well in pots, we have certainly lost ground with *Saccolabiums*, *Aërides*, and plants of that nature; so much so, that they are but poorly represented in many otherwise good collections. My own opinion is that it is solely through potting them instead of basketing them, and that in pots the chances are against them on many points. Their large fleshy roots do not get the air in pots that they do in baskets, and when potted they are generally placed on the stage too far from the glass, and retain the water given them longer than these plants like.

Against these arguments it is said, with much truth, that it is impossible to suspend everything, and that when baskets are used they are dangerous to the plant when decaying. To this it may be answered that if it is for the benefit of the plant, some means of raising it to a fair distance from the glass should be found, and if the *Saccolabiums* and *Aërides* have done well in baskets, which would have done badly in pots, the trouble of removing the old basket and replacing it with a new one ought not to be considered. The Orchid specimens at Mrs. Lawrence's, the specimen *Saccolabium* with twenty spikes at Mr. Blandy's, and all the others in those days, were in baskets, and I do not think their equals will ever be found in pots.

The Orchid baskets, too, are so much improved in the present day that all objection to them has been removed, and I venture to predict a great future for them. Those made by Mr. J. Bonny, of Downs Park Road, Hackney, are well finished, and the superior Teak of which they are made will cause them to last for years. Those of Mr. Wm. Gordon, of Twickenham, too, are excellent, being made of Teak, and well put together; and I should like those who are not satisfied with their *Saccolabiums*, *Aërides*, and smaller *Vandas*, to try them in baskets, using plenty of crocks and charcoal where obtainable, and only a little sphagnum moss.

In growing this class of plants, if the growers would but take the hint from the *Dendrobes*, which grow with them in their native habitats, and make the growing-time of the *Saccolabium* to correspond with theirs, they would give their plants less heat and water in winter, and more in spring and summer, and a better condition would come upon them. The excessive heat which is often given to *Saccolabiums* and *Aërides*, and given, too, in winter, and while they are so far away from what little light there is, stunts them, prevents their flowering, and makes it hard work for them even to live.

#### MATERIALS FOR POTTING.

Now as to materials for potting. Good living sphagnum for *Saccolabiums*, *Aërides*, *Vandas*, *Phalænopsis*, *Angræcums*, and others of like growth, and the fibre of peat composed of Fern root alone for *Cattleyas* and *Lælias* has always been considered the best. Unfortunately, much of the peat of late years has been of grass and heath root, which is liable to rapid decay, and consequently to cause injury to the plants. Various materials, such as cocoa-nut fibre, have been advanced to supersede peat, but none have proved acceptable. I therefore recommend all who wish their plants well, to keep to the sphagnum moss and the best peat they can get, using the less of the latter when it is not good, and to leave experiments to others. There are always plenty ready to try new things, and curiously enough it is never the learner



who carries the experiments to a serious conclusion, but the well-tried old hand, who, having done all that is good and reasonable, goes in for a new idea on a large scale.

I can call to mind several unaccountable instances of this kind, in one of which I remember a clever grower in the North, who had for years grown his plants to perfection, suddenly became possessed with the idea that chopped sphagnum, and what appeared to me to be road-grit, was the proper thing for all Orchids, and forthwith he proceeded to pot them in it. In another case I found that a previously well-grown collection had been potted in sphagnum moss and what I was told was prepared cocoa-nut fibre. How effectual the preparation was in getting the plants ready to depart this life I need not say.

Above all things, a steady perseverance in what others have found to be a correct method of treatment answers best, and it is better to leave doubtful experiments to their originators until they are proven. The worst of it is that wonder-workers are never tired of getting others to injure their plants by trying their schemes, and hence much mischief occurs. For my part, I have generally found that the extreme practices which we hear of from time to time in the end only go to prove the extraordinary tenacity of life in Orchids, and their adaptability to the different kinds of treatment they must necessarily receive at different hands.

#### SHADING AND HEATING.

Next comes the shading and heating of the Orchid-house. With respect to the shading, I am convinced that all Orchids should be shaded against the direct rays of the sun, and that the shading should, where possible, be varied in thickness according to the plants contained in the house. Some of those very thin materials we see exhibited, when strengthened with webbing, do admirably for *Lælias* and other Mexican and Brazilian plants; the medium textures for *Cattleyas*, and the thickest for *Cypripediums*, *Masdevallias*, and all cold-house plants, all East Indian Orchids, and all terrestrial Orchids, such as *Calanthe veratrilolia*, *Phaius Wallichii*, &c. These grow in dense jungles, and bright sunlight dwarfs them and altogether spoils them.

I saw a remarkable instance of this recently in a garden where a *Calanthe veratrilolia* had been kept in a sunny house for years, and had always been a miserable and stunted object. At length it was placed out of the way on the centre bed, and underneath the tall plants, which effectually hid it from view. In a very short time it became a robust, free-flowering plant. I have seen many similar cases where excessive sunlight under glass has had much the same effect as excessive cold would have done. I, therefore, assert that although most Orchids require a clear light, yet when grown under glass all of them should be sheltered from the unbroken rays of the sun from the time it gets the power to injure until its power wanes. For Orchids in flower a thick shading is absolutely necessary, as the flowers last twice as long shaded, and draw on the strength of the plants much less than they do when exposed to the sun. As regards the heating of Orchid-houses, I early found that it was necessary to have some plan, and to adhere to it, checking it by the thermometer. I therefore compiled the following scale for the whole year:—

Table of Temperatures for Orchid-houses.

Months.	Warm House. East Indian.		Cattleya, or Intermediate House.		Cool or Odon- toglossum House.	
	Day.	Night.	Day.	Night.	Day.	Night.
January ..	65-70	60	63-65	55	50-55	45
February ..	65-70	60	60-65	55	50-55	45
March ..	65-70	60	60-65	55	55-60	50
April ..	65-70	60	60-65	55	55-60	50
May ..	70-75	65	65-70	60	60-65	55
June ..	75-80	70	70-75	65	60-65	55
July ..	75-85	70	70-80	65	60-70	55
August ..	75-85	70	70-80	65	60-70	55
September ..	75-80	70	70-75	65	60-65	55
October ..	70-75	65	65-70	60	60-65	55
November ..	65-70	60	60-65	55	55-60	50
December ..	65-70	60	60-65	55	50-55	45

Degrees Fahrenheit. The higher day temperature to be attained by sun-heat when possible.

This scale cannot, of course, be followed to the letter, neither is it necessary that it should be; it is

intended rather to give a basis on which to operate, to enforce a strict guard over the regulation of the heating, and to the preserving of that lower night temperature which is of such vital consequence to the plants, and which should in all cases be insured by night ventilation and by every other means at command. In summer the prescribed temperature will often be exceeded, but it hardly matters by how much if the extra rise is due to sun-heat, and the houses in which the plants are properly shaded and kept moist.

#### ARRANGEMENT OF THE PLANTS.

And now the manner of the arrangement of the plants in the houses demands attention, as I am bound to confess that in all ages of Orchid culture, even down to this day, a great mortality has always prevailed among small growing plants; this arises probably, in many cases, from excessive heat and too little air, but in by far the greater number of cases by the lesser plants being made to occupy the front portions of the graduated stages, thus reversing the proper order of things and placing the strong plants near the glass and the weak and dwarf ones the farthest from it. From this cause I am sure the periodical scarcity of the *Ionopsis*, *Trichocentrum*, *Comparettias*, *Barkerias*, and such-like frail things may, in a great measure, be attributed to the distance they are grown from the glass. Indeed, it is of the highest importance that in general practice some attempt should be made to arrange the plants with relation to the distance from the glass of the roof according to their height and general growth. Hence, the very smallest should always be grown on blocks, rafts, or in baskets or shallow pans, and the others arranged according to their heights, as nearly as the necessity for occupying all the staging will permit.

Allowing 1 foot from the glass as the safety line, a good rough rule may be laid down that every small or medium-sized true epiphytal Orchid will do best if brought to within its own height of that line; thus, if a plant is 12 inches high it should be brought to within 2 feet of the glass of the roof; if 1 foot 6 inches, to 2 feet 6 inches; and so on until the larger and stronger growing kinds which will do in any position are reached.

The rule should be approached as nearly as possible with small things, but with large ones a distance of 3 feet from the glass is a convenient and good one. Of course this rule, like every other in such an elastic matter as Orchid culture, cannot be adhered to in all cases, but if steadily kept in mind and followed where practicable, it will be found of the greatest service in preserving the delicate subjects. *Cypripediums*, *Masdevallias*, cool-house Orchids generally, and terrestrial Orchids, although requiring some consideration in the same way, are not included in those which it is absolutely necessary to arrange after some modification of the before-mentioned plan. I may also add that fumigation, which is so injurious to many Orchids, claims many victims from the small growers, and it is better for each grower to find some safe liquid insecticide than to resort to fumigating at all.

And now, after I have endeavoured to gain converts by showing that Orchid culture is a pleasant occupation to those who possess some skill and much diligence, and who are willing to observe Nature and follow her dictates in the culture of their plants, demanding of them only twelve months' work in a year, exercising their judgment in all cases to the best of their ability, and maintaining the most scrupulous cleanliness in houses, plants, and everything around their plants, let me finish with a few observations as to the cost of the plants.

#### THE COST OF ORCHIDS.

On this head it may safely be said that never were good showy Orchids to be obtained at more convenient prices, and that the present regulation of supply and demand, while presenting to the wealthy collector rare plants for which he must pay well, at the same time offer to him who finds a congenial pastime in tending his one or two little houses of Orchids, plenty of beautiful things as well within the reach of his purse as any ordinary plant would be. Indeed, good things are cheaper now than ever they were, and with the exception of a few very high prices, those realised now-a-days are not the outcome of a new Orchid craze, as a comparison with former prices will prove.

Rare things, according to the esteem in which they are held in their day, have always commanded good prices. In March, 1846, at a sale of Guatemalan Orchids at Stevens', *Coelia macrostachya* realised £10 to £12 10s; *Barkeria spectabilis*, £5 to £17 each;

*Epidendrum Stamfordianum*, 5 guineas; *Lælia superbiens*, £13 to £15; *Mormodes* and *Epidendrums*, 5 to 10 guineas each, and *Arpophyllums*, £10 to £15 each; the 168 lots realising £600. In 1845 *D. aqueum* fetched £10 a plant, and later on *D. formosum* 15 guineas, other *Dendrobies*, £10 to £12 each; *Oncidium macranthum*, £5 to £8 each. In 1847 the imported plants of *Vanda Lowii* fetched from £10 to £25 each; *Acridis maculosum*, £20; *A. crispum*, £21; *A. odoratum*, £16, and others equally high prices; Mrs. Lawrence, the Earl of Derby, Mr. Rucker, and Mr. Schröder being the principal buyers. Notes taken at the same period also tell us that errors of description were more frequent in former times than in ours. *Ansellia africana* is described as having immense sprays of handsome flowers each as large as a Tulip, and in another case the auctioneer is entrusted with the sale of a bright scarlet *Vanda*!

It will therefore be seen that ever since Orchids were introduced they could command prices according to their beauty or rarity, and so no doubt it will continue to be. Let us hope that the now great facilities for obtaining handsome things, formerly very expensive, may with the aid of the display of their beauties at this Conference, induce many new growers to commence, each according to his means, for out of such ranks our great Orchid growers of the future will be recruited.

#### ORCHIS WEEVILS.

THE large importation of orchideous plants from all parts of the tropics into this country has been, as might naturally have been expected, accompanied by the advent of numerous species of phytophagous insects, which feed on, or in, the fleshy leaves, and especially on the roots and stems of those plants. In various numbers of the *Gardeners' Chronicle* during the last twenty-four years we have recorded the occurrence of various species of insects upon or within different orchideous plants.

In the *Gardeners' Chronicle* for 1859, p. 193, a species of *Acarus* was described which had been found infesting Orchids.

In our issue for November 27, 1869, p. 1230, we described an unknown coleopterous larva found by Mr. Bateman in the buds of an Orchid, and also a small hymenopterous insect (*Isosoma orchidearum*) found in the same situation. On December 11, 1869, p. 1279, the late Mr. Andrew Murray published a note describing a weevil under the name of *Centrinus epidendri*, which he considered to be the perfect state of the larva described in the preceding month by us.

A species of the curious genus *Embia*, found at the roots of an Orchid, is described and figured in *Gardeners' Chronicle*, 1876, p. 845; and a plant bug (*Capsus Cattleyiæ*), from South America, is described and figured in *Gardeners' Chronicle*, 1877, vol. viii., p. 244. Another plant bug, under the name of *Phytocoris militaris*, found on *Cattleya Aclandii*, is described and figured *Gardeners' Chronicle*, 1879, August 2, p. 137.

In the course of the autumn of 1884 we received from a correspondent numerous stems of a species of *Dendrobium* (probably from India or from one of the islands of the Indian Archipelago), each of which exhibited several small circular holes on the exterior, as shown in the accompanying wood-cut (fig. 143, p. 633). On cutting the stems open longitudinally, we found several small black weevils fully developed in the inside of each stem, from which indeed some of the insects had already escaped by making the little holes seen on the outside, the substance of the stems having been gnawed into channels by the larvæ of the weevils, all of which had arrived at the imago state, so that no larvæ were visible. These weevils are a quarter of an inch long (including the rostrum), of a black colour, thickly covered with fine granules on the head and prothorax, whilst the wing cases are marked with longitudinal rows of minute round punctures, there being about nine on each wing case, the outer or lateral rows being most indistinct. The insect is very like our common English weevil (*Notaris acridulus*) in size, shape, and colour, but differing in several characters. On submitting several specimens of the weevil to Francis P. Pascoe, Esq. (who has made a special study of the Curculionidæ), he informs me that the insect is allied to *Baris*, and particularly to his genus *Acythopeus*, of which he had described six species and possessed as many more unnamed. Mr. E. Saunders had sent him another new species from Borneo, imported with



Orchids, which they had attacked, and which he had brought before the Scientific Committee of the Horticultural Society on November 11 last (see *Gardeners' Chronicle*, 1884, p. 662), and as Mr. Pascoe proposed exhibiting and describing our species before the same committee we hesitate to propose a specific name for it.

From our engraving it will be seen that the rostrum is long and slender, and that the antennæ are inserted between its middle and the extremity, and that there is a short oblique groove at their base on each side, extending to the under-side of the snout; the femora are strong, with a notch near the extremity on the under side, which forms a small tooth in the forelegs.

M. Roelofs, who has also made a special investigation of the Curculionidae, sent to the Entomological Society of Belgium, on December 6 last, a note respecting two other species of Weevil, "trouvés dans les Orchidées de l'équateur," found living "sur des Orchidées à Londres." One of these was the *Cholus Forbesii* of Pascoe, which that gentleman informs me he had received from M. Morren's garden at Brussels; the other is a new species of *Sphenophorus* named *Sph. Morreni*, but which Mr. Pascoe refers to the genus *Nanophasis*.

In our fig. 1 (p. 633) the insect is represented of the natural size, and in fig. 2 as magnified. Fig. 3 represents one of the antennæ, the articulation at the base of the long basal joint having been accidentally omitted; fig. 4 part of the stem of the Orchid; and fig. 5 another stem cut open. *I. O. IV.*

## ORCHIDS IN BELGIUM.

M. F. MASSANGE has his collection at his Château de St. Gilles, which is twenty-five minutes' ride from the principal railway station at Liège. To tell of all the fine and rare things we saw there would take too much space; let us say that we saw here among a host of plants those which are to be found in most collections, such as *Odontoglossum brevifolium*, *O. nevadense*, *O. nevium majus* (true), *Anguloa Ruckeri* atropurpurea, one of the two plants known of this fine variety; *A. Reine des Belges* (a unique beauty); several splendid plants of *Oncidium macrothum hastiferum* (in bud), *Cattleyas* of every description, all in fine health. We counted over fifty specimens of *C. Warneri* in bud. We met with *Lælia Stelzneriana* there, and all the leading varieties of *Masdevallias* in numerous small and fine healthy plants; *M. macrura*, *M. trochilus*, *M. Harryana* (Bull's blood), *M. lata*, *M. Denisoni*, *M. atrosanguinea*, *M. rosea*, *M. chimæra*, *M. Davisii*, &c., a splendid lot of fine middle-sized specimens of *Cypripediums*, among which we found fine plants of *C. caudatum*, *C. superbiens*, *C. selligerum*, *C. Ashburtoniæ*, *C. superciliosæ*, a fine variety of *C. Sedeni*, *C. Chantini*, *C. Dalhousiæ*, &c. Some fine *Vandas* were in flower, among which we noticed *V. suavis*, *V. Veitchii*, and *V. formosa*. In one of the houses we saw a fine specimen of *Dracæna Massangeana*, and the famous *Massangeana tigrina*.

We think it hardly necessary to tell that we saw some fine plants of the beautiful *Cœlogyne Massangeana* here. M. Ferd. Massange had much pleasure in telling us the origin of this gem, and how the plant, which was despised by his gardener, was nearly lost. Happily M. Massange himself is a first-class amateur and connoisseur, and to give an idea of this let us say that he has had one of the largest rooms of his château so arranged that every side of it represents a true picture of the tropical countries from which Orchids are imported. This grand idea he carried out assisted by famous travellers and a clever artist. This has cost him much money, and has occupied five years. Here you see how Orchids grow in their natural habitat—you see them surrounded by their associated plants, and at the same time you see the wildness of the sites; so that for anybody who wishes to see Orchids as they naturally grow, need not expose his health and life—a single journey to St. Gilles realises the dream of so many Orchid-loving amateurs.

### BAILLONVILLE.

From Liège to Marche, which is the railway station from which one can reach M. D. Massange's château at Baillonville, we had more than one and a half hour's journey by rail. There are no express trains on this route, which passes through what is called La Petite Suisse, and the scenery is so beautiful and interesting that it would be a pity

to go through it by express. From Marche we have thirty-five minutes' ride to reach the château, and then we were where the most splendid Orchid collection is to be seen. *Cattleyas!* *Cattleyas!*—what fine plants they are when cultivated as they are here: no bulbs without their leaves; and what size of bulbs on those *Mendeliis*, *Trianeæ*, *Mossias*, and *Warneri*! What a fine thing *C. Trianeæ Massangeana* is, the flower with a broad stripe of the same dark purple as the labellum in both sepals and petals. *C. Trianeæ Veitchii*, grand specimen and variety. The true *Lælia præstans* in flower, different plants of *C. Trianeæ alba*; *C. labiata* (the true autumn flowering variety) is represented here by two or three varieties, and there are several plants of each; some masses of *C. Mendelii*, having their new bulbs of a size rarely seen, and carrying fifteen and sixteen spikes on one plant. Some rare varieties of *C. Mossie* were showing well for flowering. M. Massange himself quite understands the wants of his plants, and he may be proud of his success, in their culture, for we never saw plants of the Orchid family in a better state. Nowhere did we ever see *Cattleyas*, *Masdevallias*, *Cypripediums*, *Odontoglossums*, so well cultivated as they are here. Mr. Massange blooms any plant. *Lælia superbiens*, *Cattleya choconensis*, *C. bogotensis*, are in bloom here. He had one plant of *Restrepia antennifera* with 135 spikes in bloom last season. Two varieties of *Odontoglossum nevium* were in bloom; *O. Halli*, many *O. triumphans*, *O. blandum*, *O. coradinei*, the true plants, named by Professor Reichenbach; *O. Andersoni*, *O. Alexandræ* in variety, &c. The grandest specimens of *Masdevallia extant* are to be found here, and so healthy looking they are, and as free flowering as the middle-sized specimen, which size some growers consider may not be exceeded without exposing the plants to the risk of becoming shy flowering.

We should not forget to mention that the original plant (a large specimen) of *Cœlogyne Massangeana* is to be found here. *Cattleya exoniensis*, *Lælia elegans Turneri*, *Cypripedium expansum*, a unique variety of *Asburtonia*, as well as all the leading Orchids, are represented here, and all that are new and rare can be seen in strong and healthy looking specimens.



## THE FERTILISATION OF ORCHIDS.

OWING to the special arrangement of the reproductive organs in Orchids, they would remain sterile if they were not fertilised by the intervention of insects. I add to this element for successful fertilisation the laying bare of the masses of pollen by the removal of the cap which covers them, and which might be effected by a gust of wind or by a touch from the wing of a bird or insect in its flight, &c. Under these conditions the pollen masses are easily put in contact with the stigma, and fertilisation is thus brought about. But it is to be remarked that it only takes place on a very small number of flowers. I have often had the opportunity of seeing the imported Orchids, and horticulturists who receive these plants direct from their native country are able to confirm my statement that, with rare exceptions, only a few species, such as *Phaius grandifolius*, *Aërides affine*, and *Vanda Roxburghii*, fruit at all abundantly.

In cultivation I have only observed the following species as fertilising themselves naturally and with facility:—*Lælia cinnabarina*, *Cypripedium Schlimgii*, *C. javanicum*, *C. virens*, and *C. Bullenianum*. From this it may easily be understood how great is the certainty offered to the hybridiser. It is always easy to distinguish whether the stigma of the flower which it is proposed to fertilise has previously undergone impregnation or not, and that not only by the size of the pollen grains, but also by the swelling which the contact of the pollen produces on the stigma. During the greater part of the time that the flower remains open it can be fertilised. If it is desired to make a cross with a distant related species the flower must be operated upon as soon as it has expanded; its generating energy is then much more intense, and no hesitation must be made about sacrificing the flower.

When a flower has once been fertilised, it will not be influenced by any other pollen which may be borne

into the stigmatic cavity, but if the operator wishes to assure himself of the success of his experiment, it will be sufficient to cover the flower at once in a cap of soft paper well closed from top to bottom. The day following the fertilisation the flower which has been operated upon begins to close, the beautiful colours fade, the odour loses its delicacy, and the sepals, petals, and lip speedily fade. The ovary in its turn swells and enlarges each day in a truly surprising manner, and attains its maximum of development generally in a third of the time which it will take to arrive at maturity.

Another peculiarity which would not be suspected, and about which during my repeated observations I have no doubt, is that the mere extraction of the pollen produces on the flower from which it is taken an effect analogous to that of fertilisation itself. Some days after the extraction of the pollen the flower, and that one only, closes its sepals and petals, and soon fades. I have said that the fertilised flower closes the day following fertilisation in the majority of cases, but it is otherwise with *Cypripedium*. This very distinct tribe is exceptional on nearly all points, but the most important is that which concerns the duration of the flower; this duration is, in fact, but slightly abridged. I have at various times fertilised the flowers of *Cypripediums* which had been open for a month, and I have then had the satisfaction of preserving them quite fresh for three weeks more, and sometimes even longer. *Cypripediums* have two other remarkable exceptional peculiarities; the first is that the action of the pollen upon the stigma does not produce that swelling which is so marked in the pseudobulbous and epiphytal species; the second is that the enlargement of the ovary takes place slowly, and only assumes comparatively very small proportions. As concerning the seeds, the number contained in a *Cypripedium* capsule certainly does not reach a hundredth part of that which is contained in a pericarp of *Cattleya Mossie* or *C. gigas*.

When hybridisation is practised on one flower of *Lælia*, *Cattleya*, *Oncidium*, *Ansellia*, &c., only that particular flower closes. All those which are borne on the same spike, or on the same raceme, exhibit no alteration, and form a contrast with the first as curious as striking. Observations that I have made at various times on this phenomenon enable me to state the great durability of the generating power in *P. Schilleriana*, and very probably in *P. Stuartiana*.

I have in my collection a plant whereof the flower lasts for three months, and not wishing to lose the pleasure of such a long-lasting flower, and also desirous that it should serve for hybridising purposes, on April 18, 1882, I crossed it with the pollen of *Phalenopsis amabilis* on a flower which expanded on Jan. 26, that is to say, after three months, and the success was complete.

When fertilisation has been effected, the development of the ovary and growth is visible to the eye. After some months the fruit reaches its full development, it seems each day that it is just about to let its seeds escape. The seeds are of extreme smallness, and extremely numerous. Patience, however, must be exercised, for we must await the maturity of the seeds, which requires a period twice as long as that which has elapsed since the time of the operation.

The following list shows the number of months which each species takes to mature its fruit:—

	Months.		Months.
<i>Cattleya amethystina</i> toto	12	<i>Oncidium Papilio</i>	10
" <i>labiata</i> ..	13	<i>Peristeria alata</i> ..	8
" <i>Loddigesii</i> ..	10	<i>Stanhopea oculata</i> ..	5
" <i>bicolor</i> ..	10	<i>Lycaste tetragona</i> ..	5
" <i>gigas</i> ..	16	<i>Phalenopsis amabilis</i> ..	6
" <i>labiata Pescatorei</i> ..	17	" <i>grandiflora aurea</i> ..	6
" <i>Mossie</i> ..	11	" <i>Schilleriana</i> ..	5
" <i>Percivaliana</i> ..	13	<i>Odontoglossum vexill-</i>	
" <i>Warneri</i> ..	10	<i>larium</i> ..	8
<i>Lælia purpurata</i> ..	9 to 10	" <i>grande</i> ..	6
" <i>crispa</i> ..	11	<i>Angræcum sesquipedale</i>	7
" <i>Perrini</i> ..	13	<i>Cypripedium Chantini</i> ..	13
" <i>Fischii</i> ..	20	" <i>Bullenianum</i> ..	8
" <i>Leptotes bicolor</i> ..	12		

If artificial fertilisation has been done on a well established and vigorous subject, the fructification cannot injure the growth, as I have many times proved. Care should, however, be taken to avoid operating on weak and badly established plants, if it is not wished to expose them to the chance of being retarded for many years, and even of losing them altogether. Under this head Orchids make no exception; they revert, on the contrary, to the general rule. Condensed from a paper of M. A. Bleu in the "Journal de la Société Nationale d'Horticulture."



## APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	May 19	Clearance Sale of Plants, at Maesmynan Hall, by Frotheroe & Morris (two days).
		Royal Botanic Society, London, Summer Exhibition of Plants and Flowers, 2-7 P.M.
WEDNESDAY,	May 20	Horticultural Show at Paris. Sale of Imported and Established Orchids, Sarracenias, &c., at Stevens' Rooms.
		Sale of Imported Orchids, from F. Sander & Co. at Stevens' Rooms.
THURSDAY,	May 21	Clearance Sale of Greenhouse and Bedding Plants, at St. Mary's Nursery, Harlesden, by Frotheroe & Morris.
		Manchester Royal Botanical and Horticultural Society's Show (five days).
FRIDAY,	May 22	Crystal Palace Great Summer Show (two days).
		Sale of Imported Orchids, at Frotheroe & Morris' Rooms.
SATURDAY,	May 23	General Meeting, Royal Botanic Society, 3.45 P.M.

OUR present issue, like our last one, is necessarily almost entirely filled with matter relating to the ORCHID CONFERENCE and were our space four times greater than it is, we should not have room to include all that has been sent to us on the subject. A few generalities may, however, here be given relating to the Conference and to the Exhibition. In the first place, in spite of minor defects from which such efforts can never be free, both were unquestionably successful in the highest degree.

As to the Conference, it was the most largely attended of any similar gathering. The papers read were excellent; that of Mr. HARRY VEITCH alone would serve to stamp this Conference as of high value, conferring the greatest credit on himself, and reflecting honour on the Society. Never have two more valuable papers been read before the Society than those of Mr. VEITCH and Mr. O'BRIEN, and we sincerely trust that they will form part of that report which, doubtless, the Society will ultimately publish.

Mr. BORWICK'S paper on the application of manures to growing Orchids produced a lively discussion, but it is evident that before all things it is necessary to know a vast deal more of the anatomy, the physiology, and the chemical composition of the plants in all stages of growth and development, and to devise practical experiments based on this information. Mere empiricism is not to be despised, but it is dangerous, and should take a subordinate position in a society like the Royal Horticultural Society. We indicated in a previous number certain lines on which improved cultivation might be based, and we may take an early opportunity to refer to the subject again.

At the Conference an announcement was made of a new departure, so far as regards the awards of the VEITCH Memorial Medals. On this occasion, as no prizes were offered in the Exhibition, the Trustees, as we think, very judiciously, awarded the three medals to three gentlemen who have been mainly instrumental

in various ways in promoting a knowledge of Orchids.

First and foremost a medal was awarded to Professor REICHENBACH, whose portrait we give in the present issue. No one will doubt the appropriateness of that award. The only feeling experienced will be one of surprise that the orchidists of this country have not long ago combined to give effect to their feelings of admiration for his life-long services and gratitude for his never-failing assistance. The absence of Professor REICHENBACH was the one drawback to the full success of the Conference, but he sent three short communications, and the news of the award of this medal, and of the chorus of approbation with which the announcement was received, will vibrate

The third medal was awarded to Mr. SEDEN, who very aptly completed the trio representing science, exploration and practical cultivation. Following as he has done the steps of DOMINY, all Orchid lovers know what we owe to SEDEN. With equal taste and good feeling Mr. VEITCH made himself the exponent of opinions of which he may be allowed to have the largest share, but which are undoubtedly possessed by all interested in the culture and hybridisation of Orchids. We could almost have wished that a fourth medal could have been awarded to the veteran DOMINY. It may seem strange, perhaps, to some that his merits should not have been specially recognised on this occasion. The reason in all probability is to be sought in the fact that DOMINY'S services have already been

publicly recognised, and the turn had now fallen to his modest but energetic successor, SEDEN.

The subject of nomenclature was not only crowded out from a full programme, but it was wisely eliminated till such time as the great authority of Professor REICHENBACH could be effectively brought to bear upon it.

The Votes of Thanks to Mr. VEITCH for his paper elicited a racy speech in Mr. BATEMAN'S old style, and that of Mr. GASKELL in proposing a vote to Sir TREVOR LAWRENCE and the Council, will, we hope, strengthen that body in the pursuit of that excellent mode of increasing the popularity and practical utility of the Society that they have of late adopted. Prosaic Potatoes will no doubt come in for their share in the autumn, while Primroses of all hues will occupy attention next spring.

Adverting now to the EXHIBITION we need say little here, as a full report is given in another part of the paper. It was large, beautiful, and interesting; we remember to have seen more "specimen plants" on other occasions, but never an exhibition of greater interest or greater scientific value. It was noteworthy, too, as being in large measure the production of amateurs and private growers, and as

having been got together without any offer of prizes. It was thus entirely free from the advertising element, and represented a genuine exhibition for love of plants and of knowledge, without ulterior considerations of mercenary advantage. The thanks of the Society are due to Messrs. LOW, VEITCH, WILLIAMS, SANDER, and others who contributed to the success of the show doubtless at considerable personal inconvenience. As such it was in conformity with the higher traditions of a national society as distinguished from a floral bazaar. For those who really love Orchids for their own sake this was unquestionably the finest exhibition of its kind, considering the season, that has ever been held. Showy Orchids are sure



FIG. 144.—KEFERSTEINIA GRAMINEA: SHOWN BY SIR TREVOR LAWRENCE.

across the North Sea, and bear some faint testimony of the gratitude and esteem experienced for the learned botanical Professor at Hamburg by his English friends. The second medal was awarded to the Rev. C. PARISH. Since LINDLEY'S death REICHENBACH stands alone, but Mr. PARISH has merited the honour conveyed to him, not only for himself, but as a type and exemplar of a large body of zealous and courageous collectors who, always at the risk, and too often at the sacrifice of their lives, have enriched science with their collections, and adorned our gardens with their gatherings. Mr. PARISH'S labours in Birma and elsewhere have amply won him the distinction.





GROUP OF ORCHIDS, AFTER A DRAWING BY W. H. FITCH.







to be well represented on such occasions, but we were specially delighted to see a choice collection of curiosities of great interest from Kew—"rubbish," in the eyes of some people; but that we sadly fear is a term that might in such case be applied to the intelligence of the critic. The Royal Botanic Garden, Edinburgh, sent a solitary exhibit of this class, but a most remarkable one—"Megaclinium oxypterum." Some would class this among the rubbish—others would value it more highly than the *Cattleya Skinneri alba* which was sold for 200 guineas. Tastes differ, and on such occasions the proclivities of all should be satisfied as far as possible.

The dinner at the "Albion" on the Tuesday evening, under the presidency of Sir TREVOR LAWRENCE, was very successful, and afforded a much appreciated opportunity for a friendly gathering of Orchid-lovers from all quarters of the British Isles.

On such an occasion the reports of the several committees are of secondary importance, and we should not allude to them now if it were not for a short communication read by the Rev. GEORGE HENSLOW before the Scientific Committee, connecting the unfolding of leaves in the bud with the necessity for protection of the upper surface of the leaf from radiation. The paper was a very neat piece of work, and one likely to excite a good deal of interest, but the inexorable Orchids prevent our inserting it this week.

#### GROUP OF ORCHIDS.

—Orchid growers will recognise in our plate the following species:—*Cattleya citrina* in the upper left-hand corner, head downwards as usual; *C. gigas* in the centre at the top; to the right the spotted *C. Acklandiae*; the two lower *Cattleyas* are *C. amethystoglossa* to the left, and *C. exoniensis* to the right—the latter a fine hybrid.

#### OUR LAST NUMBER.

—In our last issue we presented our readers with a special Supplement and Map, prepared by Mr. F. W. BURBIDGE. The map shows the geographical distribution of the genera of Orchids; the Supplement contains a complete list of the genera admitted by Mr. BENTHAM in the *Genera Plantarum*, and is published by the kind permission of Sir JOSEPH HOOKER. References to many illustrative plates are given, as well as to the whole of those figured in the *Gardeners' Chronicle* from 1841 to the present time. Such a condensed mass of information has never before been offered to the Orchid loving fraternity, and we would fain hope that it may be preserved for reference, and that it may be found useful in every garden where Orchids are cultivated. The cost and labour of production preclude the possibility of reproduction. It is therefore requisite that those who desire extra copies should at once apply to the Publisher.

—ORCHIDS AT ANTWERP.—There was never before seen in Belgium a better collection of Orchids than was at Antwerp. M. D. MASSANGE exhibited, not for competition, 350 flowers of *Cattleya Mossiae* and *C. Mendelii*; all were extra fine and fresh, on about only plants. M. MASSANGE has in his houses over 350 flowers, which he will probably send to Paris. MM. PETERS (Brussels), JACOB MACKOY (Liège), and

BODAERT (Ghent), had fine collections of thirty plants in bloom, competing for the 20 guineas and medal.

—MR. MASSIE.—We understand that Mr. W. H. MASSIE, who has for some years past been connected with the firm of Messrs. LITTLE & BALANTYNE, Carlisle, has made arrangements to join the well-known and long-established firm of Messrs. DICKSON & Co., in Edinburgh.

—"THE FRUIT MANUAL."—The Royal Horticultural Society of Liège have conferred their Large Silver-gilt Medal on Dr. ROBERT HOOG, of London, in recognition of the merits of his *Fruit Manual*.

—CUTLER TESTIMONIAL.—Mr. JOHN LEE and Mr. BRUCE FINDLAY are the Honorary Secretaries of a committee appointed to afford a "signal commemoration" of the success which has attended the effort to increase the annual pension by £4 each. This it is proposed to do by raising a substantial testimonial to Mr. CUTLER. Mr. CUTLER joined the Institution when it had two pensioners



PROFESSOR REICHENBACH.

and an income of £60 a-year. For forty-four years he has acted as the energetic Secretary, and it is unquestionably mainly to his zeal and persistence that the Society has not only been able to increase the pensions by this annual addition of £4, but to accumulate a reserve sum of £21,000, and to contribute towards the relief each year of 104 pensioners. For our own part, while endorsing to the full all that is said of the value of Mr. CUTLER's services, yet, considering the numerous appeals that have been made to the public to support the Institution, we should have preferred that this testimonial should have been of a private character. Some excellent friends and supporters of the Institution, however, think otherwise. In any case we can but hope that the response will be adequate to the occasion.

—"LINDENIA."—The first number of this publication has been issued. It is to be devoted specially to the illustration and description of Orchids. For this purpose it will draw upon the resources accumulated by M. LINDEN, through whom, directly or indirectly, more than 900 species of Orchids have been introduced into cultivation, and it will give coloured illustrations of the numerous species intro-

duced by the collectors for the Compagnie Continentale d'Horticulture. The title *Lindenia* appropriately brings to mind the ten years' wanderings in Tropical America of the horticultural ULYSSES, and the services he has since rendered by his very numerous introductions. The first species figured is—

*Aerides Reichenbachii*.—This is a very handsome species, first found in Borneo, but subsequently, as we learn, introduced from the Philippines. It has the habit and foliage of *A. quinquevulnera*. The flower segments are pale rose, with a deeper spot at the tips; the spur of the lip is yellowish, with numerous brownish spots.

*Trichopilia suavis* var. *alba*, t. 2.—"A delicious" Orchid, with snow-white flowers, the disc of the lip being yellow.

*Odontoglossum nevadense*, t. 3.—The flowers of this species are in racemes, each flower 4 inches across, with lanceolate segments, cinnamon-brown, with a yellow border, lip three-lobed, the anterior lobe hastate, white, the lateral lobes falcate, white, with a few purplish-brown blotches.

*Dendrobium Falconeri*, t. 4.—A lovely species, with thin pseudobulbs, linear leaves, large transversely oblong flowers, segments spreading, outer linear lanceolate, inner ovate lanceolate, all white, with rosy-pink tips, lip ovate lanceolate, white, with a pink tip, throat with a large dark crimson blotch, broadly margined with yellow.

The plates are beautifully and artistically executed, and the text supplies adequate descriptive matter and excellent cultural directions.

—M. RODIGAS.—The banquet offered to our excellent friend and colleague, M. E. RODIGAS, on the occasion of the twenty-fifth anniversary of his entry on his professional career, took place on the 3d instant at Ghent. Count OSWALD DE KERCHOVE presided on the occasion, supported by M. CRÉPIN and a large gathering of friends. A portrait and several other presentations were made to the Professor, whose ability, zeal, indefatigable industry, and willingness to oblige have earned him the friendly regard of all his colleagues.

—BIRMINGHAM BOTANIC GARDEN.—The new Exhibition Hall and Plant-houses, recently erected in these gardens were opened on Tuesday last, with appropriate ceremonial, and a very fine exhibition of plants was got together.

—CONTRIBUTIONS FOR THE GARDENERS' BENEVOLENT INSTITUTION.—Mr. GOUGH, gardener to GEORGE WEBSTER, Esq., of Harefield Grove, Uxbridge, conjointly with Mr. QUICKENDON, seedsman, Harefield, on April 8, promoted a concert there on behalf of the funds of this Institution, which realised a clear profit of £10 12s. 6d., which sum was recently paid in to the funds of the above Institution.

—PASSIFLORA CONSTANCE ELLIOTT.—This hardy white Passion-flower seems to meet the taste of those possessing a garden, as we are informed, that the raisers, Messrs. LUCOMBE & PINCE, Exeter, have sold upwards of 2000 plants.

—EALING MICROSCOPICAL AND NATURAL HISTORY SOCIETY.—On the evening of May 9 two lectures were delivered by Rev. Prof. HENSLOW and Mr. R. DEAN: the first, entitled "A half-hour with the Primrose;" the second, "A half-hour with the Auricula." Both lectures were illustrated by



examples, and a select collection of Auriculas, representing all classes, staged by Mr. R. DEAN, was an object of interest to the audience.

— DARLINGTON ROSE SHOW.—The Darlington Rose Show will be held at Southend, Darlington, on Saturday, July 25 next.

— DOUBLE ORCHIDS.—Mr. BULL sends a flower of *Lælia purpurata* well on its way to be double. It possesses two supplementary lips in addition to the normal one. From their position it would seem as if the two lips represented two of the usually abortive stamens, A 1, A 2, A 3, in the now customary notation. The manner in which these supplementary lips are rolled up and overlap one another is suggestive of how such flowers become infertile, inasmuch as access of insects is much less practicable than under ordinary circumstances.

— THE INTERNATIONAL FORESTRY EXHIBITION, EDINBURGH.—The winding-up of the affairs of the International Forestry Exhibition has now been completed, and a statement of the accounts was submitted by the Honorary Treasurer, Mr. JAMES A. WENLEY, Treasurer of the Bank of Scotland, duly vouched for by the Auditor, Mr. J. TURNBULL SMITH, chartered accountant, to a meeting of the Executive Committee, held on May 7, at which they were duly approved and passed, the balance to remain in the Bank of Scotland for future disposal. The following is an abstract of the accounts, as attested by the auditor :—

Charge : 1, Amount taken at turnstiles, £16,517 14s. 11d.; 2, Season, excursion, and other tickets, £3207 2s. 10d.; 3, Space charges paid by exhibitors, £1094 3s. 8d.; 4, Catalogues sold, £602 11s. 3d.; 5, Rents of refreshment rooms, £652; 6, Cloak rooms, lavatories, &c., £193 8s. 1d.; 7, Subscriptions and donations, including sums subscribed for essays, £164 8s.; 8, Proceeds of wood and fittings sold, and sundry other receipts, £521 0s. 11d.—Sum of charge, £22,957 9s. 8d. Discharge : 1, Salaries, wages, and gratuities, £2250 5s. 4d.; 2, Cost of buildings, rent, furnishings, and decorations, £9797 18s. 8d.; 3, Advertising, printing, and stationery, £2213 16s. 10d.; 4, Electric light, illuminations, bands, &c., £4675 15s. 9d.; 5, Expense of steam power, fuel, &c., £625 19s. 1d.; 6, Executive, jurors, and professional expenses, £883 17s. 8d.; 7, Firemen, policemen, and watchmen, £699 0s. 1d.; 8, Carriages, insurances, repayments, and expenses for exhibits, £461 11s. 1d.; 9, Medals and awards for essays, £855 4s. 9d.; 10, Incidents and sundries, £202 6s. 5d.—Sum of discharge, £22,655 15s. 8d.; Sum of charge as before, £22,957 9s. 8d.—Balance of charge, being sum in bank as at April 1, 1885, £291 14s.

— ANEMONES.—“ST. BRIGID” sends us from the Emerald Isle some Anemones, which for vigour and size we have never seen equalled.

— MACKAYA BELLA.—The variable success achieved in the cultivation of this plant by the different gardeners is rather remarkable, but the results would be far less uncertain if a little attention were paid to its inherited likes and dislikes, brought about by its surroundings in a state of Nature. The conditions there are such as to necessitate a resting period in order to flower it in our hothouses. The main points to be observed are to induce a vigorous growth during summer, and as autumn advances to gradually withhold water till the inflorescence is well set as a result of the lessened degree of vegetative activity. In the greenhouse at Kew there are some well-grown pot specimens gradually opening their pale lilac flowers variegated with transverse veins of a deeper colour. The two recognised species are included by the *Genera Plantarum* in the genus *Asystasia*, from which they merely differ by the posterior pair of stamens having abortive anthers. There is a figure of the plant in the *Botanical Magazine*, t. 5797.

— AGAVE AMERICANA.—Signor DANIELLI, in the last number of the *Nuovo Giornale Botanico Italiano*, gives a most elaborate monograph of the so-called American Aloe, beginning with the account given by PETER MARTYR in 1533 down to writers in 1884. Every book accessible to the author in which “qualche parola” relating to *Agave americana* occurs seems to be noted, but we doubt not that, were it worth while to extend the list, it might readily be done, but a mere enumeration of such references

without special purpose is surely of little value. This historical introduction, which contains much of interest, precedes an exhaustive account of the conformation and internal fabric of the plant, of its chemical composition, and the uses to which it may be put. So thorough is the author that he even cites the amusing letter of Lieutenant JEKYLL to Canon HOLE, counselling the use of the plant as a support for telegraph wires.

— ROYAL METEOROLOGICAL SOCIETY.—At the ordinary meeting of this Society, to be held on Wednesday, the 20th inst., at 7 P.M., the following papers will be read :—“The Temperature Zones of the Earth in connection with its Biological Conditions,” by Dr. W. KÖPPEN, Hon. Mem. R. Met. Soc. “Velocities of Winds and their Measurement,” by Lieut.-Col. H. S. KNIGHT, F. R. Met. Soc., F.R.A.S. “Note on Mr. C. HARDING’S Paper on Wind Velocities,” by Dr. W. KÖPPEN, Hon. Mem. R. Met. Soc. “Note on a Peculiar Form of Auroral Cloud seen in Northamptonshire, March 1st, 1885,” by Rev. JAMES DAVIS: communicated by the President.

THE SETTING OF FRUIT AND INSECTS.—The cold winds seem to have told rather severely on Peaches and Nectarines, the blossoms of which are falling without many setting; but the weather having changed on the 18th with some warmer days the flowers of other fruit trees have come on and expanded rapidly till the trees are now a fine sight. As the air is so dry and genial, it would seem that a crop of all the hardier kinds of fruit is now a certainty, as very soon Plums, Cherries, and Pears will be set, and it is hardly possible for frost of sufficient severity to come after this to do either much harm. The check Peaches and Nectarines had gave the fly a chance to get on the shoots, all of which, except those wanted for laying in, should be taken off at once, as they only afford harbour for these insects, which curl up the leaves, and are then difficult to get rid of, as they cannot be got at and washed off. When the budding is done, the best remedy is tobacco-dust, as with that there is no danger of hurting the young tender fruit as there is when potent liquids are applied, which go at once through the skin and stop Peaches and Nectarines from swelling, and make them fall from the trees. To cleanse them from the aphid after the tobacco is used, the garden engine should be brought into play, and if tepid water be chosen and driven over the foliage just before the sun gets on in the morning or off in the afternoon, it will give both fruit and shoots a good start, and enable them to keep ahead of their enemies. J. Sheppard.

— RAINFALL AND SUGAR.—The report of the Botanic Gardens of Jamaica observes that the question of rainfall is one of great importance to the well-being of that island; indeed, the prosperity of its planting industries is dependent so directly and entirely upon the maintenance of a high rainfall that Mr. MAXWELL HALL has been able to form a comparison (stated in the “Jamaica Rainfall” published in the supplement to the *Jamaica Gazette*, October 4, 1884), between so many inches of rain per annum and so many casks of sugar per acre. These are indicated by the returns of several years, as follows :—1.559 cask per acre with 79 inches (preceding) rainfall and 1.441 cask per acre with 56 inches (preceding) rainfall, “so that,” as he says, “the difference due to a larger or smaller island rainfall is on an average nearly one-tenth of the island export (sugar) crop.” This one-tenth of export crop (for sugar and rum) represents in value nearly £100,000. If, however, we take into consideration coffee, pimento, and other island produce, the difference in export value dependent on good or bad seasons as regards rainfall would amount to a very considerable sum. These considerations indicate to a large extent that the present generation is responsible for the maintenance of forests on all well-marked lines of watersheds, for the protection of the feeders of the streams, and, in fact, for the care of all that concerns the preservation of rain-water and the due humidity of the climate.

— GARDENING APPOINTMENTS.—Mr. JOHN HAMMOND, as Head Gardener to General GUBBENS, Longmead, Bishopstoke, Hants.—Mr. JOHN EARLE has been appointed Head Gardener to General STANSFIELD, Esholt Hall, near Leeds.

## TERRESTRIAL ORCHIDS.

THERE is perhaps no class of plants which combines so much delicate beauty, curiosity, and botanical interest as terrestrial Orchids, and though for various reasons their culture has been much neglected yet there are signs of an awakening interest in them, as many persons who are unable to cultivate Orchids which require expensive glasshouses can enjoy these in perfection out-of-doors. Their culture, however, is with some exceptions by no means easy, and in many cases the best than one can hope for is to flower the plant once, after which, notwithstanding every care, it disappears. Some species whose roots are epiphytous on the roots of trees—for I hardly think parasitical is a proper term, since as far as we know no nourishment is derived from the roots—absolutely defy all efforts to grow them away from their native habitats, and I am not aware that any one has yet succeeded in raising any terrestrial Orchid from seed in the open air.

Terrestrial Orchids are found in almost all parts of the world, but very few tropical species are known in cultivation, and many of those which inhabit Australia, which have been so beautifully figured by Mr. Fitzgerald, in a work which does honour to colonial science and literature, are quite unknown, except from his descriptions. In North America and Europe, however, some of the most beautiful species are found in abundance, and though the conditions which suit them are very various, many of these can be grown by any one who will devote a little care to the subject. I have at one time or another had above a hundred species in cultivation and with some of them have succeeded very well, whilst I by no means regret my numerous failures, as the task of collecting them from their native haunts has led me into many of the most beautiful scenes which temperate climates can produce.

It will perhaps be best to consider the various genera of terrestrial Orchids separately, indicating the best species and the most successful means of growing them, and as *Cypripedium* are perhaps the most charming of all, we will take them first.

Besides the many splendid forms of this genus which inhabit the Eastern Tropics, and are well known to most Orchid growers, there are ten or twelve species in North America and Europe which can be grown out-of-doors.

They have long wiry roots radiating from a central axis on which the stem grows, and for the most part inhabit swamps or shady woods in a climate where the winter is long and severe and the summer warm. For this reason they must be kept from stagnant moisture in winter, and from extreme drought in summer, and with three or four exceptions they are best planted in frames. The best known and most easy to grow are :—

*C. calceolus*, our native Ladies’ Slipper, which, though almost extinct in England, is found here and there on the Alps, and is easily to be had from nurseries. I believe it is generally found on limestone soil; and at Messrs. Backhouse’s it is cultivated very successfully on rockwork.

*C. spectabile*, the Moccasin Flower of the United States, is commonly grown in the best English gardens, and is one of the finest of the genus. Though it will succeed out-of-doors in a bed of loose, light, well drained peat, I have never seen it so fine as in a frame, where it bears two or three pink and white flowers on stems 1½ to 2 feet high.

*C. pubescens* is another fine American species, which is even easier to grow than the last. Some of the forms, which are variable, are much like our *C. calceolus*, others are much finer.

*C. arietinum*, *C. candidum*, *C. parviflorum*, and *C. californicum*, all from North America, are in cultivation, but are not so showy, or easy to get and keep, as the last.

*C. acule* is a distinct and beautiful plant, easy to flower once or twice, if strong imported crowns can be got, but it is very hard to keep; it grows in leaf-mould, under shrubs on hill-sides in North America, and seems to like dryer treatment than *spectabile*. It is best kept in a pan sheltered by a frame.

*C. macranthum* and *C. guttatum* are natives of Siberia, where they grow in rich woods. I have cultivated the first with success in sandy soil, and have seen it growing well out-of-doors at Berlin; but I never was able to get living roots of the other, though Dr. Regel has sent it me more than once.

*C. japonicum* is a splendid and distinct plant from Japan, having broad, fan-shaped leaves, and a large flower, but it seems very difficult to grow, as I have never seen it in flower since it was introduced some years ago.

*C. trajectum* is a Mexican species which Messrs.



Backhouse used to grow well; but I think it is more of a cool-house than a hardy plant, though allied to *C. pubescens*.

There are also one or two fine hardy *Cypripedia* in the higher ranges of the Himalaya which I have taken much pains to introduce, but without success, as the roots perish in passing through the heat of the tropics. If they could be got quite fresh in November or December and sent by post in a small tin box packed in dry moss, they might come safely, but as they grow in remote situations, they are not easy to procure.

There are some other genera, such as *Cephalanthera*, *Ilabenaria* and *Epipactis*, which have a similar habit of root-growth to the *Cypripedia*, and may be cultivated in the same manner. Some of the North American species, as *Ilabenaria pycnodes*, *H. fimbriata*, and *H. blepharoglossis*, are very pretty plants, which can now be procured without difficulty, but I never had much success in their culture. *Cephalanthera grandiflora* is common in woods on limestone in some parts of England, and *C. rubra* is a very pretty plant, extremely rare in England, where it grows in one or two dense Beech woods in my district, but though it seems much particular about its situation in the Alps, where it grows among shrubs on rocky ground, I have never been able to keep it in a garden. *? H. Elwes*.

(To be continued.)

## ORCHID CONFERENCE: May 12 and 13.

### The Exhibition.

THIS had been heralded with great expectations for some few weeks past, but promised only at the last moment to develop into a show of these beautiful flower, worthy of the Society and of the greater exhibition at South Kensington, of which it formed a part, and that certainly not the least attractive one to the general public. It had the advantage of the patronage of the best known and most successful growers of Orchids in the South, if not in the North, of the kingdom, whose plants alone, had their possessors showed to their full ability, would have made an exhibition themselves. As it was, many amateurs and nurserymen showed who are, if not unknown at the usual shows of the Society, yet but rarely seen there, so that many fine things were brought to light which otherwise would not have been seen at all, had the show been a competitive one—competitive shows bringing only the biggest and showiest plants forward, as a matter of course. The collections of Orchids in general were seventeen, some of them consisting of between four and five score plants, excepting duplicates.

SIR TREVOR LAWRENCE.—Taking the collection of the President of the Society, Sir Trevor Lawrence, first, we find a fine lot of well-grown specimens, many of them remarkable for their rarity and beauty, or for their singular forms and markings. At the back of the group was *Luddemannia Pescatorei*, a most striking Orchid, golden-brown, reminding one of nothing so much as a cluster of bees, so closely packed are the blooms; the spikes measured nearly a foot in length. *Chysis crassifolia*, a spike much branched, bearing several small twigs, with catkin-like racemes of minute flowers; the curious not often seen *Epidendrum rhizoporum*, full of flower; an *Odontoglossum vexillarium* of pale tints, carrying ten sprays of bloom; *O. Halli*, *O. Wilckeana*, *O. Pescatorei*, a very good variety; *O. cornuaria* miniatur, carrying one spike of rich brown flowers, half of the lip being yellow; *O. citrosum* album, an exceedingly delicate flower; the rare *O. Ieue*, with a lip, the half deep rose colour and half pale rose; *O. guttatum*, with four fine sprays of bloom; *O. crispum guttatum*, a splendid form, with rich red markings and a glistening yellow crest; *O. luteo-purpureum*, and *O. facetum*, of one spike only, completes the list of the *Odontoglossum*. An *Aërides Veitchii*, with a five-branched spray; *Angulosa Clowesii*, with four flowers; a well flowered *Dendrobium Skinneri*; a small *Vanda teres*; *Aërides Houletianum*, with fawn sepals and petals, with a lip of bright rosy-crimson; the curious *Dendrobium rhodostoma*, having its small pinkish flowers on the tips of the pseudobulbs; *Bulbophyllum siamense*, a dull yellow flower, showing faint lines longitudinally on all its parts; *B. Dearei*, *Houlletia odoratum*, a deep brown coloured bloom, with a white lip, and deliciously scented; *Dendrobium Pierardi*, *D. Dalhousienum*, with a finely expanded bloom; *D. Bensonæ*, *D. Harveyanum*, gold colour with fringed petals, the sepals being destitute of fringe. *Cattleyas* were not particularly numerous, but several *C. Mendelii* and *C. Mossiae* were charming in colour, and of immense size; *C. Skinneri* alba was a telling plant, and beautifully flowered; a plant of *Saccolabium ampullaceum* had three spikes of very deep crimson-rose; *Aërides Lobbi* had a graceful spike of its pretty blooms. *Oncidium* mustered strongly in this collection, and we remarked *O. junceifolium*, *O. ibaguense*, with a corymb of bright rose; *O. pulchellum*, a pretty white and yellow crested variety, with small blossoms; *O. bifolium*, a small edition of *O. Marshalli*; *Acanthophippium bicolor*, a *Lycaste*-like bloom of creamy-white, tipped with purplish-rose. Of *Cypripediums* there were *C. Dayanum*, *C. ciliolare*, one bloom; a very large plant of *C. caudatum*, with twenty

blooms expanded. Many *Masdevallias* were included, as *M. Harryana acanthifolia*, a very rich colour in this section; *M. H. coerulescens*, and others. Plants in bloom were shown of *Uropedium Lindenii*, a curiously long-tailed flower, purplish, tinted with green and with a flat lip; and *Lycaste Lawrenceana*, having green sepals and petals, rose-spotted, fawn coloured lip, which has a white margin. *Lælia lobata* also appeared—a spike of two blooms. He also sent a large number of *Masdevallias*, including *M. Chelsoni* ×, very good; *Harryana acanthifolia*, *coerulescens*, *Denisoniana*, large masses, well-flowered; *ignea aurantiaca*, very pale fawn-yellow; *coccinea Massangeana*; large plant of *Lindenii* and *superba*, *Shuttleworthii*, and *S. xanthocarpa*, *triangularis*, *trochilus*, and a good *Veitchii gigantea* with thirty-six flowers; *Harryana regalis*, deep purple, with flowers measuring over 2½ inches across. Among *Cypripediums* the President exhibited *Cypripedium Dayanum* with three flowers; *C. barbatum*, *C. ciliolare*, *C. Hookeri*, *C. levigatum*, *C. caudatum*, five flowers; *C. Lowii*, three spikes, with three flowers on a spike; *C. seligerum Wallisii*, and a fine plant of the light-foliaged variety of *C. Swainianum*, with ten flowers; also a number of hybrid *Cypripediums*, including *grande* (parents *C. Roezlii* × *caudatum*), *Harrisianum* (*C. Barbatum* × *villosum*), *marmorophyllum* (*C. Hookeri* × *barbatum*), *seligerum* (*C. barbatum* × *levigatum*), and the dark-foliaged form of *Swainianum* (*C. barbatum* × *Dayanum*).

BARON SCHROEDER.—The collection of Baron Schroeder, The Dell, Staines, was a most meritorious one, comprising in a special manner the idea the Council at first appeared to have had in view, viz., excellent specimens of rare or choice forms. Here we noticed a grand plant of *Cattleya Skinneri* alba with five spikes of its delicate white flowers. The purity of the whiteness of this new form makes this at once an object of admiration. *Cattleya Skinneri* with over two dozen spikes, remarkably fresh and of excellent colour; *Cymbidium Lowii* with seven spikes; several *Cattleya Mossiae*, *Cattleya Schroederiana*, a fine form of *L. purpurata*, sepals and petals pure white, lip of an intense purple, with a clear white margin—a form distinct and showy. *Cattleya Mendelii selborneensis* with a dark-coloured lip; *Dendrobium macrophyllum Dearei*, pure white; *Ada aurantiaca*, with twenty-five of its bright orange-scarlet spikes of bloom; *Vanda coerulescens*, having four good spikes of its violet-coloured blossoms; *V. Denisoniana*, creamy-white; *Masdevallia Lindenii*, very full of flowers; *Oncidium pulchellum*, a charming thing, white and light rose blossoms borne on a thin branching spike—an old acquaintance but very pretty; *Maxillaria Sauderiana*, pure white ground with the centre of the flower deep purplish-brown spots and markings; *Odontoglossum crispum* in many forms, pure white, and those with rosy sepals and petals, but the most notable were the *O. crispum Veitchianum* with a spike of ten flowers, large in every way, densely blotched and spotted with its deep rose-coloured markings; *O. crispum Sauderianum*, seven flowers on a spike, in some respects approaching the former, but not so fine in form, size, or marking; *O. crispum Ballantini*, a beautifully spotted variety; *O. Cervantesii*, with six flowers on a spike; *O. polyanthum*, good; *O. radiatum*, several very good; *O. vexillarium Ruckerianum*; a lovely mass of *Promeneia citrina*, *Cypripedium caudatum roseum*, *Cypripedium Godefroyæ*, *Lawrenceanum*; and perhaps the most admired plant in the show, *Lælia bella*, a *Veitchian* hybrid of surpassing excellence, with two flowers on the spike, of large size, rich rose sepals and petals, spreading lip of deep purple, with bright rose shade, partaking in every good particular of the characters of its parents, *C. labiata* and *L. purpurata*.

W. E. BRYMER, Esq., M.P., Ilington House, Dorchester (gr., Mr. J. Powell), exhibited a fine plant of *Calanthe veratrifolia* with ten spikes, well opened; a good *Cattleya intermedia*, with six spikes; *C. Mendelii*, with twenty flowers open; *C. Mossiae*, fine in form and colour; a nice plant of *Restrepia antennifera*, with numerous flowers; *Phaleopsis Luddemanniana*, and a good plant of *Maxillaria Harrisoni*, full of flowers. Mr. Brymer also showed *Odontoglossum Andersonianum*, a fine spike and good variety; good *O. crispum*; *O. citrosum*, with fine spikes and flowers; *O. luteo-purpureum*, *O. Pescatorei* *prænitans*, and a capital *O. vexillarium*, very dark colour; *Cypripedium albo-purpureum*, *C. biflorum*, *C. Lawrenceanum*, and a pan of *C. niveum* with fifty flowers, many spikes bringing double flowers were also included in this collection. From the same exhibitor came a good plant of *Epidendrum vitellinum majus*, with fourteen spikes; also a species with a spike of green flowers with dark brown spots; *Dendrobium densiflorum*, a well flowered *D. Falconeri*, with nearly one hundred flowers on it; small block of *D. Jenkinsii*, *Saccolabium ampullaceum*, very fine rose colour; good *S. retusum*, *Vanda suavis*, also a *V. teres*, and a good *V. tricolor*, with five spikes.

MR. J. CYPHER, Exotic Nurseries, Cheltenham, had a large collection of good things, among which we noticed some fine *Cattleya Mossiae*, one especially fine, with lip nearly 2½ inches across; *Cattleya Mendelii* in quantity, also *Cattleya Trianae*, a very nice variety; a good *Calanthe veratrifolia*, good in foliage and well bloomed; *Cypripedium biflorum*, *Hookeri*, *Lowii*, *Lawrenceanum*, a fine piece of *levigatum*; a number of *Dendrobiums*, among which *albo-sanguineum*, *Bensonæ*, *chrysotoxum*, *nobile*, *Falconeri*, *macrophyllum*, *Parishii*, and *thyrseiflorum* were represented with several plants of each; *D. rhodostoma*, a hybrid between *sanguinolentum* and *Huttoni*, was nicely bloomed and very pretty; several *Lycaste Skinneri*, *Masdevallia Harryana*, several plants, among them being some choice varieties; the rare *racemosa* (Crossii), with just one of its deep orange, scarlet-shaded flowers open; *civilis* and *Reichenbachiana*; *Oncidium sphaclatum*, with twenty-six spikes;

several well bloomed *O. Marshallianum*, also the good old *O. ampliatum*, and a number of *O. Alexandre*, *O. Cervantesii*, *O. citrosum*, *O. cordatum*, and *O. luteo-purpureum*.

W. LEE, Esq.—In the group of W. Lee, Esq., Downside, Leatherhead, which contained over 100 plants, many grand examples of culture were to be found, exhibiting care, skill, and management on the part of Mr. Woolford, the gardener. Here were some large masses of *Cattleya Skinneri*, well bloomed, two particularly so, having over twenty spikes each—a most effective exhibition plant; *Cymbidium Lowianum*, two large plants with numerous spikes; *Cypripedium caudatum*, with six spikes; grand masses of *Cattleya Mossiae*, well bloomed; numerous *C. Mendelii*, of fine colour and great breadth of lip; *C. Mendelii selborneensis*, and *C. M. elegantissima*; *C. Warneri*, one of the few plants of this species in the show; a nice plant of *Calanthe igneo-oculata*, variety *gigantea*, a very late flowering form, and excellent in every respect; a *Cypripedium grande* (hybrid *C. Roezlii* × *C. caudatum*), a strong growing form just intermediate between the two species named; several good varieties of *C. ciliare*, *C. Godefroyæ*, *C. marmorophyllum*, good; *C. Schlimii* album, *C. seligerum majus*, large in form and dark in colour; a nice plant with three flowers of *Cypripedium Stonci platycnium*; several *Dendrobium thyrseiflorum*, with good spikes; *D. Cambridgeanum*, a nice piece of the white *D. crassinode*, good plants of *D. Jamesianum* and *D. litiflorum*. The lovely *Lælia elegans* var. *elegantissima* was well done, its pure white blossoms, with just a faint tinge of colour on the centre of the lip, are very charming and delicate; *L. elegans Schilleriana*, *L. purpurata alba*, *Leptotes bicolor* were well bloomed. Among *Masdevallias* × *Chelsoni* was in good colour; *M. Benedicta*, *M. chimæra*, *M. Roezlii* and its variety *M. rubra*, numerous *M. Harryana*, *Bull's* blood, conspicuous with flowers 2½ inches across; *M. Harryana*, *M. Denisoniana*, *M. Russelliana*, and *M. ignea*, fine *M. Lindenii*, the rare *M. Schlimii*, nice pieces of the lovely *M. Shuttleworthi* and *M. Wagneri*; several nice pieces of *Oncidium concolor*: its drooping canary-coloured flowers were very striking amongst so much rose and white. The *Odontoglossum* in this group were of great merit: *O. Chester-toni*, a large *O. crispum*, with very dark spots; *O. citrosum*, several *O. crispum*, white and rose coloured varieties, of excellent quality; a good spike of *O. Edwardi*, its small flowers of purple and violet on a freely branching spike were much admired; *O. elegans* var. *superbum*, *O. gloriosum*, a good plant of *O. Jenningsianum*, *O. maculatum*, *O. superbum*, some good plants of *O. Pescatorei*, *O. Rossi majus*, *O. scepterum*, a very fine form; *O. triumphans*, a good *O. vexillarium*, a capital plant of *Zygopetalum Sedeni*, with two good spikes of flower; *Vanda Denisouii*, large plants of *V. suavis*, *Veitch's* and other varieties; *V. tricolor*, *V. Patersoni*, and others of equal merit.

THE DUKE OF DEVONSHIRE, K.G., Chatsworth (gr., Mr. O. Thomas), had a large collection of plants, many of which were good specimens of cultivation, and others were new and rare. A stem of a Birch tree over which trailed a *Renanthera coccinea*, unfortunately not in bloom, came with this collection. *Coelogyne ocellata* was a well-flowered specimen, *C. cristata* was equally well furnished, *C. Lemoniana*; *Calanthe veratrifolia* had two spikes of bloom, and *C. Domini* the same number. Of *Dendrobiums* were noticed *D. Wardianum*, *D. Skinneri*, *D. densiflorum*, *D. devonianum*, and several others. A strong plant of *Cypripedium caudatum* had two open blooms, and a quantity still to expand; *C. villosum* had twelve blooms, *Colax jugosus*, densely barred interiorly; *Angulosa uniflora maculata*, a species pleasingly spotted on the white ground colour; a healthy plant of *Vanda tricolor* with carried two expanded spikes; *Maxillaria Harrisoni*, a white bloom, the lip purple in colour, and covered with fine hairs; this plant had many flowers, and bore a singular aspect. Of *Odontoglossums* there were a dozen, including *O. Pescatorei*, *O. Alexandre*, *O. citrosum*, *O. citrosum*, a well-coloured *O. vexillarium*, *O. triumphans*, *O. Rossi*, &c.; a plant of *O. macranthum* bearing a fine large spike; two *Lycastes*, *Acinetus Humboldtii*, *Bulbophyllum Lobbi*, and several *Masdevallias*, as *Harryana*, *Veitchii*, and amiable, being the rest of the noticeable plants in this collection. From the Duke also came a large plant of *Dendrobium nobile* about 4 feet through covered with bloom.

J. C. DUKE, Esq., The Glen, Lewisham, showed eleven plants, amongst them being *Dendrobium albo-sanguineum*, bearing two blooms, pale brown, with a deep crimson blotch in the throat of the flower; a particularly richly coloured *Cattleya Warneri*, with two blooms; a *C. Mendelii*, with sepals and petals of pure white; *C. nobilior*, the curious *Epidendrum Parkinsoni*, bearing two green and white blooms; *Odontoglossum Roezlii* album, *O. Uro-Skinneri*, carrying one spike of perfect blooms. The *O. vexillarium* in this group was of an unusually deep rose tint, and bore two sprays of bloom. These, with *Oncidium concolor* and *Lælia autumnalis*, comprised the whole of this exhibit.

HUGH LOW & Co., Clapton, had a group in which *Cypripedium levigatum* was shown with twelve spikes of bloom; a good pan of *C. Lawrenceanum*, *C. ciliolare*, *C. Lowii*, and *C. niveum*; a fine mass of *Dendrobium Bensonæ* full of flower, good mass of *D. Jamesianum*, *Cattleya Mendelii* in good form, *C. Adlandæ* on blocks, a very dark variety of *C. Leopoldi*, spike with eight flowers; *Dendrobium Lowii*, and *D. anosum*, *Odontoglossum Alexandre*, *Aërides Fieldingii*, and *Odontoglossum species*.

J. SOUTHGATE, Esq., Selborne, Leigham Court Road, Streatham (gr., Mr. C. J. Salter). The display of this exhibitor was very extensive and of good quality. Here the white *Cattleya Skinneri* was again to be observed, a good form; a nice piece of *Dendrobium*



*Brymerianum* (true), having a spike with three flowers of a bright golden-yellow and deeply fringed lip; *Oncidium cucullatum*, with ten spikes; *Pescatorea Lehmanni* *Cattleya Mendelii* *selbornensis*, a grand dark variety; good *C. Mossiae* and *C. Skinneri*; *Coleogyne elata*, *Cymbidium Lawi*, numerous *Cypripediums*, among which  $\times$  *C. selligerum,  $\times$  *C. Harrisonianum*, *C. ciliolare*, *C. Haynaldianum*, *C. Hookeræ*, *C. lævigatum*, *C. Druryi*, *C. Roezlii*, and *C. Schlimii* were conspicuous; *Dendrobium Falconeri*, *D. Jamesianum*, good, *D. Parishii*, and well bloomed *D. thysiflorum*; *Lælia cinnabarina* and *L. purpurata*; *Masdevallia Veitchii grandiflora*, with ten good blooms; *M. Shuttleworthii*, *M. Harryana*, *M. chimera*, and *M. Chelsoni*; a fine plant and spike of *Odontoglossum Wilckeanum*, good varieties of *O. polyanthum*, distinct and well done, the lovely *O. Erstedii*, *O. crispum*, *O. Cervantesi*, several with five flowers on a spike, *O. sceptrum*, and *O. phalaenopsis*. A good coloured *Saccolabium ampullaceum*, *Vanda suavis*, and *Uropedium Lindenii*.*

MR. B. S. WILLIAMS, Victoria & Paradise Nurseries, Upper Holloway, N., had a numerous lot, containing many good varieties and specimens; *Calanthe Sandieriana* that had been exhibited on two occasions in the month of March, was again in good condition, with flowers of a deep rose colour, with lip of a similar colour but much darker, certainly a most desirable form; *Calanthe variegata*, good, several *C. citrina*, *C. Mendelii*, and *C. Mossiae*, one of fine form named *C. splendens*; *Cattleya Regnellii* (*Schilleriana*), with three flowers on a spike; *Cypripedium Argus*, *C. lævigatum*, *C. Lowi*, and a good mass of *C. niveum*; *Epidendrum vitellinum majus*, with numerous spikes; *Dendrobium Jamesianum*, *D. rhodopterium*, and *D. thysiflorum*; some good forms of *Masdevallia*, including *M. Harryana* and *M. Harryana var. cerulescens*, *M. lateritia*, an intensely dark form; *M. lilacina*, *M. rosea*, *M. Veitchii*, and *M. Shuttleworthii*; grand forms of *Odontoglossum vexillarium splendens*, *O. triumphans*, *O. sceptrum*, *O. Hallii*, *O. Andersonianum*, and *O. Alexandræ*; one form of large dimensions named *O. giganteum*, good plants of *O. citrosum*, and *O. luteo-purpureum*; several good pieces of *Oncidium Marshallianum*, with long branching spikes and flowers of good size and colour; *Vanda cerulescens*, *V. suavis*, and *V. Denisoniana*.

C. NEVILLE WYATT, Esq., Lake House, Cheltenham, exhibited a good collection. Here *Ada aurantiaca* was to be seen with twelve drooping spikes; *Chysis bracteata*, *Cattleya Skinneri*, with eight spikes; good plants of *Cattleya Mossiae*, one with thirty flowers open; *C. Mendelii*, with twenty-four flowers, another with ten blooms, excellent examples; *Cypripedium caudatum*, with seven fine spikes of its long-tailed flower, two pieces of *Stonel* and *Lawrenceanum*; some strong plants with branching spikes of *Oncidium Marshallianum*, a most effective plant for the exhibition stages; good masses of *Masdevallia Lindenii*, several *M. chimera*, *M. amabilis*, and *M. Backhouseana*; good forms of *Odontoglossum crispum* and *O. Pescatorei*; of *D. Bensoniæ* several good plants were shown full of bloom, also *D. Falconeri* and *D. thysiflorum*.

Kew.—From the Royal Gardens, Kew, a number of species of botanical interest were shown, which if not as showy as many of the other collections, were nevertheless full of interest and well repaid close inspection. Of these we shall speak on another occasion. The most noteworthy, perhaps, was *Epidendrum bicoloratum* with six spikes of its pure white flowers, having only a little purple at the base of the labellum. *Saccolabium gemmatum*, a good basket of *Masdevallia Benedicti*, *M. ochthodes*,  $\times$  *Chelsoni*, *Maxillaria lutea alba* and *M. triangularis*, *Cirrhopetalum fimbriatum*, *Eria excavata*, *Phalaenopsis Parishii*, a lovely little gem, and others.

J. T. PEACOCK, Sudbury House, Hammersmith (gr., Mr. Vicary), showed a group that was strong in *Odontoglossums* of good points. *O. Alexandræ* had a fine spray, with blooms not over large; *O. Andersonianum* was again large, and the form and substance uncommon; *O. Halli* was a big piece, with six sprays; *O. hebraicum* had three, and *O. triumphans* and *O. Wilckeanum* two each. A fine strong plant of *Oncidium ampliatum* was shown, and the handsome *O. Papilio* bore a solitary bloom as usual. Some rare *Masdevallias*, as *M. Shuttleworthii*, *M. trochilus*, *M. Harryana*, *M. Houtteana*, and *M. simulæ*, were shown, together with *Cattleya Mendelii* and *C. Mossiae*.

S. CORTAULD, Esq., Bocking Place, Braintree (Mr. W. Gunn, gr.), had a small collection, consisting of *Coleogyne ocellata*, a pretty plant, full of flower; a *Cattleya Mendelii*, with five blooms; *C. Percivaliana*, about a dozen *Masdevallias*, among which we noted *M. tridactylites*, small crimson-brown blooms; *M. triangularis*, *M. Shuttleworthii*, *M. ludibunda*, *M. Estradæ*, *M. Veitchiana*, and *M. psittacina*; an *Odontoglossum vexillarium*, of a high colour and five spikes; *Lælia purpurata*, with two very fine spikes of bloom; *Dendrobium chrysotoxum*, well flowered; a *Cypripedium caudatum*, and a few other plants of less importance.

H. M. POLLETT, Esq., Fernside, Bickley (gr., Mr. Parks), was strong in *Odontoglossums*, there being more than a score of species and varieties; *O. Andersoni* was prettily spotted, *O. Ruckerianum* had four spikes, the spotting of the rose tinted blooms being very pleasing; *O. Wilckeanum* had two spikes of medium size, as was also *O. vexillarium*; *O. Polletianum* (hybrid) had a massive branching spray of bloom; *O. Andersoni superba* must be considered an improved form of *O. Andersoni*; *O. odoratum*, a stellate form, richly spotted on a yellow ground. The *Masdevallias* comprised *M. Harryana*, *M. Lindenii*, and *M. rosea*.

C. L. INGRAM, Esq., Elsted House, Godalming (gr., Mr. T. W. Bond), had a small group of ten plants, comprising mostly *Odontoglossums*, as *O. Halli*, a good form; *O. Alexandræ*, *O. polyanthum*, a very fine piece of *O. Pescatorei*, *O. vexillarium* was of a deeper shade

than usual; *Sarcopodium Dearei* had two of its spotted primrose-coloured blooms open on a small plant. *Cattleya Mossiae*, *C. Mendelii*, and *C. Warneri* were nice little pieces of good strains. One spike of a plant of *Cypripedium caudatum*, had four well opened blooms.

MR. BULL, 536, King's Road, Chelsea, sent three forms of *L. purpurata*, one with lip of deep intense purple, one with sepals and petals pure white, and labellum with scarcely any colour; and a third with white sepals and petals, lip very broad, very deep colour, colour fading away to the edge with a very pale margin. Mr. W. Bull also exhibited an *Odontoglossum* hybrid with three spikes, very distinct, in the way of *gloriosum*  $\times$  *crispum*.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr., Mr. S. Coope), sent a *Cattleya gigas*, imported last September, on the first growth of which a spike with five perfect blooms have developed—a very good piece of successful culture. *Lælia purpurata alba*, a fine plant in a pan, with several spikes of bloom, besides *C. Mendelii* and distinct varieties of *C. Mossiae*. H. Little, Esq., Hillendon, had *Cattleya Mossiae rosea*, several forms of *C. Mendelii*, distinct and well done.

Messrs. F. SANDER & Co., St. Albans, showed a very fine collection, including *Cattleya* as *Mendelii*, *C. Mossiae*, and *L. elegans* and *Schilleriana*; there were about thirty-six plants altogether, many large ones among them. The *Mendelii* included some excellent forms, one in which the lip measured nearly 2½ inches across; another dark variety, in which the throat was of deep orange colour. Of *Lælias*, some good *Schillerianas*, carrying numerous flowers, and dark *elegans*, one especially good, named *prasiata*, with several others of scarcely lesser note, made up a display of colour worthy to be compared with the best. Messrs. F. Sander & Co. also showed about thirty plants of hybrids, mostly of the *gloriosum*, *Andersonianum* and *Ruckerianum* form of variety; among them were many choice forms, rich in markings, and very diverse in their appearance. The same exhibitors had a good spike of the beautiful *Calanthe vestita oculata gigantea*, certainly a most useful form, coming much later and considerably larger than the type; the pure white *Cattleya Bluntii*, a fine specimen of *C. Wagneri* with many flowers on it; a plant with two spikes of *C. maxima*, a very fine *Perni* variety with ten flowers on a spike; also a mass of *Warszewiczella Wallesiana* covered with its purple blossoms.

From H. LITTLE, Esq., came a good *Cypripedium caudatum* var. *rosea*, with tails 2 feet long; *selligerum* majus, with three spikes of large flowers.

From R. WHYTE, Pentland House, Old Kent Road, Lee, came a small plant of *Dendrobium cruentum*.

R. EWING, Esq., Cheshunt, exhibited a *Dendrobium Fytchianum*, with thirty spikes, a most interesting and beautiful specimen.

From Mr. A. BORWICK, Higham Hill, Walthamstow, came a fine plant of *Cymbidium Lowianum* that has been fed since August last with J. Jensen & Co.'s fish-potash manure. This plant, which hitherto has done just moderately well, since the application of the fish manure has grown very strong, making six growths this year in the place of single ones in years previous, and now it is shown with two fine spikes, one with twenty-six flowers, the second with thirty-two; evidently it has obtained great strength very recently.

W. COBB, Esq., Silverdale Lodge, Sydenham (gr., Mr. A. G. Catt), exhibited *Chysis bracteata*, with three spikes of sweet-scented flowers of good size and substance; a small plant of *Chysis Limminghii*, a *Grammatophyllum* species, with a spike 3 feet long bearing green flowers with dark brown spots.

Mr. PRINSEPS again brought a very fine plant of *Dendrobium nobile*, which had been under his method of pruning for several years.

Mr. G. GORDON, Twickenham, exhibited a very fine example of *Odontoglossum crispum*.

E. HARVEY, Esq., Aigburth, Liverpool, sent a nice plant of *Dendrobium Brymerianum*, and a good plant of *Odontoglossum ferrugineum*.

From B. D. KNOX, Esq., Caversham, Reading, came a plant of *Dendrobium cruentum*, bearing its yellow and orange flowers among the foliage.

THE NEW PLANT and BULB COMPANY, Lion Walk, Colchester, sent a capital variety of *Cattleya Mendelii*, a good form of *L. purpurata alba*, *Odontoglossums*, among which *Alexandræ* was in good form; *O. lave*, *polyanthum*, and good *vexillariums*.

A number of plants, some not in flower, came from Messrs. E. VERVAET & Co., Mont St. Amand, Ghent. Among these we observed *Aërides Fieldingii*, *Bollea* species, *Bollea Patinii*, *Bollea Lalindei*, *Cypripedium Parishii*, several *O. crispums*, and a large variety of *Pescatorei*. *Masdevallia Houtteana*, a mass with over twenty flowers on it; also a beautiful form marked *Lælia Schroederi*, very like *L. purpurata*, but very pale in the lip.

From W. VANNER, Esq., Camden Wood, Chislehurst, came a nice plant of *Masdevallia Chelsoni*, and on either side were plants of *M. Veitchii* and *M. amabilis* (parents), showing how well it partakes of the characteristics of both.

Messrs. J. VEITCH & SONS, Chelsea, had a fine lot of hybrids raised in their nursery, including *Chysis Chelsoni* (*C. bracteata*  $\times$  *aurea*), *C. Sedeni* (*C. bracteata*  $\times$  *Limminghii*), *Cypripedium calurum*, most beautiful production (*C. longifolium*  $\times$  *C. Sedeni*), *C. graude* (*C. Roezlii*  $\times$  *C. caudatum*), *C. marmorophyllum* (*C. Hookeri*  $\times$  *C. barbatum*), *C. microphyllum* (*C. niveum*  $\times$  *C. Druryi*), *Cypripedium Sedeni caudiculatum* (*C. Schlimii*, *albiflorum*  $\times$  *C. longifolium*), *C. supercilare* (*C. barbatum*  $\times$  *C. Veitchii*), *C. tessellatum porphyreum* (*C. concolor*  $\times$  *C. barbatum*), *C. veruxium* (*C. Argus*  $\times$  *C. villosum*), *Masdevallia Chelsoni*, and *M. Gairiana* (*M. Veitchii*  $\times$  *M. Davisii*).

A. H. SNEE, Esq., The Grange, Wallington, Surrey, exhibited a number of *Orchids* grown for four

months last summer in the open air, from June till October, and plants as shown, and cut flowers also, were certainly as fresh, and in some cases even larger, than those grown by ordinary culture. The cut included a number of *Lycaste Skinneri*, in many shades and of very fine size and colour. Plants included *Oncidium concolor* and *O. Marshallianum*, good plants of *Odontoglossum crispum*, *Masdevallia Shuttleworthii*, *Brassia Keleana*, *Odontoglossum radiatum*, and others. From E. Wright, Esq., Gravely Hill, Birmingham, came a fine spike of *Odontoglossum hebraicum*.

From Mr. J. ROBERTS, Gunnersbury Park, came *Aërides Veitchii*, a fine plant bearing a spike with three laterals; the rare *Eupopsis biloba*, *Cattleya Mossiae*, *Dendrobium nobile* (well bloomed), one of the few *Dendrobium Farmeri* in the whole show; the true old *Odontoglossum naevium majus* with good spikes; grand specimens of *Oncidium Marshallianum*; a large form of *Masdevallia Veitchii* with numerous blooms; *Phalaenopsis Mannii*, the pretty *Vanda cristata*, *Odontoglossum Andersonianum*, *Coleogyne ocellata*, *Odontoglossum triumphans*, and *O. citrosum*.

R. RAVENHILL, Esq., Fern Hill, Windsor Forest, exhibited a plant of *Oncidium concolor*, with a spike from the base, also from the top of the bulb.

Rev. J. B. NORMAN, Whitchurch Rectory, Edgeware, showed a plant of *Oncidium Kienastianum*. A long spike of flower, very much like *seratum*, but larger and brighter, with petals spread out, not clipped together over the front of the flower as is usually the case with *seratum*.

A novelty came from W. MACDONALD, Esq., The Woodlands, Perth, in a plant of *Phalaenopsis Stuartiana* in a basket with roots clinging to the wood, on which three young plants had appeared, and were rooting—a very interesting specimen.

N. C. COOKSON, Esq., Oakwood, Wylam-on-Tyne, showed *O. crispum* *Cooksoni*, a grand variety, having pure white ground, with large spots of deep purple all over it; also a nice spotted hybrid.

From F. A. PHILLBRICK, Esq., Q.C., Oldfield, Bickley (gr., Mr. H. Heims), came a grand plant of *Odontoglossum Wilckeanum*, with two spikes of flowers, bearing over thirty blooms; also *O. Ruckerianum*, very good. Mr. Philbrick also had a good plant of *Cattleya Mendelii*, a hybrid between *C. Loddigesii* and *C. saccinissima*.

Messrs. SHUTTLEWORTH, CARTER & Co., 191, Park Road, Clapham, put up a group of *Odontoglossums*, in all about fifty plants, in which were some fine forms of *crispum*, a strong spike of *mulus*, several good *Andersonianums*, *gloriosums*, *hystrix*, *naevium majus* (Rchb. f.), *Pescatorei*, grand forms of *Rossi majus*, *triumphans*, and *Wilckeanum*—a very choice group.

#### CUT FLOWERS.

Messrs. IRELAND & THOMSON, Craigleith Nurseries, Edinburgh, had a grand display of cut flowers. Here were to be seen over sixty varieties in excellent examples—*Ada aurantiaca*, *Aërides Warneri*, *Brassia verrucosa grandiflora*, *Cattleya Mossiae*, *C. amethystoglossa*, *C. amethystina*, *Citrina Mendelii*, and *C. Skinneri*, *Coleogyne ocellata*, *Cymbidium Lowianum*, *Cypripedium Boxalli*, *C. barbatum biflorum*, *C. Domini*, *C. Lawrenceanum*, *C. lævigatum*, *C. Lowi*, *C. Roezlii*, *C. [Warneri]*, *Dendrobium Boxalli*, *D. chrysotoxum*, *D. Devonianum*, *D. Dalhousianum*, *D. Falconeri*, *D. infundibulum*, *D. Pierardi latifolia*, *D. thysiflorum*, *D. Wardianum*; *Masdevallia Veitchii* *cerulea*, *M. Bull's blood*, *M. Denisoniana*, *D. Estradæ*, *D. ignea*, *D. Houtteana*, *D. Lindenii*, *D. lutea*, *D. oculatum*, and *D. xanthium*; *Odontoglossum* (*Erstedii*, *O. Alexandræ*, *O. cordatum*, *O. Cervantesi*, *O. citrosum*, *O. citrosum*, *O. gloriosum*, *O. Halli*, *O. hebraicum*, *O. luteo-purpureum*, *O. niveum majus*, *O. Pescatorei*; *Phalaenopsis polyanthum*, *P. Roezlii*, and *P. triumphans*; *Oncidium concolor* and *O. tigrinum*; *Phaius Wallichii*, *Burlingtonia fragrans*, *Trichopilia tortilis*, *Vanda insignis*, *V. tricolor*, *V. Leopoldi*, and *V. suavis*.

A. PATERSON, Esq., M.D., Fernside, Bridge of Allan, N.B., also staged some fine groups of cut flowers, the spikes and flowers being of excellent quality; here we noticed *Aërides Fieldingii*, *A. roseum*, and *A. rubrum*; *Angraecum sesquipedale*, *Ansellia africana*, *Brassia Lawrenceana* and *B. verrucosa*, *Cattleya Mendelii*, *C. Mossiae*, and *C. maxima*; *Coleogyne ocellata*, *Cymbidium eburneum* *Lowi*, *Cypripedium caudatum*, *C. Argus*, *C. longifolium*, *C. Lawrenceanum hirsutissimum*; *Dendrobium glumaceum*, *Lælia purpurata*, *Lycaste Skinneri*, *Maxillaria aureo flava*, *Mesopidium vulcanicum* and *M. sanguineum*; *Odontoglossum Alexandræ*, *O. citrosum*, *O. Halli*, *O. nebulosum*, *O. Pescatorei*, *O. Rossi*, *O. triumphans*, *O. leucoglossum*; *Oncidium concolor*, *O. Marshallianum*; *Phalaenopsis Luddemanniana* and *P. Schilleriana*; *Restrepia antennifera*, *Saccolabium retusum*, *Trichopilia crispa*, *Uropedium Lindenii*, and different forms of *Vandas*.

Messrs. W. THOMSON & SONS, Clovenfords, Galashiels, exhibited nearly a score of spikes of different varieties of *Vandas*; also good forms of *Lælia elegans*, *Trichopilia crispa*, *Odontoglossum Pescatorei*, and others. From W. Thompson, Esq., Walton Grange, Stone, Staffordshire, came grand pieces of cut flowers, including most of the forms of *Odontoglossum*, among which *O. coronarium* stood out very prominently; also *O. Andersonianum*, *O. Cervantesii*, *O. crispum*, *O. gloriosum*, *O. Halli*, *O. luteo purpureum*, *O. maculatum*, *O. naevium majus*, *O. nebulosum*, *O. pardium*, *O. Pescatorei*, *O. polyanthum*, *O. pulchellum*, *O. Rossi majus*, *O. tripudians*, *O. triumphans*, *O. Uro-Skinneri*, *O. vexillarium*, *O. Wilckeanum*.

A fine display of cut flowers was also made by De B. Crawshaw, Esq.; also by E. Harvey, Esq., Liverpool.



First-class Certificates were awarded as follows:—

To Sir Trevor Lawrence, Bart., M.P., for *Ludemanniana* Lehmanni, a plant in growth much like *Acineta* Humboldtii, but very distinct in flower. It was shown with two grand spikes coming from the base of the bulbs and hanging down, producing numerous blooms, with sepals of light brown, petals bright yellow, with hastate shaped lip of the same colour.

To Baron Schröder, for the following:—*Odontoglossum crispum* Veitchianum, a nice plant, with a spike of ten flowers of fine size and substance, standing well out sepals and petals, densely spotted with reddish-brown, lip rather short, with a deep golden crest and numerous spots on the lower part. For *Odonoglossum crispum* Sanderiana, which was in many respects similar to the above, yet inferior, the tips of the sepals and petals turning towards the centre of the flower; flowers large, the whole being heavily mottled and spotted with deep red spots and with a bright yellow crest. Also for *Odonoglossum excellens*, doubtless a natural hybrid, perhaps between *O. Pescatorei* and *O. triumphans*, in size and form much like the former, but just a little narrower than a good form; pale yellow ground colour, shading off to white at the centre of the flower, with two and sometimes three large spots of brown; lip white, with one spot in the centre. And for *Cypripedium Godefroyi*, a species recently figured in these columns, resembling *C. niveum* in growth and in form, but the whole of the flower covered with spots of brown, the lip having spottings of smaller size than the upper part of the flower. For *Masdevallia Sanderionna*, a singularly looking dull white flower, which was stained and spotted at the base of the flower segments with rich brown, the lip being dirty white.

To Mr. B. S. Williams, for *Masdevallia Harryana* lateritia, a plant with five flowers of great size, measuring over 2½ inches, deep vermilion with purple shade.

To Mr. Cookson, for *Odontoglossum Cooksoni*, a plant with large *Alexandra*-like blooms, having pure white flowers, of fine substance, with large spots of indian-red on every division of the flower; one of the finest forms that could possibly be imagined.

To F. Sander & Co., for *Cattleya Wagneri*, with ten pure white flowers, with yellow throat and a faint tinge of rose in the centre of the lip. For *Cattleya Bluntii*, fine flower, pure white in every respect, similar to *Mendelii*. For *Cattleya Schröderiana*, pure white sepals and petals, with lip of intense amethyst, beautifully veined with white—a magnificent thing. For *Cattleya maxima peruviana*, an imported mass, with three spikes, the largest bearing fourteen flowers, large, with very dark lip, splendidly veined. Lastly for *Odontoglossum Ruckeraum punctatissimum*, spike with twelve flowers, heavily spotted with deep rose shade over the whole of the flowers.

To W. Lee, Esq., for *Cypripedium Godefroyi*, a very fine form.

### The Discussion.

Sir TREVOR LAWRENCE, Bart., M.P., President of the Council, occupied the Chair. The attendance was exceedingly good, and great interest was taken in the proceedings.

The CHAIRMAN in opening the proceedings said:—The business of the Conference on Orchids which we are now about to commence has largely to do with the botanical and scientific aspect of the cultivation of Orchids. I need hardly say that I should not venture to express any opinion whatever on matters of botanical science in connection with this subject; as it is only as a horticulturist that I have the honour to occupy the position which I do occupy, and therefore I must ask you to be so kind as not to suppose that I am in any way assuming or professing to give any opinion on botanical questions. I think you will one and all agree with me that the Conference Committee and Royal Horticultural Society have every reason to be satisfied with the success which has attended the Conference. I very much doubt indeed whether such a collection of Orchids has ever been gathered together as we have in the conservatory below; and I believe that it would be impossible to gather together such a collection of Orchids as is there displayed in any other part of the world. The thanks of the Conference Committee are due to those amateurs and to those members of the trade who have helped us on this occasion, and on behalf of the Committee I beg to tender you our very sincere thanks for your exertions and efforts to make the Conference and show a success. The Royal Horticultural Society has for many years been under a great debt of gratitude to the horticultural trade, who have at all times supported us to the best of their ability, and who have largely contributed to the success of this Conference and our show. Under the somewhat new aspect our horticultural trade has assumed, several principal nurserymen are at the present moment very much interested in shows of Orchids on their own premises, and therefore we could hardly have expected them to denude their own premises for two days of the principal attractions that they would have; and while we are considerably indebted to the horticultural trade for the help they have given us, there is no doubt that the great bulk of the show is made up by the contributions of amateurs about London. I hope on another occasion we may have help from amateurs all over the kingdom. We should very greatly like to see some of those magnificent Orchids of which so many of us have only read, from the neighbourhood of Liverpool and Manchester. I have reason to believe that visitors who have come to this Conference from those parts are fired by the spirit of emulation, and will do all they can to show that they can cultivate Orchids as well, if not better, in the North than we do in the South. With regard to the excellence of the show, I think

I may be allowed to quote the authority of no less a person than Sir Joseph Hooker. He expressed to me and to other persons his very great admiration for the show, and his great appreciation of its value in promoting the cultivation of Orchids; and when we consider that Sir Joseph Hooker, who, like a great many other persons who study the scientific aspect of botany, is not very enthusiastic on behalf of shows, as a rule, I think this testimony is all the more valuable. Referring to Kew, I think it is very much to be regretted that, mainly owing to the excessive economy with which money is given to that very valuable institution, there is no sufficiently representative collection of Orchids there at present. I believe the authorities at Kew are fully alive to the very great interest which is being taken in this subject throughout the length and breadth of the kingdom, and we hope that they will do their utmost to ensure this result—that the collection of Orchids shall be equal to those of the other natural orders of plants. In fact, it would be unwise if they should not do so, because it is very much the custom and very much the fashion with gentlemen who possess collections, when they leave this world, to leave their collections to public institutions; and I do not see the least reason to doubt that, if there are fine ranges of Orchid houses at Kew ready to receive plants, some wealthy bachelor will leave his collection to the public, as being, perhaps, on the whole his best heir. With regard to the absentees from the Conference, I am requested by Professor Reichenbach, to express his very great regret that threats of an attack of pneumonia prevented his being here. I know of the reality of his regret, for he has been longing, and has been most anxious to see the skill which has been displayed and enterprise which has been shown by English orchidists. He has been kind enough to send a paper, and he writes to say that had he been here he would have expressed his warm thanks to orchidists, and especially to John Lindley—a name than which, in connection with the science of Orchid growing, there is no other that commands greater respect. While in the absence of Professor Reichenbach we lose one of the best scientific exponents, the loss is also his, as he would have thoroughly enjoyed seeing the collection we have here. Dr. Paterson, of the Bridge of Allen, says how deeply interested he is in the objects of the Orchid Conference, and he sincerely wishes it every success, as for half a century he has derived very great pleasure and instruction from the cultivation of all kinds of plants. We also regret the absence of plants which might have been sent from the Duke of Sutherland's, as more splendid species of *Odontoglossum* than those at Trentham cannot be seen in any other part of England. I do not suppose in any family of plants there is anything approaching the extraordinary variety which Orchids display. You get what appear to be in all respects totally different flowers growing on the same plants. Almost all epiphytes grow upon trees. A most singular circumstance connected with Orchids is the peculiar contrivance by which it is hardly possible for them to become fertilised except by the intervention of insects or the hand of man. Nothing has been more remarkable than the rapid increase of our knowledge of this family. Looking back to the first volume of the *Botanical Magazine*, which appeared in 1787, I find in the first ten volumes—from 1787 to 1795—that there were only two Orchids illustrated out of 360 plates. If you go to the first ten volumes of the third series of the *Botanical Magazine*, which appeared in the years 1845 to 1854, you find, on the other hand, that there are a hundred different species of Orchids illustrated out of the same number of plates. Now, so far as the possibility goes, it would be quite possible to fill almost every number of the *Botanical Magazine* with new species of Orchids, if it were desired to do so. I may say I have occasionally, as a subscriber to that periodical, been disposed to complain that we do not get a few more Orchids in it. I think sometimes they might very worthily replace some of the rather insignificant foreign weeds which appear there. I believe there are hardly fewer than 5000 species of Orchids known. Of that number there are close upon 2000 in cultivation. With regard to one particular genus (the *Dendrobium*) I have had in my collection no less than a hundred species in cultivation at one time. There is another curious circumstance in connection with Orchids. I do not see that with regard to most of them there is any reason why they should ever die. Parts of Orchids are annually reproduced in a great many instances, and death need not take place except through being in captivity or from errors of cultivation. I suppose it is quite as possible to give to plants, especially Orchids, such constitutional diseases as we human beings suffer from, such as gout and other things; and it is quite as possible to give like diseases to plants by injudicious diet and by feeding them too well or on improper food. There is another curious circumstance with which I think the industry of collectors is making us better and better acquainted. There exist albinos in some of the principal genera of Orchids, such as *Cattleya* and *Dendrobium*, and this shows the contrariety of human nature in regard to these genera. We search and endeavour to secure albinos; and when we have flowers which are white we search and endeavour to secure coloured varieties. With regard to the collection of Orchids, in former years collectors were sent out by wealthy amateurs, gentlemen who desired to adorn their gardens with new plants, new flowers—gentlemen such as the Duke of Devonshire, the Duke of Northumberland, and other persons occupying similar positions. Of course this Society did a great deal of very good work by employing very enterprising, skilful collectors. All this, so far as private people are concerned, has come to an end, and I think, perhaps, on the whole, it is to the advantage of the cultivation of Orchids that this matter should have passed into the hands of business people, who collect Orchids as a matter of commerce. In refer-

ring to that for one moment one would not do justice to several of the persons to whom we owe so many of the beautiful species, if we were not to pay some personal tribute to them. The firm of Messrs. Hugh Low & Co. have for many years devoted themselves, their capital and enterprise, in this direction. Then there are Messrs. Veitch & Son, Messrs. B. S. Williams & Sons, Mr. Bull, and Messrs. Backhouse. Many other firms have in years passed devoted a great deal of enterprise to this matter. I have got a list of the countries that have been covered by the collectors of one firm only. These are—the Argentine Republic, Borneo, Brazil, Guiana, Ceylon, Costa Rica, Ecuador, Guatemala, British Honduras, British India, Upper Burma, Jamaica, Java, Labuan, Madagascar, Mexico, Celebes, Uruguay, Nicaragua, Panama, Malay Peninsula, Singapore, Philippine Islands, Trinidad, San Salvador, United States, Columbia, and Venezuela. This shows at all events that there has been no want of very wide travel on the part of the collectors, and perhaps it may lead some people to suppose that we have very nearly collected all the Orchids we are likely to get. I do not think this is the case. In regard to one Orchid, one of the principal importers of plants told me his collectors had been searching for it for many years although it was known about where it grew. I refer to the *Odontoglossum majus*. Perhaps some day it may be found in profusion.

With regard to one subject, I think the public seems to take great interest in Orchids. Anybody who is accustomed to attend auctions knows that every now and then some few foolish persons, like myself, are carried away by the momentary spirit of competition, and we give more than the plants are really worth, and this applies to all collectors. What I would venture to say in regard to the price of Orchids is this: it is never very wise or judicious to give a very large price for imported Orchids although they may be said to be extremely rare, because some collector may turn up to-morrow with a shipload of the same flower, and what you gave 60 guineas for one day would, perhaps, not be worth more than as many shillings the next.

I think it more reasonable for wealthy persons to give a considerable price for Orchids which have been raised by cross-fertilisation in this country, because they are the results of horticultural skill that cannot be imported from abroad. When you consider the vast amount of careful watching and labour which is involved in coaxing a seedling *Cattleya* into a flowering state, I think you may fairly admit there is some good ground for the persons who have succeeded in raising seedling *Cattleyas* to consider themselves entitled to charge a large price for them. I think I am correct in saying that the first seedling *Cattleya* that was ever raised in this country was seventeen years before it flowered, and during that time it required very careful watching. With regard to imported Orchids, I should instance that in the present Conference there are three very beautiful varieties in the collection which is shown, and for which we are indebted to Baron Schröder—*Odontoglossum crispum* Veitchianum and *Odontoglossum crispum* Sanderianum. One of them is suffused with a sort of port-wine stain, and another is very richly spotted. I believe we might spend a lifetime and flower hundreds and thousands before we could get three such varieties as these are. Of course you all know when you get any exceedingly rare, and at the same time beautiful plant, it is naturally competed for on all sides, and is sold for a large price, and I think there is full justification for its being so.

Mr. VEITCH's paper on Hybridization was received with the greatest applause, and in the discussion which followed:—

Dr. MASTERS, F.R.S., said:—As a botanist, I have listened to this paper with the utmost admiration. I have been struck with the value and number of facts brought forward, many of them of such great interest as to render this paper one of the finest which has ever been read before this Society. The only contribution I would make in the way of discussion is this—that among the hundreds, perhaps thousands of Orchid seeds that I have seen, not one-tenth have been perfect, and this is the reason, in all probability, why so few have germinated under Mr. Veitch's care. The perfect Orchid seed is a nearly circular or elliptical bag or membrane, with a minute microscopic germ inside. Not in one-tenth of the seeds I have seen has this germ been present. Of course this is absolutely necessary to germination, and without it no seed can germinate.

The CHAIRMAN said:—Mr. Veitch has mentioned my name as one who has had some experience of late years as a hybridist. I can entirely corroborate if it were necessary what has been said about the exceeding difficulty of getting fertile seed, and in Mr. Darwin's book on the *Fertilisation of Orchids*, he mentions having microscopically examined seeds sent to him, and he found there was in an entire pod perhaps one fertile seed. Every now and then—but this is most exceptional—seed-pods have produced a vast number of fertile seeds. I have bought a *Cypripedium* which has produced a large number of plants—so large a number, in fact, that we have been constrained to throw a large quantity away. This was owing to the crossing of two *Cypripediums*. With regard to *Dendrobium*, we have pods which have produced a very large number of plants. With regard to *Odontoglossum*, we certainly have had seed germinate, but it has only lived to arrive at a very small size, which could scarcely be distinguished, even with the aid of a microscope, and has very speedily died. So far as the very small experience that I have had as a hybridist goes, I should say it is far more difficult to raise seedlings of some of the hybrid crossings than to raise delicate children, and those errors that I referred to in my opening remarks on the importance of diet and treatment, which I am afraid all our intelligence has not enabled us to avoid in regard to children, the little experience we have had of the progeny of Orchids will not enable us to avoid similar



errors in regard to these flowers. Mr. Fitzgerald, in his book on *Australian Orchids*, shows the extreme difficulty with which, in Nature, Orchids are fertilised; but he refers to a magnificent *Dendrobium speciosum*, called the Brisbane Lily, which had as many as 40,000 flowers open on the same plant at the same time. The plant was quite open to the visits of insects of every description.

The CHAIRMAN then alluded to the award of the Veitch Medals, alluded to in our leading article.

Mr. VEITCH, as representing the Veitch family, said: I am gratified to see that the Medal founded in honour of my father's memory should have been given to Mr. Seden. He has been twenty-five years in our employ. He entered my father's service, and a more zealous and skilful foreman it would be difficult to find. Therefore, I wish to bear testimony to my pleasure at Mr. Seden receiving a Veitch Medal.

Mr. B. T. LOWNE:—One of the difficulties in rearing seedling Orchids arises, I believe, from the fact that the pollen is only developed from the proliferation of the mother cells after the pollinia are placed upon the stigma. It is possible, I think, that the stimulation due to the presence of the pollinia gives rise to the development of the capsule even whilst the ovules remain unimpregnated.

Mr. JAMES BATEMAN:—I have very great pleasure in proposing a vote of thanks to Mr. Veitch for his admirable paper. I am sure he and Mr. Dominy will know the effort it causes me to make this proposal, for I have been brought up with the very strongest aversion to hybridists. I fell into evil hands early in life. My first orchidist friend was Mr. Huntley. When I paid him a visit at his snug little rectory in Huntingdonshire, he pointed to his Cacti and Orchids and said, "I like these plants. They are the only plants I grow because those dreadful fiends (meaning hybridists), cannot touch them." You must make a little allowance for the botanist, because you hybridists do give botanists a little trouble. However strong my prejudices were I must confess that when I saw such plants as your Cattleya, if I was not converted, at all events, what came to the same thing, I was "shut up!"

Mr. JOHN DAY seconded the motion, which was carried with acclamation.

Mr. VEITCH in reply, said he was exceedingly obliged to the Conference for their kind vote. Mr. Bateman was a kind-hearted genial gentleman, and he had always asked himself what could be the reason of Mr. Bateman's conduct when that gentleman went to his house, because he always adopted a very severe manner when he went near a hybrid. He could understand the whole matter now, and he was glad to know that Mr. Bateman had lived sufficiently long to give up his horror of hybrids, and he hoped he would still be able to name one of those flowers after Mr. Bateman!

#### CULTIVATION OF ORCHIDS.

Mr. J. O'BRIEN then read his paper on "The Cultivation of Orchids."

At the close of the paper, Sir Trevor Lawrence having left the Conference during the reading of it, to welcome the Prince of Wales—Professor MICHAEL FOSTER occupied the chair, and said, as there did not seem to be any intention of discussing the last paper, he would propose a hearty vote of thanks to Mr. O'Brien.

The motion was seconded and carried with enthusiasm, and the Conference then adjourned till 2 P.M.

#### THE NOMENCLATURE OF ORCHIDS.

Mr. LEE took the chair in the afternoon, and intimated that the subject for discussion was "The Nomenclature of Orchids."

Dr. HARVEY, Liverpool, who opened the discussion, said:—I feel very great diffidence in speaking in the presence of men who have given so much attention to the subject, but my excuse must be that I feel strongly on the question. I think that if a conference was required for the nomenclature of Daffodils, it must be necessary for the nomenclature of Orchids. The great difficulty we have to contend with to-day is the absence of Professor Reichenbach. I do not think it is in the power of this committee to decide that the Orchid Conference shall be permanent, but something should be done in the way of that accomplished by the Daffodil Committee. The proper authorities of the Society should, on the recommendation of this meeting, make the Orchid Conference Committee a permanent one, and it should take steps to secure the presence of Professor Reichenbach on the future committee, which should go into this question in a systematic and scientific way.

Mr. LEE:—The question of the nomenclature of Orchids is an exceedingly difficult one; I am afraid it is one that cannot be dealt with on this occasion. When we put this question down for consideration it was always hoped and expected that Professor Reichenbach would carry out his promise to come to this Conference, and we intended to refer the whole question to him, and to get him to give us a paper on the nomenclature of Orchids.

#### MANURES FOR ORCHIDS.

The CHAIRMAN called on Mr. ALFRED BORWICK, who said:—I have some diffidence in complying with the request of Mr. Lee, because the idea of anything like a manure is horrible to most Orchid growers. It has often been a source of regret to me, and no doubt many gentlemen here have felt the same, to see so many Orchids dwindle, if not possibly pass out of existence—not from any want of care or devotion, for that is generally in excess of the demand, but apparently from deficiency of strength, or, in other words, "starvation." I am led to think this must be the case from information

conveyed by travellers and collectors, that birds throng the trees upon which Orchids are found, and that they supply in their dung a rich diet, containing, as it does, ammonia, phosphoric acid, and some potash, which is washed by the rains and dews into the interstices of the trunks, so that the plants not only enjoy the advantage offered by residence on living trees, but the stimulant and food provided by the birds. Terrestrial Orchids in the same way have the benefit of decaying vegetation, which supplies stores of ammonia. As soon as plants come into house cultivation there is at once an end to these rich manurial provisions, and they have to depend upon moss, peat, charcoal, and corks, with possibly occasional charges of liquid-manure, for their subsistence. In all the soils and ingredients used for potting Orchids there is little trace of potash or other manurial constituent, and nothing goes to promote the development of fibre in plants like potash. The aim is to produce bulbs of largest size and firmest growth, but that is impossible unless there are healthy roots in abundance, and these roots can obtain a sufficient amount of nourishment to supply the fibres, of which the bulbs mainly consist. The manure which I have used for some time is that of Messrs. J. Jensen & Co., 10, St. Helen's Place, E.C., who are engaged in the manufacture of fish manure at the Loffoten Islands, the seat of the great Norwegian Cod fisheries. When I tell you that this year, from early in February to Easter, no fewer than 32,000,000 of large fish were caught you can form some slight idea of the magnitude of the fisheries. The fish are gutted, the bodies salted for food, the livers go to make oil, while the heads and backs are available for manure. They are dried, pulverised, and reach England in the form and condition of flour. The average manurial constituents of dried codfish are 10.60 ammonia, and 30 phosphates. Grand as these ingredients are in themselves they are wanting in one thing, viz., potash. If this is absent it is impossible to obtain perfect fertilisation; wherever it is present in due degree the effect is astonishing in the vigour and rigidity of plant growth. Refined salts of potash and magnesia are added to the fish manure and at once produce a perfect fertiliser of similar constitution to bird-dung, and containing the essential constituents of ammonia, phosphoric acid, and potash, in the form most available for plants. In this manure there is no acid used. Fish-bone is very gelatinous, and when sufficiently pulverised dissolves in the soil, so none is needed. Seeing, as I did, the effect of this combination on all pot plants, it struck me that Orchids might like it also. Last August I began to experimentise upon a plant of *Cymbidium Lowii*, and requested my gardener to put half-an-ounce on the soil. We soon observed a darker colour in the foliage; in four or five weeks two strong growths appeared, which proved to be flower-spikes as they grew; more fish-potash was added from time to time. Since then there are five breaks, four of them of strength sufficient to content any one. I then ordered its use for all terrestrial Orchids, *Lycastes*, *Calanthes*, *Sophranites*, *Phaius*, *Zygopetalum*, *Odontoglossum*, *Masdevallias*, *Dendrobium*, and even for *Oncidium* and *Laelias*. So far vigour seems to be on the ascendant, and I see no reason whatever to retire from the line taken up, or to alter my views. The plan of operations is simple. My gardener uses more peat round the sides of the pots, and he merely dusts the peat with a pinch of the manure, and wherever the fish-potash is there the roots work. Mr. Wm. Bull told me a fortnight ago that it was a vexed question as to what extent manures could be used for the cultivation of Orchids, and one which demanded the consideration of growers. The manure to which I have alluded is very easily obtained and applied. I would not recommend any one to make trials, except on plants of little value, and then no harm can be done; if it is found serviceable in the way indicated, there will then be time to consider a wider application.

Mr. JAMES:—For some years past we have been in the habit of using horse urine, and it has proved very beneficial, especially in the growing season. We are using it largely for the stages and paths at night, when quickly there arises such a heavy dew. I think if we take into consideration what Mr. Borwick has already hinted at, that plants invariably suffer extremely after carrying their heavy spikes, and this seems to impress upon one the thought that there is some necessity for sustaining the strength. The question has been raised of late years as to whether Orchids benefit from having their spikes removed after they are formed. I have no doubt in my own mind that it is of advantage if you want to gain strength for the plant. I have instances of the best *Odontoglossum Alexandræ*. Two years ago we took very special care of it. Somehow a small slug got at it and ate the spike. It at once began to make two bulbs, but most unfortunately last year the spike got eaten off again. The result has been that this year it has made a double growth from each bulb, and it has now four leads to the plant, which has been accomplished in bad years; and marvellous to say it has sent up nine spikes to the flower—an instance which I have not seen before in an *Alexandræ*. One bulb has three spikes on the side of the double leaf. I take it for granted that this must be merely a question of strength from resting the plant. I think that as regards the question of nutriment, it is not so much a question of what kind is applied, but how it is applied. With reference to syringing we have always used weak liquid manure on to the surface of plants, and a moderately good practical rule is not to use it strong enough to injure the flower. I contend that the syringe is beneficial in the growing season especially when the nights are genial and there are no frosts. I think that manure is quite beneficial and I have satisfied myself on the many different things we have used. The difficulty with many in using artificial manures is, that they begin by applying it too strong. They should ascertain what

strength the plant is capable of bearing, and if this were done we should not have so many failures.

Mr. BURKHIDGE:—I have no doubt that taking the spikes off plants must be of the greatest possible benefit to the plant.

Mr. DREWITT:—I know an instance where a gentleman cut the spikes even before the last flower on the spike had expanded, and it was owing to this practice that the plants were the finest specimens I ever saw. Mr. James tells us we must not use the manure too strong. I think the best point in Mr. Borwick's speech was when he told us to use the manure on our common plants. Unless we have some more accurate data we are merely playing with fire.

Mr. HEATH (Cheltenham):—The question of watering Orchids with manure is a very difficult one. There is no doubt that many Orchid growers water their plants with manure, but they like to keep it to themselves. As regards Orchids, we have not used it over the tops of the pots. We had an *Odontoglossum Rossi*, and we used on several occasions cow manure, sheep manure, and horse manure, and we also used in addition a small quantity of soot. We found our plants were very vigorous for a year or two, but after that we were bound to wash the entire plants out, for we found they got rather a yellow hue. Since that time we potted them, and instead of watering them overhead, we have thrown down in the house nitrate of soda, and ammonia. We find that where ammonia has been thrown down the plants became of a most brilliant green colour. We have had thatnow for six years.

Dr. MASTERS said:—With reference to this question of manuring, we must go back to first principles. In the first place we do not know the chemical composition of the leaf or of the flower, nor indeed any part of the Orchid plant. Until we know that we cannot have any definite rule as to the right manure to supply and the right time to use so. It may, however, certainly be said without fear of contradiction that all plants (Orchids not excepted), want food. What is the right food to give them, and at what time? The proper food to be given them at one time is that which will make bulb and leaf, and which at another will enable them to form flower and seed. The structure of Orchids also is most extraordinarily diversified. The internal structure in the same genus differs widely, but whether the food to be given should be correspondingly different, must be found out in the future.

Mr. JAMES:—Do we understand that this Orchid Conference will be repeated at a future time? If so, I may suggest that on a future occasion we might exhibit plants that have been subjected to the various methods of treatment mentioned.

The CHAIRMAN:—I cannot give any promise that this Conference will be repeated, because we have hardly got so far as that. This Conference brings no grist to the mill of the Horticultural Society. It is done from a pure love of Orchid growing. I should say, speaking from my own feeling on the subject, that this Orchid Conference should be repeated.

After some further remarks the Conference broke up with the customary votes of thanks.

#### ORCHIS BEETLES.

IN the *Gardeners' Chronicle* of February 3, 1883, we gave a description and figure of the fleshy larva of a longicorn beetle found in the stem of a *Dendrobium*, and we have now to describe another coleopterous larva which came out of an imported Orchis root, purchased in London, which is evidently even more injurious than the insect previously mentioned. It was sent to us in July last by an esteemed correspondent, and is here represented in the annexed woodcut (fig. 146) of the natural size, being about 1½ inch long, nearly cylindrical, rather more than one-sixth of an inch thick, covered with a hard horny chestnut-coloured tegument, having much the appearance of a large wireworm, or larva of one of the Elateridæ, or click beetles. The most curious part of the insect is the large terminal segment, which is oval, flattened above, strongly punctured, and with the lateral margins raised so as to form a spoon-shaped impression on the upper side. The six legs are very short, so as not to be seen from above; they are, as usual, attached in pairs to the three segments of the body following the head. One is represented in the lower right-hand figure. The antennæ are very short, with two ring-like basal joints, the third joint being longer and more slender, terminated by a minute point. The large right-hand outline figure represents the underside of the head, the component parts of the mouth being very different from those of the larvæ of the click beetles. The mandibles (see the upper left-hand outline) are very robust, and strongly armed with several acute teeth, capable of inflicting much damage on the root on which the insect subsists. The lower jaws (see the lower left-hand figure) and the lower lip are furnished with very short palpi. A comparison of the structural details of this larva with those of the numerous species of Elateridæ, figured by Dr. Schiodte, as well as with the larvæ of *Callirhipis Dejeanii*, *Cebrio gigas*, and of species of *Blaps* and *Akis*, all published by the same writer,



would seem to remove this insect from the families Elateridae and Cebionidae, pointing out a nearer relationship to the Tenebrionidae. It is to be regretted that the precise locality of the plant attacked by this insect was not determined.

In our second accompanying woodcut (fig. 147), we have represented, of the natural size, a handsome bronzed beetle belonging to the genus *Camaria*, common in Brazil, which was found alive in an Orchid-house in England in July last. It is here represented in a flying position with its wings expanded. It was not observed to have injured any of the plants. From the relationship of the *Camaria* with the Helopidae and other Heteromera, it is barely possible that this

## Obituary.

CHARLES TURNER, whose loss the floral world has now to deplore, was born at Wilton, near Salisbury, on May 3, 1818, and died at Slough on May 9, 1885, thus having nearly accomplished the allotted span of "three score and ten" years, during which long period he had been a consistent and earnest champion of floriculture, and one of its most successful exponents. All honour to his memory as the King of the Florists—a title well conferred on him some time since by Canon Hole.

Our old friend—for we also must claim long acquaintance with him as one of the floral brotherhood—must have been a florist born, for at a very early age—in 1832, at fourteen years of age—we read of his being an exhibitor of Pinks, and, what is more, of winning the prize. He had been meanwhile apprenticed to a dyer, but this floricultural success seems to have been the turning point in his career, and led him to take up the florist's art, in which in after life he so greatly distinguished himself. No doubt the lessons learned of the dyer bore good fruit, in that nice appreciation of colour and effect which was one of Mr. Turner's great accomplishments as an exhibitor, and which has often proved to be the turning point which gained for him the victory. Besides this, his sympathies were large; he by no means limited his favours to one flower or one set of flowers, but was thoroughly catholic; one subject after another claimed and obtained his close study, and often a whole galaxy of beauty would be engrossing his attention at one moment; and whenever he took a flower in hand, he did not let it drop till he had effected his share in its improvement, for Mr. Turner was a thorough-going florist, keen in his perception of all the qualities which go to make a first-rate flower, knowing that all these qualities can be developed, if only there be sufficient perseverance and good judgment brought to bear upon the task, and ready to apply rigorously all the rules, stringent though they sometimes are, which tend to help forward this straining after perfection. The plant, he knew, was so plastic that the faintest indication of an improvement, of whatever kind, had but to be followed up to work out that peculiarity in the form most conducive to the fullest beauty, and none knew this better, or worked in more complete harmony with Nature, than the genial warm-hearted master of Slough—Slough being a name henceforward sacred to florists.

The numerous flowers which Mr. Turner has assisted to improve give some idea of the breadth and fulness of his esteem for floriculture. Pinks first, then Pansies, and Pelargoniums, of which latter the present improved mass of fancy varieties consist mainly, we believe, of varieties of his raising; Picotees and Carnations, Cinerarias and Verbenas, have largely profited by his labours, and so have Auriculas, especially the charming race of alpine Auriculas, which have in these days risen very high in popular favour; and last, but not least, there is the Dahlia, that queen of autumn flowers—the Dahlia in all its forms and phases, for which Mr. Turner has done very much, one of his latest works having been to revive in great measure the taste for these noble flowers, by his energetic efforts to establish and carry on a National Dahlia Show. We can scarcely imagine a means whereby the esteem of the floral community for their departed brother could be better testified than by taking care that the Treasurer is supplied with the necessary funds to make this show a very great success. Let the Dahlia show, his latest pet project, be carried on *In Memoriam*.

If as a raiser and improver of our floral pets our generous friend has occupied a prominent position, he has not been left behindhand as a cultivator, witness his noble specimens of Indian Azaleas, his grand pot Roses, and his profusely-flowered Pelargoniums, especially those of the fancy type; witness again his Rose blooms, his Dahlia blooms, almost always taking first rank, and again his Tulips, Carnations, Picotees, Auriculas, &c. Count up the first prizes he has won during the forty years and more that he has been proprietor of the Slough Nurseries, and then say if Charles Turner must not be put in the very front rank of high-class cultivators. On matters of business it is not for us to pass comment, but we may surely hope that all this high-class labour and effort has brought a substantial reward.

The services of Mr. Turner were much sought as a judge, and from having sometimes been associated

with him in this capacity we can bear witness what an excellent judge he was. His quick eye caught at once the merits and demerits of the exhibit, and his decision was made at once and without reserve. We have seen it noted that he used to claim having won and awarded more prizes than any other living man, and we think this would probably be borne out by the facts, could they but be ascertained. Some attempt to do this was made at p. 134 of our twentieth volume, n.s., 1883, where a portrait and a biography appeared. Mr. Turner was, for a few years, proprietor and editor of *The Florist*, and was an occasional contributor to this and other publications, but of late years his health, which has been failing, left him with but little inclination for literary work. He was always, however, ready to impart information to those who sought it at his hands.

Finally, we may say of Charles Turner, in connection with Floriculture, that, as a raiser, an exhibitor, as cultivator, and as censor, and, moreover, as a florist in the truest, fullest, and widest sense, we shall not soon look upon his like again.

—The death of Mr. JAMES BRIDGER, of Mitcham, the proprietor of the famous Mitcham Lavender, &c., Grounds, at his residence, the Manor House, on the 4th inst., removed one who was at the head of this particular business in this country. He had attained the ripe age of seventy-nine years. He was a central figure in the Mitcham district of Surrey, being the Lord of the Manor of Buggire and Tamworth; he had during the last forty years filled nearly all the leading parish offices, and he was also a large employer of labour, the Mitcham herb fields having a world-wide reputation. These grounds have been in the occupation of the Bridger family for at least two generations, and probably longer. From the age of twenty years Mr. James Bridger took an active part in carrying on the business, and in 1857, on the death of his father at the age of eighty, he became the sole proprietor. At Mitcham are grown large breadths of Provence and Damask Roses, Camomile, Mint, Lavender, Liquorice, Lovage, Poppies, Henbane, &c.; and not only was Mr. Bridger a large grower of these, but he was also a distiller on a large scale, distilling not only his own products, but those of smaller growers about him; and buying up also what they could produce. The soil about Mitcham, and also at Carshalton and Beddington, is of a warm, light character, and well adapted for the growth of these herbs. It is worthy of mention that only a fortnight or so before Mr. Bridger's death, his old foreman, who had been on the place for over fifty years, died at the end of a long service, and probably his death hastened that of his old master, who was an excellent employer, and kept his servants for a long time. The business will now be carried on by two sons of the deceased.

—We regret to announce the death, on the 6th inst., of Mr. JAMES DON, seedsman, at 20, Chapel Bar, Nottigham, at the early age of thirty-five years, from consumption. He was deservedly respected for his unassuming manner. The Notts Horticultural and Botanical Society loses in him a sincere friend, he having taken a most active part in its concerns as one of the Honorary Secretaries.

## Law Notes.

A FIGHT ON PRINCIPLE.—GODFREY v. WAITE, NASH & COMPANY.—Plaintiff, a florist, of Exmouth, was represented by Mr. Thorne, barrister (instructed by Mr. Vine, Exmouth), and Mr. Sparkes, Creditor, appeared for the firm of Messrs. Waite, Nash & Co., of London. Mr. Thorne announced that the case had been settled. Under its peculiar circumstances it required a little explanation. The action was brought by plaintiff against the defendant, the complaint being that whereas plaintiff ordered of Messrs. Waite, Nash & Co., Berlin Lily of the Valley roots, they sent Dutch roots instead. The case was originally launched as a breach of contract, and there was never a suggestion that what had taken place was of a fraudulent character. On this occasion he had had an interview with Mr. Sparkes, who had proved conclusively to him by documents that the roots were what they were described as being in defendants' invoices, viz., German Lily of the Valley roots. Plaintiff's object was to get an early crop, and disappointment in that particular induced him to believe they were Dutch. However, he (Mr. Thorne) was now perfectly satisfied that the roots were German. Mr. Sparkes (speaking on behalf of his clients) said that had the case been tried

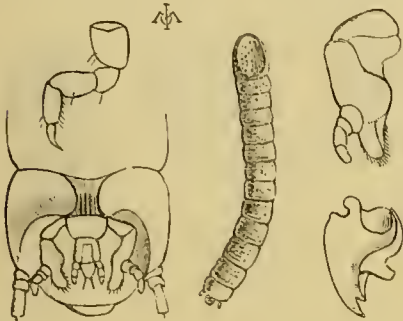


FIG. 145.—OECIS BELTZE.

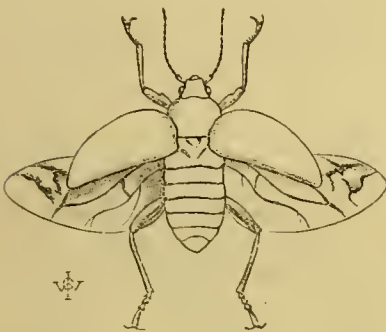


FIG. 147.—BEETLE OF THE GENUS CAMARIA.

beetle may be the perfect state of a larva like the one figured in our upper woodcut. J. O. W.

OLD IDEAS OF GARDENS.—The hanging gardens of Babylon were built by Nebuchadnezzar to gratify his wife Amytis. The gardens were over 400 feet square, built terrace above terrace until they were 27 feet higher than the walls, or 400 feet. The top was sustained by a series of arches one above the other, and each terrace was bound by a solid wall 22 feet thick. On the top arches were first laid flat stones, 16 feet by 4 feet; over these weeds and bitumen; then two rows of cemented brick covered by sheet-lead, upon which was laid earth sufficiently thick to nourish large trees. The gardens were filled with the blooming plants and shrubs which were admired by Queen Amytis in her native Media. The different terraces and groves contained fountains, parterres, seats, and banqueting rooms; in fact, all the splendour and magnificence of Eastern art seem to have been lavished upon these gardens by King Nebuchadnezzar in order that his Median bride should be happy in her new home. Pen cannot picture the grandeur of the conception, or the perfection of the execution, of these gardens, which have been, and are, the wonder of all ages. The greatest hanging structure now in existence is the Brooklyn Suspension Bridge, costing 15,000,000 dols. The whole length is 3475 feet, and it connects New York and Brooklyn by a clear span of 1595 feet. It is 135 feet above low-water mark, and 85 feet broad; it has also two platforms, one above the other. The piers are stone masonry, hollow, and sunk below the surface by means of caissons. As the details of this work are formidable, it is sufficient to say that it is the greatest engineering feat known. John Roebling was the engineer. *Building and Engineering Times*.



their answer would have been twofold. In the first place they would have repudiated any legal liability in the matter; but the broad moral answer was that the order sent in by plaintiff for German roots had been faithfully, honestly, and truly executed. He assured his Honour that this was not a question of account; and had the question been fought it would have been fought entirely on principle. The case was allowed to be settled accordingly.

### Answers to Correspondents.

*\*\* Owing to the extraordinary pressure on our space many matters must be held over.*

**BEGONIAS:** T. B. & S. Pretty, but there are many much better.

**BOOKS ON FRUIT GROWING:** *Sam. Rawson. Profitable Fruit Farming*, by C. Whitehead, F.L.S., F.G.S. Longmans, Green & Co. Price 11. Dr. Hogg's *Fruit Manual, Journal of Horticulture*, 171, Fleet Street, Price 15s. *Science and Practice of Grafting, Budding, and Training Fruit Trees*, from the French of M. Du Breuil. Kent & Co., London. *Profitable Gardening*, by Shirley Hibberd. *Manual of Injurious Insects*, E. A. Ormerod. Swann, Sonnenschein & Allan, London.

**CLEMATIS:** H. M. Judging from a single flower we cannot see much improvement on the type.

**DISEASED VINES:** G. T. We find no trace of Phylloxera on root or leaf. The warts on the latter indicate bad management as to ventilation. We cannot find the brown insects you mention, but in any case the Vine louse is not brown. Send other specimens.

**NAMES OF PLANTS:** W. M. Coronilla Emerus.—E. F. The pods are those of Colutea arborescens. The tree is *Pyrus pinnatifida*.—J. M. Amygdalus nana; the bulb next week.—J. Earle. *Epidendrum selliguerum*.—C. Dimmick & Sons. *Pittosporum undulatum*.

**PEACH FOLIAGE INJURED:** P & S. Exposure to sun when the leaves are wet, and bad glass, will produce the effect.

**WORM IN ORCHID-HOUSE:** W. H. D. The worm is allied to the Hair-worm (*Gordius aquaticus*). We believe it is not injurious.

*\*\* All communications intended for publication should be addressed to the "Editor," and not to the Publisher, or to any member of the staff personally. The Editor would also be obliged by such communications being written on one side only of the paper and sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

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### CATALOGUES RECEIVED.

WOOD & INGRAM, Huntingdon—General Nursery Catalogue.  
EDMOND PHILIP DIXON, Hull—New and Choice Plants.  
RANSOMES, SIMS & JEFFERIES (Limited), Ipswich and London—Steam Engines, &c.  
CLARKE BROS. & CO., Carlisle—Summer Flowering Plants and Florists' Flowers.  
THOS. KENNEDY & CO., Dumfries—Florists' Flowers, Stove and Greenhouse Plants, Pot Roses, &c.  
ROBERT VEITCH & SON, Exeter—Select List of Greenhouse Plants, Roses, Chrysanthemums, &c.  
DEAN & CO., King William Street, London Bridge—Garden Furniture.  
J. DICKSON & SONS, Newton Nurseries, Chester—Bedding-out Plants.  
LITTLE & BALLANTYNE, Carlisle—Roses, Dahlias, and Bedding Plants.

**COMMUNICATIONS RECEIVED:**—W. B. H.—W. B.—H. T.—J. L.—M. F.—D. T. F.—F. W. B.—M. D.—New York Horticultural Society (Schedule).—Northampton Horticultural Society.—E. J.—W. Swan.—A. D. W.—H. H. R.—N. D.—St. Petersburg.—L. Liöden.—G. H.—N. Blandford.—J. R. T. & Co.—R. D.—J. Clarke.—Wolley Dod.—Sir C. Strickland.—S. Bros.—J. Fraser.—H. W. W.—E. C.—M. C.—J. D.—R. S. D.—Justus Corderov.—W. H. F.—J. S. Gray (too late for this week).—C. T.—J. J. H.

DIED, on May 9, in his seventy-fifth year, Mr. STEPHEN DAVIES, partner in the firm of Thomas Davies & Co., of Wavertree Nursery, near Liverpool. He had been actively connected with the firm for more than half a century, the business of which will be carried on as usual, his eldest brother (Thomas) being still at the head of the firm.

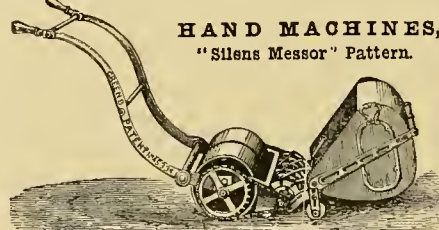


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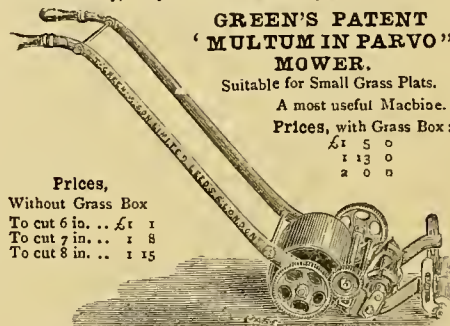
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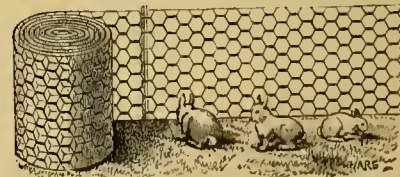
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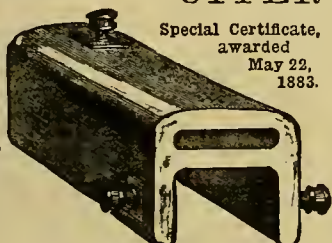
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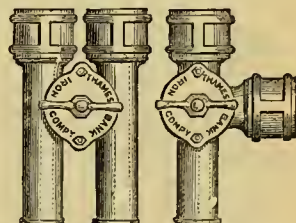
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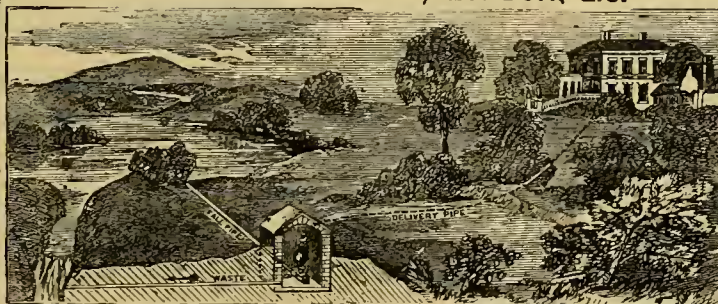
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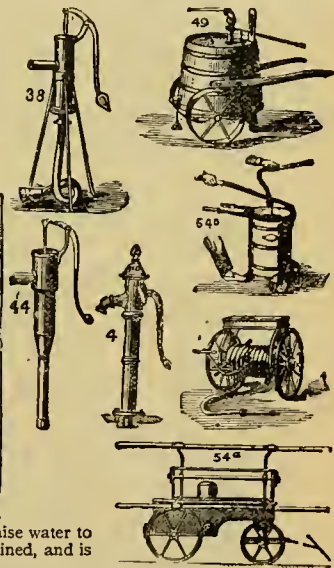
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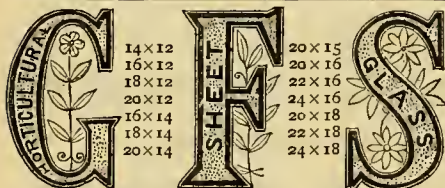
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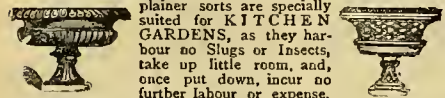
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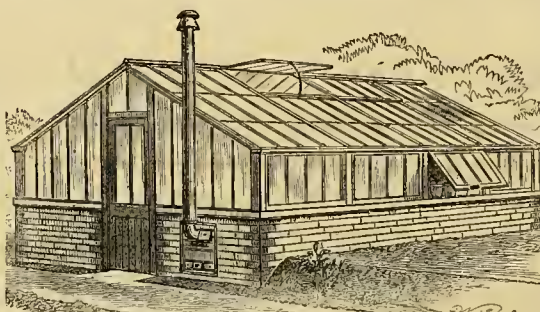
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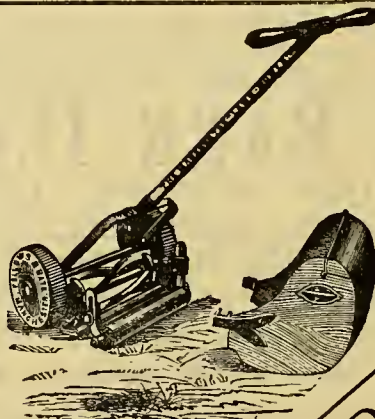
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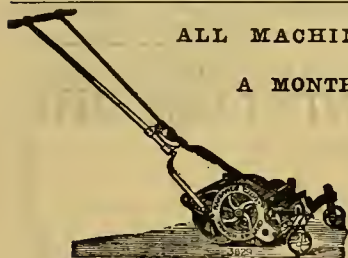
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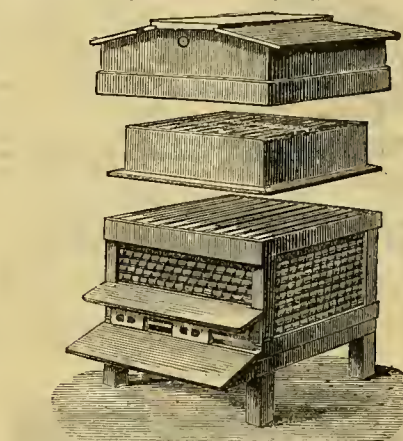
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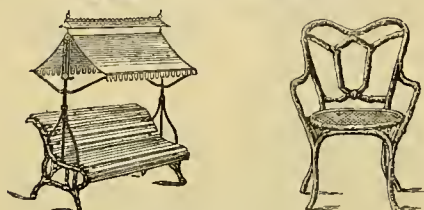
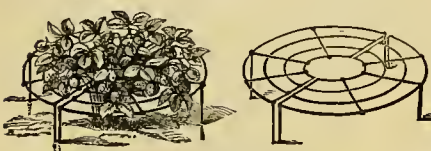
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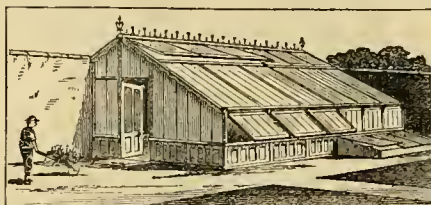
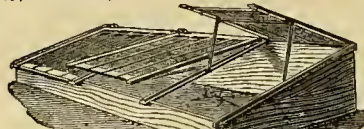
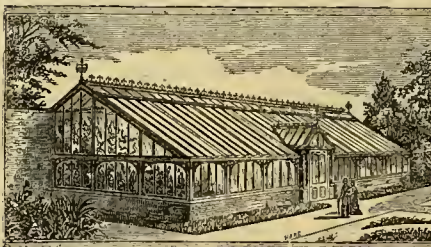
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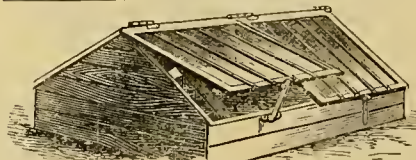
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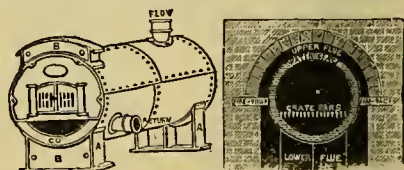
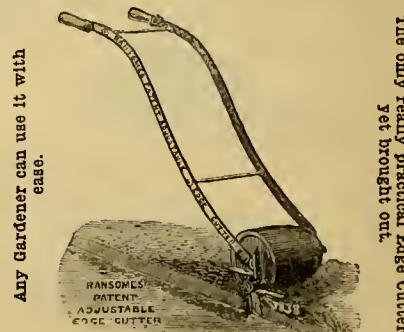
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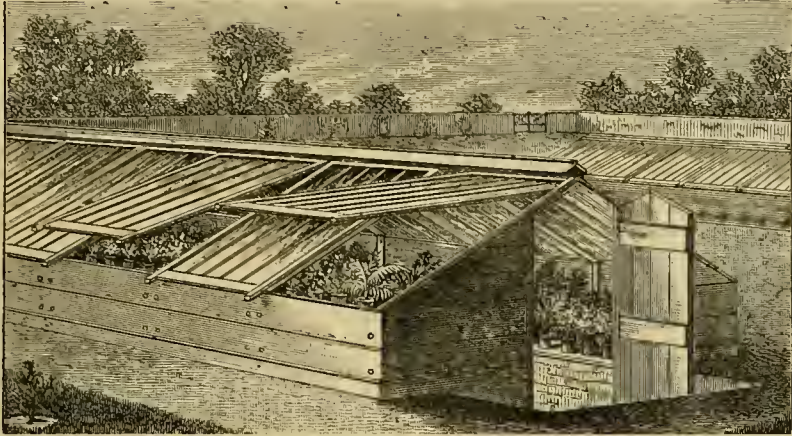
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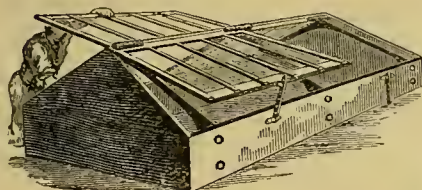
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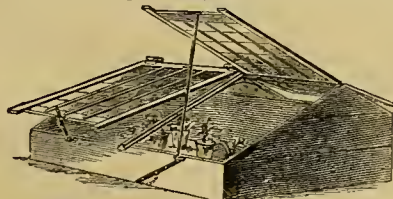


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No. 74.—Three-quarter Span-roof Garden Frame.



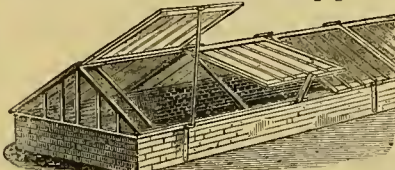
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No. 3	12 feet	8 feet	£6 5 0	6 0
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Height in front, 11 inches, back 22 inches, centre 32 inches.  
Lights made to turn over. Set-ops for ventilating.

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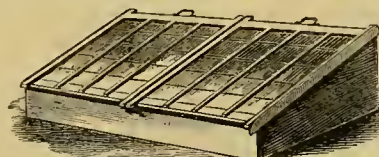
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Made to any length. See Catalogue for larger sizes.

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NO OILING OR PACKING REQUIRED.

Made in Sizes to Raise from 300 to 500,000 Gallons per day. Will Force to a Height of 1500 feet.

SPECIAL RAMS for HIGH FALLS to send up One-third of the Water passing through them.



FIG. A.  
This Ram raises a portion of the same water that works it.

Prices of Rams of figure A make, to force to medium heights:—

No. of the size of the Ram.	Number of Gallons per day of 24 hours the ram will raise where there is sufficient working fall as compared to the height the water has to be forced.	Price.
		£ s. d.
2	300	12 0 0
3	600	15 0 0
4	1,000	20 0 0
5	1,500	25 0 0
6	2,000	30 0 0
7	3,000	35 0 0
8	5,000	40 0 0
9	7,000	48 0 0
10	10,000	58 0 0
11	15,000	70 0 0
12	20,000	80 0 0
13	35,000	100 0 0
14	50,000	140 0 0
15	70,000	210 0 0
16	100,000	250 0 0

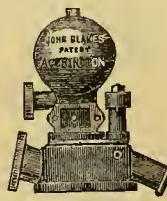
## ESTIMATES will be given on receipt of the following particulars:—

1st, the fall (in feet or inches) which can be obtained from the stream, spring, river, or other source of supply; 2d, the height and distance to which the water has to be forced; 3d, the approximate quantity falling per minute, and the number of gallons required to be raised in a day of twenty hours; and if a B Ram is required, the depth and horizontal distance from the Ram to the clean water should also be stated. Gun metal is liberally used in the construction of these Rams, and the prices include gun-metal foot and stop delivery valve, &c. They are fitted up in a most substantial and workmanlike manner, the first cost being only a secondary consideration.



BLAKE'S SPECIAL RAM.

To force to a height of 1500 feet.



BLAKE'S SPECIAL RAM.  
For deep working falls, will force up one-third of the water passing through it.



FIG. B.

This Ram, whilst worked by a stream of impure water, will pump clean water from a well or spring.

Prices of double-acting Rams of figure B make, to force to medium heights:—

No. of the size of the Ram.	Number of Gallons per day of 24 hours the rams will raise where there is sufficient working fall as compared to the height the water has to be forced.	Price.
		£ s. d.
4	1,000	50 0 0
5	2,000	60 0 0
6	4,000	90 0 0
7	7,000	120 0 0
8	10,000	150 0 0
9	15,000	180 0 0
10	20,000	200 0 0
11	30,000	250 0 0
12	50,000	400 0 0
13	70,000	500 0 0
14	100,000	600 0 0

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His Highness the Maharajah of Kashmir  
His Grace the Duke of Cleveland  
His Grace the Duke of Portland  
The Most Noble the Marquis of Downshire  
The Right Hon. the Earl of Crawford and Balcarres  
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The Right Hon. the Earl of Ilchester  
The Right Hon. the Earl of Romney  
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## ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.  
NOTICE!—COMMITTEES' MEETINGS, Fruit and Floral, at 11 A.M., in the Conservatory; Scientific at 1 P.M., in the Library.  
GENERAL MEETING for the Election of Fellows, &c., at 3 P.M., on TUESDAY NEXT, May 26, in the Conservatory.  
SHOW OF POT ROSES, AZALEAS, &c., open at 12 o'clock to Fellows, and 1 o'clock to the Public.  
N.B.—Exhibitors' Entrance, east side of Royal Albert Hall.

## ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.  
GREAT SHOW OF ROSES in Pots, AZALEAS, ORCHIDS, &c., in the Conservatory, on TUESDAY, May 26.  
Visitors to International Inventions Exhibition admitted free from 12 o'clock noon.

## RICHMOND HORTICULTURAL SOCIETY.

The ELEVENTH ANNUAL SUMMER EXHIBITION will be held in the Old Deer Park, Richmond, Surrey, on WEDNESDAY, June 24. Prizes, amounting to TEN GUINEAS, are offered for Dinner Table completely laid out for ten persons.

NOTICE TO CHRYSANTHEMUM GROWERS.—The CHRYSANTHEMUM SHOW will be held on NOV. 5 and 6. Ex. ceptionally large Prizes are offered, including TWENTY POUNDS for 48 distinct, 24 Japanese, and 24 Incurved. Schedules for both Shows may be had on application to J. H. FORD, Hon. Sec., 22, George Street, Richmond.

## COLCHESTER and EAST ESSEX HORTICULTURAL SOCIETY.

EXHIBITIONS will be held in the New Corn Exchange, Colchester, on TUESDAY, June 30; and a CHRYSANTHEMUM SHOW on THURSDAY and FRIDAY, November 19 and 20. Particulars of Mr. J. C. QUILTER, Secretary, 5, Head Street, Colchester.

## EALING, ACTON, and HANWELL HORTICULTURAL SOCIETY.

SPECIAL GREAT ANNUAL EXHIBITION in the Grounds of Gonnorsbury Park, Ealing, W., on TUESDAY, July 7, and WEDNESDAY, July 8. The sum of SEVENTY-FIVE POUNDS is offered in SPECIAL PRIZES, open to All Comers. Schedules of Prizes forwarded on application to RICHARD DEAN, Hon. Sec. Ranelagh Road, Ealing, W.

## BEDFORD and BEDFORDSHIRE HORTICULTURAL SOCIETY.

SECOND ANNUAL SHOW, at Bedford, JULY 15. SPECIAL PRIZES for ROSES, open to all England. Entries close July 7. Schedules of Prizes, with Forms of Entry, to be obtained of HENRY TEBBS, Hon. Sec. Stoneleigh, Bedford.

## LINNEAN SOCIETY,

Burlington House, Piccadilly, W.  
The ANNIVERSARY MEETING of the Society falls this year on Sunday, May 24, and the Monday following is a Bank Holiday. NOTICE IS HEREBY GIVEN that the Meeting in question will be held only *pro forma*, on Monday, May 25, at 3 P.M. (Bank Holiday), and will then be ADJOURNED to THURSDAY, JUNE 11, at 8 P.M. precisely, for the ELECTION OF COUNCIL and OFFICERS for the ensuing year. B. DAYDON JACKSON, Secretary.

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Roses and Clematis.

THE ROYAL NORFOLK NURSERIES COMPANY (late Ewing's), Eaton, near Norwich, can supply fine Plants of MARÉCHAL NIÉL, and best varieties of TEA and NOISETTES, CLEMATIS JACKMANNI, and others, 12s. 18s. and 24s. per dozen.

EIGHTY THOUSAND CLEMATIS in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.

RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

To the Trade.

SWEDEN and other TURNIP SEEDS.

H. AND F. SHARPE invite the attention of the Trade to their fine selected Stocks of home-grown SWEDEN and other TURNIP SEEDS of 1884 growth, and raised from transplanted Bulbs. Prices and further particulars may be had on application.

Seed Growing Establishment, Wisbech.



## SALES BY AUCTION.

Wednesday Next.

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, May 27, at half-past 12 o'clock precisely, 100 lots of first-class CAR-NATIONS and PICOTEEs from the collection of Mr. T. S. Ware, Tottenham, London; an assortment of GREENHOUSE PLANTS, many in flower. FERNS, 150 fine TEA ROSES and GARDENIAS, FINKS, CLOVES, 3000 ANEMONES, 600 PANCRATIUM CARIBÆUM, received direct from the West Indies; PANSIES, &c., together with 400 GOLD FISH. On view morning of Sale, and Catalogues had.

Friday Next.

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, May 29, at half-past 12 o'clock precisely, by order of Mr. F. Sander, a grand importation of ODONTOGLOSSUM ROSSI MAJUS, ONCIDIUM ALEA VIOLACEUM, ONCIDIUM ORNITHORHYNCHUM, ODONTOGLOSSUM CORDATUM and O. MACULATUM; also a fine lot of TRICHOSMA SUAVIS, &c.

On view morning of Sale, and Catalogues had.

Forest Gate, E.

15,000 well-grown GREENHOUSE and BEDDING PLANTS.

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION, on the Premises, The Manor Park Nurseries, Latimer Road, Forest Gate, 8 minutes' walk from the Railway Station, on SATURDAY, May 30, at half-past 1 o'clock precisely, without reserve, by order of Mr. S. Hilly, 1500 GREENHOUSE and BEDDING PLANTS, including 1000 splendidly grown Maidenhair Ferns, 3000 Pelargoniums of the finest varieties, 3000 Lobelias King of Blues, 5000 Zonal Geraniums of the best kinds, Spiræas, Coleus, Fuchsias, 1000 Azaleas, Palms, Dracænas, Chrysanthemums, &c. May be viewed two days prior to Sale. Catalogues may be had on the Premises, at "The Swan," Stratford; "Princess Alice," Romford Road; and of the Auctioneers, 67 and 68, Cheapside, E.C.

Flowering Orchids.—Special Sale.

**MESSRS. PROTHEROE AND MORRIS** beg to announce that in consequence of the Whitsun Holidays, their NEXT SPECIAL SALE OF ORCHIDS in Flower will take place on TUESDAY, June 2, for which they will be glad to RECEIVE NOTICE OF ENTRIES as early as possible.

Thursday Next.—(Sale No. 6916)

IMPORTED ORCHIDS.

**MR. J. C. STEVENS** will sell by AUCTION at his Great Rooms, 38, King Street, W.C., on THURSDAY NEXT, May 28, at half-past 12 o'clock precisely, by order of Messrs. F. Horsman & Co., an importation of ORCHIDS, just arrived in grand condition, consisting of extra large masses (large bulbs) of Odontoglossum Rossi majus, Epidendrum velutellum majus, Cattleya citrina, Lælia albidia, also fine masses of the beautiful Schomburgkia tibicinis, Acineta species, probably new, &c. Also a valuable lot of IMPORTED ORCHIDS from Messrs. Shuttleworth, Carder & Co., to be sold WITHOUT RESERVE.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6916)

Importations from Brazil. Received direct.

**MR. J. C. STEVENS** will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, May 28, an importation of Orchids received direct from Brazil, comprising an enormous specimen of Cattleya crispa, strong plants of C. bicolor, C. Harrisoniana, Lælia Perrinii, Leptotes bicolor, Miltonia, Oncidium, Sophronitis, &c.

On view morning of Sale, and Catalogues had.

New and Valuable Orchids.

**MR. J. C. STEVENS** has received instructions to sell by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., EARLY IN JUNE, a magnificent COLLECTION of NEW and RARE ORCHIDS, brought home by Mr. Leon Humboldt. Amongst others will be found:—

ANGRÆCUM FUSCATUM, Rchb. f.

ANGRÆCUM ROSTELLARIA, 8 min.

ANGRÆCUM LEONI, new sp.

ANGRÆCUM FLORENTINUM, new sp.

EULOPHIA MEGISTOPHYLLA, new sp.

LISSOCHILUS CHYLITES.

VANILLA HUMBLIOTII, new sp.

POGONIA BARKLYANA, &amp;c.

Professor Reichenbach's descriptions of above will appear in Catalogue. The plants are in grand condition.

Further particulars in next Advertisement.

Orchids in Flower.

**MR. J. C. STEVENS** begs to announce that his NEXT SALE OF ORCHIDS in flower will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 10, and he will be glad if gentlemen desirous of entering plants for the Sale will please send particulars of same as early as possible.

## PRELIMINARY NOTICE.

Amongst the Cattleyas.

Our Mr. EDWARD WALLACE having collected some magnificent CATTLEYA TRIANÆ in flower, in the best localities of the interior of Colombia, escaped with his plants down the river in a canoe, and having passed safely through the contending forces, sent on his cases to us, and proceeded to collect CATTLEYA MOSSIÆ in flower. He is now (D.V.) on his way home, having had the good fortune to obtain, amongst other fine forms, two most magnificent CATTLEYAS, the finest plant of the rare C. BRINCKIANA ever seen, and a Specimen of C. WAGNERI, with over 100 bulbs. Both were seen and collected in flower, and their blooms were very large and beautiful. These, with his other PLANTS, will be offered for SALE by AUCTION immediately on his arrival in England (MIDDLE OF JUNE). Further particulars later on. His rambles and adventures during the war are most interesting.

NEW PLANT and BULB COMPANY, Colchester.

**FOR SALE, a MARKET NURSERY,** 5 Glasshouses fully stocked and heated with Hot Water, 30 Lights of Pits, Sheds, &c., good Dwelling House; 10 years' lease unexpired. Rent £50. 12 miles from Covent Garden. Must be sold; satisfactory reasons given. No reasonable offer refused. Address H. J., Mr. Chapman, Newsagent, Kingston-on-Thames.

**NURSERY FOR SALE.** Five Houses, new and well stocked. Only 5 miles from City. Doing a good London and home trade. Rent £50. Lease twenty years unexpired. Sufficient ground for several more erections. Ill-health the cause of leaving: or would TAKE PARTNER on easy terms: should prefer one who would work the business. Address A. H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

To Florists.

**FOR SALE, a well-established GENERAL FLORIST and SEED BUSINESS.** A good opportunity for a first-class Fruiterer's. For particulars, apply, on the Premises, 2, Swiss Terrace, Swiss Cottage, Belsize, N.W.

**TO BE LET, on LEASE, a NURSERY,** comprising 2 Acres of good Garden ground, Dwelling-house, nine Greenhouses (heated), Pits, Frames, &c. On opposite side of road, 12 Acres of Ground, large Dwelling-house, Stable, Barn, &c. Part stock taken at valuation. Established 20 years. For particulars, address 31, Market Hill, Cambridge.

**JOHN KENNARD'S HORTICULTURAL** Sundries, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

To Landed Proprietors, &amp;c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELING existing GARDENS. Plans prepared. 115, Listria Park, Stamford Hill, N.

**PROTHEROE AND MORRIS, HORTICUL-TURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS,** 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

Grand New Yellow Hybrid Perpetual Rose.

**GLOIRE LYONNAISE,** very strong, clean, and healthy plants of the above novelty, 20s. per dozen. **LADY MARY FITZWILLIAM, NIPHETOS, MADAME CUSIN,** &c., 15s. per dozen.

Cash with order from unknown correspondents.

JOHN HOUSE, Eastgate Nurseries, Peterborough.

**GILBERT'S PRIMROSE HARBINGER** has won the heart of the R.H.S. Floral Committee, beat all the Critics, and solved the great problem at last. More valuable for cutting than White Azaleas. Pure white, very large flowers; no moth; but a Sampson in strength. Fine young offshoots, well-rooted, 5s. per dozen. Cash with order. Carriage paid. Apply to **R. GILBERT, High Park Gardens, Stamford.**

**ASPARAGUS.**—True Giant, 2, 3, and 4-yr. Fine sample 100 or 1000, with price, on application. **JAMES BIRD, Nurseryman, Dowham.**

**CALANTHE DISCOLOR.**—Sepals rich brownish-claret, labellum white, suffused with rose. A charming hardy species. Good flowering buds, just received, 1s. each, three for 2s. 6d., twelve for 8s. Price per 100 on application. **HOOPER AND CO., Covent Garden, W.C.**

**HERBACEOUS and ALPINE PLANTS.**—Now is the season to plant and insure success. Write for **R. H. VERTIGAN'S** Pocket CATALOGUE, and make your choice from his unrivalled Collection. Chad Valley Nurseries, Edgbaston, Birmingham.

**HARDY BRITISH FERNS.**—Polypodium semilacernum (rare), calcareum; Oak, Beech; Asplenium marinum, viride; Ceterach crenatum, Capillus-Veneris; Lastrea æmula, Thelypteris rigida, Oreopteris colina, dilatata; Athyrium lobatum, Parsley, Cystopteris dentata, Scolopendrium. 15, 1s. 6d.; 20 large rockery roots, 2s. 6d.; 50, 5s. 6d.; 100, 10s.; named, carriage paid.—**JAMES BELL, Siramongate, Kendal.**

**THE LIVERPOOL HORTICULTURAL COMPANY** (JOHN COWAN), Limited, have a large and fine stock of EAST INDIAN and other ORCHIDS, and they are constantly receiving fresh importations from various parts of the world. Full particulars of Orchids in stock, and also fresh importations, forwarded on application. The Company have also a large and fine stock of TEA and other ROSES in pots, GRAPE VINES, FERNS, and other ORNAMENTAL PLANTS, which they offer at extremely moderate prices. LIST with full particulars on application. The Vineyard and Nurseries, Garston, Liverpool.

**SAMUEL SHEPPERSON, Florist, Prospect House, Belper, Derbyshire,** begs to offer the following Plants, all of which he can warrant true to name, and of the very finest strains grown:—

**PANSIES, a Specialty, the Winners at all the Leading Shows.** I can still supply the Leading Varieties from my grand Collection at 3s. per doz., carriage free.

**SINGLE DAHLIAS, Seedlings, from New Varieties,** all the Leading New Colours—cannot fail to produce a grand variety of good Plants, to bloom well. Twelve for 1s. free.

**PENTSTEMONS, 100 Varieties, including the latest new sorts, from the most noted Scotch Raisers.** No garden should be without these gems. Twelve distinct varieties, named, 3s., free.

**PENTSTEMONS, Seedlings from the above,** must produce a grand variety. Twelve for 1s., free.

**CALCEOLARIA (Bedding) FIMBRIATA,** the best Yellow yet grown. Twelve good Plants for 1s., free.

**FUCHSIAS, a Specialty.** Light and Dark Doubles and Singles, including the latest New Varieties from Lemoine, Fry, Smith, Lye, and other noted Raisers. Twelve distinct varieties, named, post-free for 2s., six for 1s. 2d.

**ANTIRRHINUMS (Snapdragon), Striped,** Spotted, &c., the very finest Scotch varieties. Twelve distinct sorts, named, 2s. 6d., free, six for 1s. 6d. **SAMUEL SHEPPERSON, Florist, &c., Prospect House, Belper.**

Notices.

**LAPAGERIA ROSEA SUPERBA.** Nash Court Variety.

Awarded First-class Certificate by Royal Horticultural Society, October 14, 1884.

I beg to state, in answer to the numerous enquiries received respecting the above, that the stock is in the hands of **Messrs. LAING & CO., Forest Hill, S.E.;** and will be by them distributed, &c.

**GEO. HUMPHREY,** Nash Court Gardens, Faversham.

## CHEAP BEDDING PLANTS.

GERANIUMS, strong autumn-stem plants.

" Vesuvius (scarlet), Jean Sisley, Dazzler (crimson), Mester Christine, Madame Vaucher, 1s. 9d. per dozen, 12s. per 100 from single pots, 10s. per 100 from stores.

" Happy Thought, C. P. Gem, May Queen, 2s. per dozen, 12s. per 100, from single pots.

**LOBELIA (true), from cuttings, "Emperor William," 2s. 6d.**

per 100, 20s. per 1000.

**DAHLIAS, Single, named sorts, of all shades of brilliant**

colours, including White Queen and Paragon, 2s. 6d.

per dozen, 15s. per 100, from single pots.

" strong, named seedlings, 1s. 6d. per dozen, 10s. per 100.

" Double, best named show varieties, 3s. per dozen, 25s.

per 100, from pots.

Liberal allowance to the Trade for large quantities. Package

Plants allowed for carriage. Terms cash. CATALOGUE

gratis. **H. I. HARDY, Stour Valley Florist Grounds, Bures, Suffolk.**

## BEDDING PLANTS.

of A 1 quality and strength.

**GERANIUMS, Mrs. Pollock, Glen Eyre Beauty, and Italia**

Unita, 2s. per dozen, 16s. per 100.

" Bronze, McMahon and Black Douglas, 2s. per dozen,

14s. per 100.

" Beauty of Calderdale, 2s. per dozen, 12s. per 100.

" Crystal Palace Gem, 1s. 6d. per dozen, 10s. per 100.

" Creed's Seedling, 1s. 6d. per dozen, 10s. per 100.

" Silver Bijou and Miss Kingsbury, 1s. 6d. p. doz., 10s. p. 100.

" Doubles, in variety, 1s. 6d. per dozen, 10s. per 100.

" Vesuvius and variety, 1s. 6d. per dozen, 8s. per 100.

" Happy Thought, 1s. 6d. per dozen, 10s. per 100.

**LOBELIA, Brighton Gem, the best, 9d. per dozen, 4s. per 100,**

30s. per 1000.

" Blue Stone and compacta multiflora, 6d. per dozen, 5s. 6d.

per 100, 20s. per 1000.

**GOLDEN FEATHER, 6d. per dozen, 2s. 6d. per 100, 20s.**

**COLEUS, Verschaffelti, 1s. per dozen, 6s. per 100, 50s. per 1000.**

**HELIOTROPE, light and dark, 1s. per dozen, 6s. per 100,**

50s. per 1000.

**AGERATUM, Canall's dwarf, 1s. per dozen, 5s. per 100,**

50s. per 1000.

**CALCEOLARIAS, Golden Gem and dark, 1s. per dozen, 5s.**

per 100, 40s. per 1000.

**IRENINE, Linden and Herbstii, 1s. per dozen, 6s. per 100,**

50s. per 1000.

**CERASTIUM TOMENTOSUM, 1s. per dozen, 6s. per 100,**

50s. per 1000.

**MENTHA GIBBALTARICA, 1s. per dozen, 6s. per 100,**

50s. per 1000.

**ALTERNANTHERA, amena, spectabilis, spatulata,**

paronychioides, major, do. aurea, versicolor, gran-

dis, sinuatis, and magnifica, 1s. per dozen, 6s. per 100,

50s. per 1000.

**DAHLIAS, Single, Pompon, and Show and Fancy, 2s. 6d. per**

dozen, 16s. per 100.

**VIOLAS, in variety, 1s. 6d. per dozen, 10s. per 100.**

**PANSIES, Show and Fancy, 2s. 6d. per dozen, 18s. per 100.**

**CHRYSANTHEMUMS, superior varieties, 1s. 6d. per dozen,**

10s. per 100.

**PYRETHRUMS, in variety, 4s. per dozen, 25s. per 100.**

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**VERBENAS, in variety, 6s. per 100, 50s. per 1000.** See

separate Advertisement.

The above Plants are not only of A 1 quality, but being

nearly all from single pots, have good roots and ready for

immediate effect. Package free. Cash with order.

**Messrs. FLETCHER, SON, and CO., Florists, &c.,**

**Chesterfield.**

Cheap Plants.—Special Offer.

**WILLIAM BADMAN** offers as under from store pots, all healthy, well-rooted, and fit for present potting:—

**TRICOLORS.**—Mrs. Pollock, one of the best, 2s. per dozen,

15s. per 100. Lady Cullum, S. Dumaresque, Sir R. Napier,

2s. 6d. per dozen, 18s. per 100. Twelve choice varieties

Tricolors, for 1s.

**SILVER.**—May Queen (Turner's), Flower of Spring, Prince

Silverwings, Little Trot and Bijou, 2s. per doz., 10s. per 100.

**GOLD LEAF.**—Crystal Palace Gem, 2s. per dozen, 10s. per

100; Happy Thought, 2s. 6d. per dozen.

**BRONZE.**—McMahon, Black Douglas, Czar (best bedders), 2s.

per dozen, 15s. per 100.

**SCARLET.**—Vesuvius, Jean Sisley, Col. Seely, 1s. 6d. per

dozen, 8s. per 100.

**PINK.**—Master Christine, Mrs. Levers (fine), 1s. 6d. per dozen,

10s. per 100.

**WHITE.**—Madame Vaucher and Virgo Marie, 1s. 6d. per dozen,

10s. per 100.

**CRIMSON.**—Hunry Jacoby, 2s. per dozen, 15s. per 100;

Walham Seedling, 1s. 6d. per dozen, 8s. per 100.

**LOBELIA.**—Brighton, Blue Stone, Pumila magnifica, 3s. per

100, 20s. per 1000.

**HELIOTROPE.**—Jean d'Amour, Miss Nightingale and Light,

6s. per 100.

**AGERATUM.**—Imperial Dwarf Blue, 5s. per 100, 40s. per 1000.

**CALCEOLARIA.**—Golden Gem and Dark Camden Hero, 5s.

per 100, 40s. per 1000.

**COLEUS.**—Verschaffelti and IRESINE Lindenii, 5s. per 100.

**TROPÆOLUM.**—Vesuvius, dwarf, good bedded, 8s. per 100.

**PELAGONIUMS.**—Show and Fancy, in single pots, 3s. per

dozen, 20s. per 100.

Packing included. Terms Cash.

Cemetery Nursery, Gravesend.

Ferns.—Ferns.—Ferns.

**H. B. MAY** offers the following varieties, well furnished Plants:—**PTERIS ARGYREA, P. HASTATA, P. SERRULATA, P. SERRULATA MAJOR, P. CRISTATA, CYRTIDIUM FALCATUM, at 16s. per 100.**

**LYGODIUM SCANDENS, 4s. per dozen.** Cash with order.

**Dyson's Lane Nursery, Upper Edmonton.**

**PRIMULAS.—PRIMULAS.—PRIMULAS.**

Sixteenth year of distribution.

**WILLIAMS' SUPERB STRAIN, 1s. 6d. per doz., 10s. per 100.**

**CINERARIAS** same price. Package and carriage free for cash with order. Above are strong, and fit for potting into 3-inch pots.

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### Clapton Nursery, London, E. Bush Hill Park Nursery, Enfield, N.

At the above-named Nurseries are cultivated, in unusually large quantities, Azaleas, Bouvardias, Camellias, Climbing Plants, Cyclamen, Epacris, Ericas, Ficus, Flowering and Decorative Plants in variety; Fruit Trees, Gardenias, Genistas, Grape Vines, Greenhouse Plants in variety; Palms, Pelargoniums, Rhododendrons, Roses, Shrubs, Stove Plants in variety, &c.

**ORCHIDS A SPECIALTY.**—The stock at the Clapton Nursery is of such magnitude that, without seeing it, it is not easy to form an adequate conception of its unprecedented extent. The glass structures cover an area of upwards of 236,000 superficial feet.

### HUGH LOW & CO.

cordially invite Gentlemen interested in Horticulture to inspect the Nurseries.

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Of the newest and finest varieties of all classes of Plants for Greenhouses, Stoves, &c., may now be had for two stamps. It includes only the best varieties of their respective classes. Every season new sorts are added. Comparisons of the varieties when in bloom carefully made, and the inferior kinds discarded. Intending purchasers may rely, when selections are ordered as under, on being supplied with varieties of merit only.

The following cheap Collections of finest named kinds consist entirely of our selection. Purchasers may select from the Lists at Prices as per CATALOGUE, which please see before ordering elsewhere.

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- 12 each of **ANTIRRHINUMS**, **PENTSTEMONS**, **PHLOXES**, for 9s., or 12 of any separate for 3s. 6d.  
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 12 lovely **IRIS**, 5s.; 12 beautiful **MIMULUS**, 3s.  
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 12 beautiful Seedling **HOLLYHOCKS**, 4s., 50 for 12s. 6d., 100 for 21s.  
 12 beautiful **PRIMULA SIEBOLDI**, 12 sorts, 6s.  
 40 Acres fine **NURSERY STOCK**.  
 5 " **HERBACEOUS PLANTS**.  
 2 " **GLASS HOUSES**.

The Oldfield Nurseries, Altrincham, Cheshire, and the Seed and Bulb and Cut Flower Depot, 12, Market Street, Manchester.

### NEW HAMPSHIRE SEED MAIZE.

Very hardy. Quick growing. Ears over 6 inches long. Sent Free by Post, 1s.

### CHASE & CO.

ADELAIDE BUILDINGS, LONDON BRIDGE, E.C.  
Exhibitors of Maize at Health Exhibition.

### CLEMATIS for Bedding.

CLEMATIS for the Rock Garden.

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CLEMATIS for Everything Beautiful.

Above all have the 10 Clematis awarded First-class Certificates by the Royal Horticultural Society.

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Hundreds of Thousands of

FERNS AND SELAGINELLAS,

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**LARGE CATALOGUE** (price 1s.), containing 75 Illustrations of Ferns and Selaginellas, valuable "Hints on Fern Culture," and other useful and interesting information.

**J. & J. BIRKENHEAD,**

FERN NURSERY, SALE, MANCHESTER.

### NEW ROSES.—One dozen of the best NEW

ROSES of 1884-85 for 30s., including Gloire Lyonnaise, the new yellow H.P.; Sunset, the fine new American Tea; Bedford Belle and Gipsy, Laxton's two new varieties; Bennett's Grace Darling and Mary Bennett, Etendard de Jeanne d'Arc, white Gloire de Dijon; Perle d'Or, the yellow Polyantha; Mrs. Caroline Swales, &c.

Basket and packing free for cash with order.

LIST of Pot Roses, &c., post-free.

GEO. COOLING AND SON, The Nurseries, Bath.

### JULES DE COCK, Ornamental Plant

Nurseries, Ghent, Belgium, offers to the Trade, per 100, in store pots:—**ARECA SAPIDA**, 12s.; **CHAMÆROPS FORTUNEI**, 4s.; **COCOS WEDDELLIANA**, 40s.; **CORYPHA AUSTRALIS**, 5s.; **KENITA FORSTERIANA**, 50s.; **PANDANUS UTILIS**, 15s.; **PHENIX RECLINATA**, 4s.; **P. TENUIS**, 8s.; **PTYCHOSPHERNA ALEXANDRE**, 20s.; **SEAFORTHIA ELEGANS**, 7s.; **ARALIA SIEBOLDI**, 5s.; **DRACÆNA INDIVISA**, 8s.; **FICUS**, Head Cuttings, 50s.; **CLIVEA MINIATA SUPERBA**, 20s.

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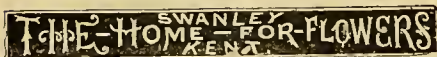
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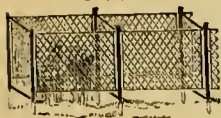
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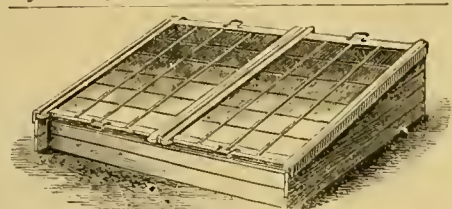


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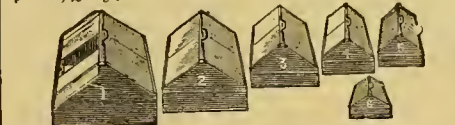


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Glazed with 21-oz. glass and Painted 3 coats.

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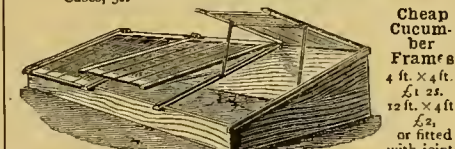
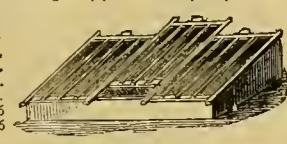
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NEW "IMPROVED" HANDLIGHTS. Made diminishing sizes, cover 17 square feet; painted three coats, and glazed with 21-oz. glass; per set of six, £2 7s. 6d.

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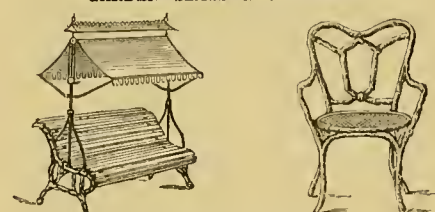
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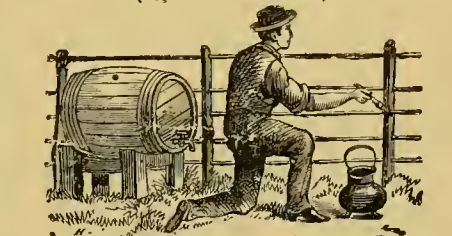


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"Pierrefield Park, June 21, 1876.—Sirs.—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Pierrefield Park, Chepstow.—I am, Sirs, yours respectfully, W.M. COX."

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It is simple in construction, easily adjusted, is well adapted  
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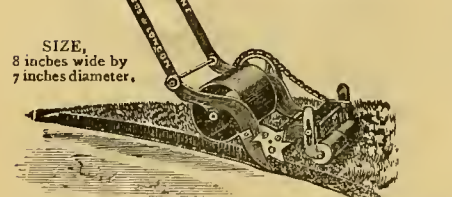
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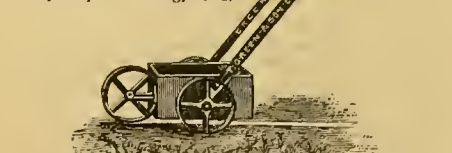
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Small Bag of Marking Composi-  
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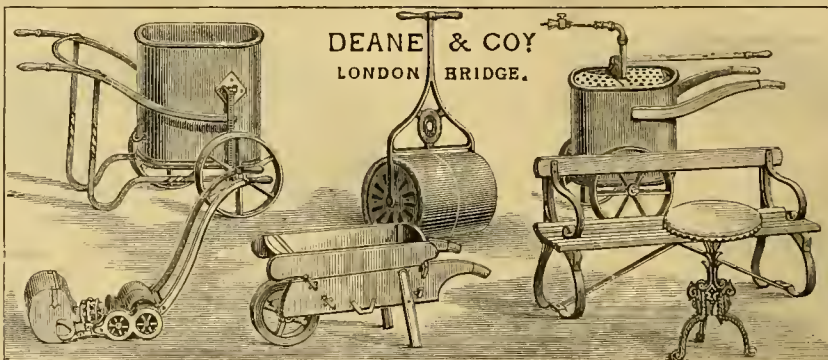
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A Month's Trial allowed, and  
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made equal to new.

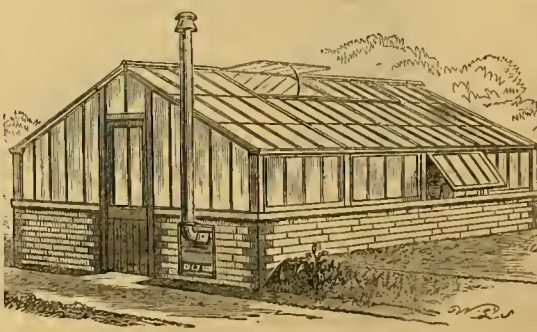
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For full descriptions see NEW PLANT CATALOGUE for 1885, now ready, post-free.

## SPECIAL NOTICE.

# GRAND EXHIBITION OF ORCHIDS,

Stove and Greenhouse Flowering and Foliage Plants.

*Open to the Public during May and June, from 9 a.m. till dusk daily (Sundays excepted).*

ADMISSION FREE to those who have received Invitations,

OR UPON PRESENTATION OF CARD.

A large Show House, 100 feet long by 22 feet wide, and an Odontoglossum House, 80 feet long, is especially devoted to the Orchid Exhibition, and visitors may rely upon seeing these beautiful plants with the greatest degree of comfort, the ventilation and means of ingress and egress, as well as the great width of the paths being all that can be desired. The other Show Houses are gay with our large collection of Stove and Greenhouse Flowering and Foliage Plants, which have figured at the leading Shows, both at home and abroad, for many years, with uninterrupted success. In addition, the large Winter Garden, 100 feet long by 40 feet wide, being filled with a fine show of Foliage and Flowering Plants, will form an agreeable lounge to those wishing to avail themselves of this cool retreat.

**B. S. WILLIAMS,**  
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## WM. PAUL &amp; SON,

Rose Growers by Appointment to  
Her Majesty the Queen,

## WALTHAM CROSS, HERTS,

*respectfully invite attention to the following  
New Roses:—*

The "WALTHAM CLIMBING" ROSES,  
Nos. 1, 2, and 3.

Crimson Roses, of different shapes, and distinct shades of colour; No. 1 being the lightest, and No. 3 the darkest. They are seedlings from Gloire de Dijon, possessing all the good qualities of that well-known variety, and are recommended as supplying a long-felt want in the garden, namely, good hardy crimson autumn-flowering Climbing Roses, with fine foliage.

*Plants ready the end of May, 10s. 6d. each,  
or 21s. the set of 3 varieties.*

## W. F. BENNETT (Hybrid Tea-scented).

This Rose is recommended by the raiser (Mr. H. Bennett), as the finest red Rose yet introduced for winter blooming and cut blooms at all seasons. The flowers sent to Covent Garden have always realised higher prices than other red Roses in the market at the time. It is of the same colour as Général Jacqueminot, and from its size and the freedom with which the blooms are produced, it has been likened to a crimson "Niphetos."

WM. PAUL & SON have been appointed Sole Agents for the sale of this Rose in Europe. Plants will be ready about June 1. The following prices are for nett cash, and include packing:—

*Single Plants, 15s.; 5 Plants, £3 15s.; 10 Plants, £5 17s.  
Special Prices for larger quantities.*

## WM. PAUL &amp; SON'S

## NEW ROSES OF 1884.

CHARLES LAMB (H.P.) Clear bright red.	} Garden Roses.
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EMPEROR (H.P.) Very dark, almost black.	} Buttonhole Roses.
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*Strong Plants, Price 3s. 6d. each.*

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A sport from Perle des Jardins, with deep Apricot flowers, beautiful in bud; fine for forcing and cutting. First-class Certificate to WM. PAUL & SON.

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A yellow Hybrid Perpetual, partaking of some of the characteristics of the Tea Roses; flowers chrome-yellow, large and full.

*Price 3s. 6d. each, 36s. per dozen.*

## QUEEN OF QUEENS (H.P.)

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Pink with blush edges, perfect in form, every shoot crowned with a flower-bud. First-class Certificate. Equally good as a garden and exhibition Rose, and decidedly the finest Rose of its colour.

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All other New Roses, both English and Foreign, in strong plants at moderate prices.

Also a large stock of the older varieties, in pots, for spring and summer planting, pot culture, climbing, &c.

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See House of Roses, &c., at the Inventions Exhibition, South Kensington, S.W. (near the Concert Room).

**PAUL'S NURSERIES,**  
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THE

## Gardeners' Chronicle.

SATURDAY, MAY 23, 1885.

## WINDOW GARDENING.

AN old friend of mine who has travelled among the Japanese tells me that their love of flowers and growing plants is in reality an absorbing passion. In the smallest of dwellings there is an altar-like niche, in or upon which flowering plants are arranged; but they have in some districts a most remarkable custom in connection with window gardening which I will describe to you.

In houses wherein reside one or more daughters of a marriageable age an empty flower-pot of an ornamental character is encircled by a ring, and suspended from the window or verandah by three light chains.

Now, the Juliets of Japan are, of course, attractive, and their Romeos as anxious as those of other lands. But instead of serenades by moonlight and other delicate ways of making an impression, it is etiquette for the Japanese lover to approach the dwelling of his lady, bearing some choice plant in his hand, which he boldly, but, let us hope, reverently, proceeds to plant in the empty vase. This takes place at a time when he is fully assured that both mother and daughter are at home, and I need scarcely say that neither of them are at all conscious that the young man is taking such a liberty with the flower-pot outside their window. It is believed that a young lover so engaged has never been seen by his lady or by her mamma in this act of sacrilege—at any rate, my friend tells me that during his long residence in Japan he never heard of any one being detected in the act or interfered with in any way.

The fact is, this act of placing a pretty plant into the empty flower-pot is equivalent to a formal proposal to the young lady who dwells within, and this Eastern fashion is, as I think, a most delicate and harmless way of proposing to a lady. The youthful gardener having settled his plant to his mind retires, and the lady is free to act as she pleases. If he is the right man she takes every care of his gift, waters it, and tends it carefully with her own hands, that all the world may see, in a word, the donor is accepted as a suitor. But if he is not a favourite, or if stern parents object, the poor plant is torn from the vase, and the next morning lies limp and withered on the verandah or on the path below. In a word, if you are not the right man it is quite evident that this phase of window gardening must be a difficult and disappointing one to carry on in Japan.

But one really might go further and say that all kinds of window gardening must be carried on under difficulties. I know somewhat of the troubles of gardening in town, and shall not deceive you by saying that window gardening is easy, but there is so much of pleasure mixed up with the difficulties that if once those of you who have not done so will try it you will never regret contented until you succeed.

But how to begin?—that is the question. Flower-pots, seeds, plants, and even soil or earth in which to plant them, cost money.



Not much, perhaps, but still sufficient to deter some from making a commencement.

Now, a bit of turfy sod from the roadside is all you will at first want. If flower-pots are not obtainable, no one need be disheartened—an old tin can, a cigar-box—anything, in fact, which will hold the earth, and allow the waste water to run away. Of course, I know that you will do better than this; but even if some of you actually do resort to these homely makeshifts, you will not be the first to do so, and it is better to grow a few pretty plants of sweet Musk and Mignonette in an old starch or blacking-box than to have no flowers at all near your home in the town. This question of materials is our first difficulty, and there are several ways of meeting it. The first and best way is for each individual to do the best he can for himself or herself, and devise some successful way of meeting it; but window-garden societies and others interested might do much to give facilities for self-help. Thus one of the greatest of all the difficulties experienced by window gardeners in large towns would be removed if a dépôt or central store for simple gardening materials could be formed on some self-supporting plan. No doubt it is true that those really anxious to grow plants, may and will find out ways and means to gratify their tastes, but I am sure a great impetus would be given to plant culture in towns, if artisans and others could purchase good potting earth, healthy little plants and seeds, at a cheap rate. It seems to me that the formation of local dépôts of this kind would do more than anything else to encourage window gardening or domestic floriculture.

One of the great charms of window gardening is the interest it excites in us, and the amount of pleasure a window gardener obtains during his rambles, for I need scarcely say he will be most anxious to see the plants grown in other windows besides his own. Then at holiday times every excursion into the country is doubly attractive, for, of course, a few common Ferns or trailing bits of rooted Ivy will be carefully dug up and carried back to town for the little garden at home. A few Primrose roots from a mossy hedge-bank, or five or six bulbs of the common yellow Daffodil from the fields, will make the smallest window interesting in the spring. Of course I do not advocate the wholesale collection and destruction of our prettiest wild flowers in the way now common near most towns, but I feel sure no intelligent proprietor would begrudge the removal of a few roots if he were sure they really were not to be carried away wholesale and sold. In questions of this kind, again, a society or association would be allowed to collect and distribute wild plants by those who might reasonably object to the individual abuse of the privilege.

Apart altogether from the decorative or beautiful aspect of flowers and green things in windows, such things have a teaching power peculiarly their own, and this is especially so where there are children. One of the best of lessons to instil into the minds of children is that all flowers are beautiful, even the most common ones, for it is these that our greatest poets have most delighted to honour. Daisies, Bluebells, Primroses, Daffodils, Snowdrops, and Violets, wild Roses and Woodbine, have all been woven into song and story from the time of Chaucer to the days of Tennyson.

The one great charm which lingers around our garden blossoms is their beautiful reality. They are essentially genuine. If you put wax flowers or fruits into your windows, or on the tables of your rooms, no one with any taste will waste a second glance on them; even the child who at first was taken with their bright colours will soon forget them, but this is never so of real flowers; in fact the only thing I know that wins a child's attention from toys and toffee is a window full of real Fuchsias, Pelargoniums, and Musk plants all in full bloom.

The best soil or earth for Fuchsias and Pelargoniums—indeed, for all the ordinary kinds of plants grown in windows—is what a gardener calls “fibrous loam.” This is obtained from upland pastures and sheep-walks, and consists of a mellow, friable, nut-coloured earth, rich in vegetable fibre. This should be cut into turves or layers about 3 inches in thickness, and may be stacked up until wanted for use. The best earth of this kind costs from 6s. to 10s. per ton or load. Broken up into rough pieces the size of Hazel-nuts, this sort of earth contains all the elements

really necessary for a plant's existence. As before mentioned, a few sods of fibrous earth of this kind may often be obtained from a grassy roadside. When prepared for pots it should not be too finely pulverised. One of the most common of errors into which inexperienced window gardeners fall is that of using finely sifted earth for plants, that is to say, soil destitute of fibrous rootlets and other organic material. It is from this fibrous matter when acted upon by water, heat, and air, that the plants derive their food. The tips of the tiny roots of a Fuchsia or a Myrtle, for example, are really hungry little mouths eager to suck up nitrogenous matter soluble in water, so that the soil, apart from its mechanical use of retaining a plant firmly in an erect position, must contain organic or manurial matter, easily dissolvable in water. But if any ordinary earth be taken you may safely leave your plants to manage their own chemistry if you place good drainage material below the soil, and water regularly, of course keeping the leaves free from dust and insects. Broken bits of earthenware, or of flower-pots, are most generally placed as drainage beneath the soil, but the action of these is mechanical only, and as a substitute for these, oyster shells, broken bones, charcoal, nodules of common coal, or even cinders, may be used, containing as they all do plant food in a soluble form. It is a good plan to put a layer of moss over the drainage, to prevent the soil washing down and blocking up the drainage hole in the flower-pot. For all strong growing plants old broken bones may be mixed with the soil with advantage. (*From a lecture by Mr. F. W. Burbidge.*)

(*To be continued.*)

## SCHOOL OF FORESTRY.

WE are pleased to find that a committee of the House of Commons moved for by Sir John Lubbock has been appointed to inquire whether by the establishment of a forest school our forests and woodlands could be rendered more remunerative. We need not repeat the arguments used by Sir John Lubbock and Dr. Lyons, as they have been so often advocated in these columns, but the Prime Minister's statements are fresher and come from one who has a practical knowledge of the subject.

Mr. Gladstone.—I am disposed to contend that those who cut down trees are the only true conservators of our woods. There is a multitude of ill-managed woods in this country, because of the superstition of their owners, which prevents them from properly thinning and clearing their woods. I confess that the principle is capable of very wide application, but I may contend that nothing does more to increase the ground of complaint with respect to the condition of our woods and plantations than that superstition which leads owners to think that it is a kind of sacrilege to cut down trees, instead of regarding it as the only way of keeping them properly. I agree that it is quite worth while to appoint this committee, but I must make certain reservations. I do not wish to be bound that the Government will establish a forestry school. I will give the reason why there should not be any foregone conclusion on that subject. My hon. friend who made this motion has spoken of the forestry schools which have been instituted abroad. That was quite true, but there are two observations to be made upon it. First, they have to depend on direct aid; and, secondly, the scale of operation is infinitely larger. I think there is room for improvement in the management of our woods. Everything is done almost at haphazard. There is no fixed tradition, no authority to assist them. It is remarkable that land agents, who, as a rule, are gentlemen of great intelligence, are very rarely found with any practical knowledge on this subject. We find them admirably qualified for every other department, but not in the least degree able to lend assistance on this subject. I have said that I wish to be quite free on the question of establishing schools, and I will mention one reason for this. Allusion has been made to the study of forestry in India, and eulogiums have been passed on the leading servants of the Indian Government connected with that interesting subject. The Indian Government have had most special reasons for giving attention to it. First of all, it was found impossible to make forestry profitable. I certainly do hope that this subject is in course of being dealt with satisfactorily in India. We must, however, recollect that

there are important facts connected with the climate and with the due supply of moisture in the atmosphere in India which are not present in this country. The Indian Government has a school of forestry in India and also in England, and it should be known that the latter is not confined to the instruction of persons in India or contemplating residence in India. Any person who chooses to find the necessary fees for admission to the English school can receive instruction there. A great deal of difficulty in the way of studying forestry in this country arises from the limited scale of operations which can be conducted here in consequence of our woods being broken up into such small areas. The number of properties on which there is a sufficient amount of wood to admit of large operations or of systematic training is not great. I myself have had a great deal to do in connection with the forestry of one district, and that is certainly not a large one; and woods of 6000 or 7000 acres in extent are extremely rare in England. One great difficulty in the way of a proper culture of woods in this country arises from the fact of their being kept, not for purposes of profit, but of landscape beauty, or pleasure and sport. The interest which I take in this subject has caused me to pay particular attention to the way in which our woods are managed, and have led me to believe that we should gain a great deal if we were to have more common tradition upon the subject. There are some parts of the Midland Counties where the art of wood-cutting is practically unknown, and there are also many other parts of the country where scarcely any one knows how to cut down a tree. That is the result of a general want of attention to the subject. I think that great utility would result from the inquiries of this committee. Therefore, reserving to ourselves our freedom of opinion with regard to the recommendations which such a committee may make, I may say that we give our hearty approval to the proposal of the hon. member, and sincerely hope that great benefits may result to the country from the inquiries which the committee may make.

Sir W. Barttelot said few men knew how to thin a plantation, and scarcely two would agree as to the proper time when the thinning should take place. It was on this account that our plantations in England had suffered so severely. In the eastern division of Sussex they had turned their attention towards the cultivation of undergrowth and underwood, with the result that they found employment for large numbers of people during the winter months. In pursuing this course, however, they could not shut their eyes to the fact that the value of this underwood and timber had greatly depreciated, and it would not be until there was a diminution of the supply from abroad that the value of timber in this country would rise to a fair level. He was informed, however, that nearly all the timber near the watercourses of America, from Italy and Spain, had been cut, and there was but little chance of many large supplies reaching us in the future from those countries. He therefore hoped that we in this country would not neglect planting timber which would grow fairly well on land that was not good for agricultural purposes.

Dr. Farquharson was glad to hear that at length forest culture was to be placed in this country upon a satisfactory basis. In England a most haphazard mode of planting had been pursued for a long time. A great deal of waste land had been made use of for agricultural purposes, for which it was altogether unfitted, whereas it would have done admirably for planting trees. Where the planting of trees was properly carried out their culture paid admirably. He trusted that in future years it would not be necessary to have recourse to foreign schools of forestry, but that an efficient school would be established in this country.

Mr. Dawson thought the question might serviceably be brought before the committee on Irish industries, as there was no part of the United Kingdom where improved methods of forestry would be of more advantage than in Ireland. The hon. member for Dublin, who had made himself remarkable by devotion to this question, had dealt instructively with many branches of the subject, but there was one to which he had not referred. In the Black Forest and in Switzerland the young people were profitably employed in making the thousands of toys which were imported into this country. There was no reason why many thousands of our unemployed and starving population might not find the means of subsistence in this industry. The Prime Minister had deprecated the interference of the



State, but the State had in Holland reclaimed the land from the sea, and here at home was expending its resources in teaching many subjects to the children of the poor, which, from a wage-earning point of view, were absolutely useless. It would be much wiser that children should receive good technical training in the trades by which they were to make their living.

## PEACHES.

THE classification of Peaches is, we have reason to know, a mystery—a very shallow one—to beginners. To help them we have here inserted some illustra-

purpose of which is not known, but that it has some effect is made manifest by the circumstance that Peaches without glands are much more liable to mildew than those that are furnished with them. This fact was first made known to us by the late Mr. Rivers.

As to the freestone (fig. 149, F, p. 665) and clingstone fruits (fig. 149, F, p. 665) the difference arises from the fact that the fibrous cords which connect the pulp with the stones are unaffected in the one case, while in the other they rot at the point of junction with the stone. Why or how this happens we are ashamed to say we do not know. It is one of those everyday things that no

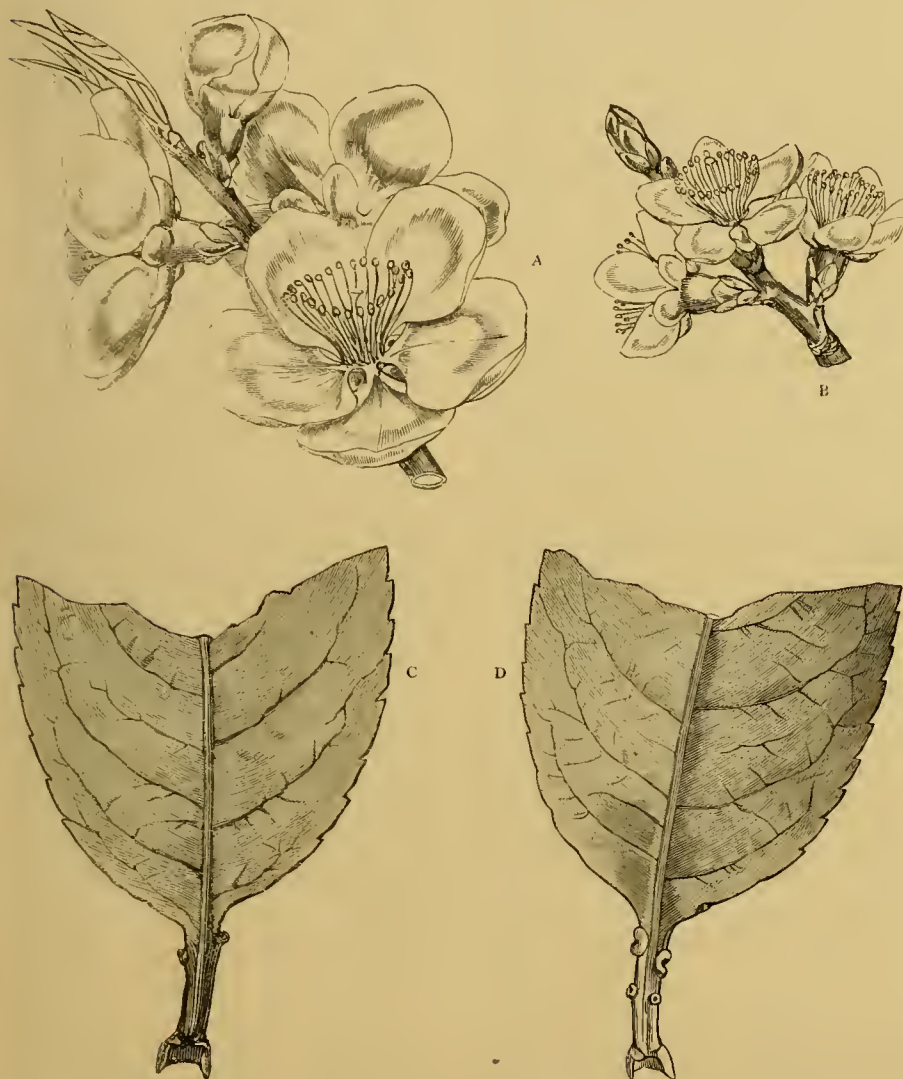


FIG. 148.—A, LARGE-FLOWERED PEACH; B, SMALL-FLOWERED PEACH; C, PEACH LEAF WITH GLOBULAR GLANDS; D, PEACH LEAF WITH KIDNEY-SHAPED GLANDS.

tions of our own and some copied from the *Revue Horticole*. If we turn to the *Fruit Manual* we shall find the varieties divided first of all into two groups according to the size of the flower—large or small (fig. 148, A, B, fig. 150). These two groups are then sub-divided into those which have no glands on the leaves, those which have globose glands (fig. 148, C), and those with kidney-shaped glands (fig. 148, D). Lastly come the characters derived from the adherence or otherwise of the flesh, or rather of the fibrous portions of it, to the stone—hence the division into freestone and clingstone. The size of the flower, the shape and the colour of its petals are points easily recognisable. The glands (when present) will be found continuous with the small teeth on the margins of the leaf, and are perhaps indications of a tendency to produce pinnate leaves like those of a Rose. At any rate these glands secrete a gummy secretion, the

one, so far as we know, has investigated, but which a little careful examination with the microscope would probably speedily unravel. One thing is certain, that, as usual in Nature, the limits are not fixed, but intermediate cases occur, which our French friends called semi-clingstones (fig. 149, F, p. 665). In the same manner the glands of the leaves sometimes vary, for which reason the French employ the term "mixed glands," to designate their intermediate types.

The illustration of the Nectarine flower (fig. 150, p. 665) shows the condition called technically "proterogyny," in which the stigma protrudes beyond the stamens, and is in advance of those organs in development. This stigma, therefore, will not be close-fertilised, *i.e.*, will not be set by the pollen from the same flower, but by that derived from some other source, and carried by insects or otherwise.

## The Rosery.

### THE COMING STRUGGLE.

WHILE the political atmosphere points to "stormy," and wars and rumours of wars alternate with hopes of peace, those who are interested in the welfare and exhibition of the Rose will not hear of peace. Their "voice is still for war," and, as far as their endeavours avail, they are prepared to fight it out to the bitter end. To them kings, ambassadors, and generals are nothing unless they bear the name of some favourite flower, and they have more regard for an old veteran like Général Jacqueminot than for all the Komaroffs, Alikanoffs, and other unpronounceable names in existence. There is no abatement in their zeal, and on every side they are preparing their weapons. Boxes are being painted, tubes examined, wires ordered, and every preparation made for the coming struggle. It may not, then, be uninteresting to look at the state of things, and see what are our prospects.

And now, with regard to Roses themselves, I have the opportunity of judging what their condition is not only from my own garden—for in such cases our ideas are apt to be given from a narrow field of survey, and are insensibly influenced by what we have constantly under our own eyes, and to make use in a wrong application of the old Latin saying, *Ex uno disce omnes*. I have had the opportunity of seeing many Rose gardens, and I have a very wide correspondence on the subject, extending even to the United States (of which more anon), and hence my opinions on the subject are formed from tolerably good data; it is my own opinion, and that in a quite unanimous way of all my correspondents, that we are, unless the unforeseen happens, likely to have one of the best Rose seasons that we have had for many years, and we have latterly had such abnormal seasons that it will be quite a treat to get one season moving in the ordinary manner. There are two reasons which I think lead us to hope that this may be the case: the exceptionally dry year of 1884 was very favourable to the ripening of the wood, and this forms a very important factor in having a good Rose season, for it is with that as with the fruit trees, ripened wood is the most desirable object to be attained, and I do not think I ever, in our fruit growing county (Kent), saw such a wealth of good healthy-looking bloom as this year—Plums, Cherries, and all small fruits promise a most abundant crop. I have had letters from correspondents in Scotland, the borders of Wales, Yorkshire, Lancashire, Cheshire, and the Northern Counties, from the Southern and Home Counties, and all tell the same tale—that if the weather continues favourable they look for grand things with their Roses.

Another reason for our good expectations is the character of the winter and spring: the winter was mild, yet unlike, in this respect, that of 1883-4—there were no spells of hot weather to force things prematurely forward, and there was sufficient lowness of temperature to keep them back. It will be remembered that in February of last year the Rose-beds looked almost as green as they generally do in summer, that the flower-buds, in many cases, were fully formed, and that very grievous damage, it was supposed, would be caused by the bleeding when they were pruned. This year there was nothing like this; the Roses were kept well back, and while there was no frost to injure the wood (for one never saw that discolouring of the pith which is a sure sign of frost damage), and since the pruning the weather has been such that the plants have had every chance of doing well. There have been some cold winds, but as they have not injured the fruit trees I do not fear for the Roses; much, of course, depends on the weather which we may have for the next six weeks. Last year our hopes were sadly dashed by that wave of cold weather we had in the end of May and beginning of June, when for weeks the Roses did not seem to move at all. There is a regular aspect about this season that makes one hope for the best, although the wish may be father to the thought. There may be disasters: let us hope not.

As far as individual flowers are concerned there is no great promise of excitement; the new candidate for favour, which has excited the hopes of the Rose grower and exhibitor, is one with the attractive title of a yellow hybrid perpetual—I mean *Gloire Lyonnaise*; it comes from Mons. Guillot fils, whose judg-



ment is good, and who has given us many fine Roses. It has been already exhibited by Mr. Geo. Paul. There was unquestionably a suspicion of yellow in it, but equally as decidedly a suspicion of Tea—in fact, as far as one could judge from a forced flower, it had somewhat of the character of Captain Christy, the flesh colour in that flower being replaced by a faint primrose tint; however, it is too soon to judge, as one can never determine the real character of Roses from forced plants.

Amongst the correspondents from whom I have received letters is one hailing from Boston, U.S.A.; in it he says, "We have had a very severe winter here—very long-continued cold, and my Roses, which I have just pruned, have been killed right down to the level of the ground. Here they are beginning to talk of the Japanese rugosa stock as suitable for our climate." He says also, concerning Roses in general, and in reference to the catalogue of exhibition Roses of the National Rose Society, that it much surprises him, when one considers the difference in climate between New England and the old country—great extremes of heat and cold, their droughts, &c.—that after all this, a good Rose with us in England is about sure to be the same with them. The list of exhibition Roses with us would be much the same with them. Perhaps A. K. Williams would be left out as a plant of too delicate a constitution, and that he should place *Marguerite de St. Amand* and *Gabriel Tournier* in the exhibition list on account of their good autumn qualities.

In the letter to which this was an answer I referred to what I called the fabulous prices for some new English Roses, and how it was to be accounted for; in reply to this he says, "You must remember that with us the fashionable season is from December 1 to the middle of April, and not as with you in London—June; so that at that time you see quoted a bloom of *Baroness Rothschild* at 1 dol.: therefore, with a Tea Rose which would be much more free in flowering the florists would be able to charge, if the colour was crimson, from December 1 to the middle of February, the same price for it as for *Jacqueminots*, that is, from 75 cents to 1 dol." This explains much that has heretofore puzzled me, but even so we have not yet got to the length, I believe, of giving 4s. for a Rose bloom.

With regard to the opportunities afforded for the exhibition of the Rose there is no diminution in their number or in the manner in which they are supported. The ball opens in the dear old sleepy city of Canterbury, which even two railroads do not seem to have much aroused from that beautiful lethargy which used to be characteristic of our cathedral cities, although the inventions of modern days have somewhat shaken them, as in such cases as Peterborough, Chester, and Lincoln. We have, then, Brockham on the same day, and to follow, \*Maidstone, June 30; Farningham, July 1; \*Reigate, July 2; \*Farnham, July 1; Tunbridge Wells, July 2; the two great shows of the \*National at South Kensington, July 7; and \*Manchester, July 11; \*Sutton, July 8; \*Bagshot, June 30; \*Cardiff, July 1; Croydon, July 1; \*Bath, July 2; Hitchin, July 2; \*Eltham, July 4; \*Crystal Palace, July 4; Sidcup, July 11; \*Hereford, July 9; Norwich, July 2; \*Christleton, near Chester, July 10; \*Wirkworth, near Derby, July 16; \*Wirral, July 18; \*Shrewsbury, July 9; \*Ludlow, \*New Brighton, July 25; Newcastle-on-Tyne, July 22; Peterborough, July 23; and \*Darlington, July 25.

In this list all those marked with an asterisk (\*) are Rose Societies pure and simple; the others, those in which Roses form not the principal features. Some names which have hitherto figured in the list of Rose Societies are no longer there, while new societies in other localities have taken their place, and I think we may safely venture to say that the Rose has now in no way lost its popularity, and that we may fairly anticipate a successful and busy season. *Wild Rose*.

#### ROSES AND ROSE BEDS.

The cold winds that prevailed during the greater part of April were rather against Roses, which have suffered from curl in the leaf, as the foliage was pinched and could not expand, and, as is usual under such adverse circumstances, fly and maggot are rife, which insidious enemies will do no end of harm if not checked or destroyed before they get further hold of the plants. In dealing with the fly there are many ways by which they may be successfully assailed, the one which is perhaps the best at this early stage of

growth of the shoots being to dust them with tobacco dust through a distributor, which discharges it regularly, and with sufficient force to drive it well amongst the leaves, where it soon discomfits the aphids, and either kills them outright, or makes them fall off.

To ensure getting rid of any disabled ones or stragglers, and to cleanse the shoots, it is a good plan to give the plants a heavy syringing with clean water, or, better still, to use the garden engine and well wash them, and the same after applying any other insecticide later on. One of the best and safest of these is nicotine soap, which contains the active properties of tobacco, and is very potent and destructive in its action on greenfly, but, when used according to the directions, harmless to the foliage, even in its most young and tender state. The most economical way of applying the liquid is to have it in a bowl, or other open vessel, and dip the shoots into it, which may be done easily as soon as they are long enough to bend over and bring down, till which time there is no help for it but to syringe the insecticide on. To do this without waste requires some one expert in the use of the implement named, when by dextrous handling and pressure of the finger over the jet, the liquid may be ejected in fine spray, so as to wet every part of the leaves above and below, which is a very important matter, as it must come into actual contact with the aphids to do any good. Soft-soap and quassia chips, boiled in water, make an excellent insecticide at a very cheap rate, and those who have many Roses to go over will find it quite worth while to have a store by them. The way to prepare it is to put the quassia chips into an old coarse bag and tie it up loosely, or they may be thrown into the water if that is strained after. The quantity necessary to get the requisite strength is about half a pound to the gallon, and 2 oz. of soft soap, which will make the liquid strong enough to kill any fly, but the maggot must be dealt with in quite a different manner, as insecticides will not reach him, so skilfully does he wind himself up in the foliage. To think of uncoiling this and picking him out is quite out of the question, as it is impossible to do it without bruising or tearing the leaf; the best way is to give each maggot a loving squeeze between the thumb and finger, which will cause a collapse of their soft tender sides, that are so distended by the juice of the Rose.

Another malady by which this plant is affected is the mildew, which in some seasons, and on some sorts, is very troublesome, but by timely attention it is easily kept under, and with a little perseverance destroyed altogether. The most effectual remedy known until recently has been sulphur, but according to some this has a rival in sulphide of potassium, and if this is as good as it is stated to be, and sufficient may be had for 1s. to make over 30 gallons of water strong enough to kill the fungus—it will be a great boon to all connected with gardens. As yet I have no experience of it myself, but I mean to try it at once, as, unfortunately, one has nearly always some mildew on one plant or another.

Up to the present I have always found sulphur water the best thing to apply for the destruction of the pest, as it is cleanly and leaves no deposit on the foliage like the sulphide of calcium or Ewing's blight composition, the lime in which forms a sediment, and this adheres to the foliage. The way to impregnate the water with sulphur is to put it in an old copper and make it boil for some time with the sulphur in it, and when it has cooled down a little the water will become perfectly clear, and then it is ready for use, and may be applied through a syringe; but every part of the affected plants must be wetted, as, like the insecticides, it only kills where it touches. Dry flowers of sulphur act in the same way on mildew, but it is difficult to make it reach every part, and the boiling it in water and using it so is therefore the best mode of applying it. What causes or helps to bring mildew on Roses is drought; and to avoid the plants suffering from that, the beds should be mulched with short stable manure, which will not only prevent moisture escaping from the soil, but enrich it, and thus feed and nourish the roots. *J. Sheppard*.

**BEDFORDSHIRE HORTICULTURAL SOCIETY.**—The annual show will be held at Bedford on July 15. Special prizes for Roses (open to all England) are offered. Mr. H. Telbs, Stoneleigh, Bedford, is the Secretary.

#### FRUIT NOTES.

**SOUTH WILTS.**—The prospect of good crops of all kinds of fruit, except Apricots and Plums, generally being secured in the year 1885 is, indeed, very promising in this district, notwithstanding the few degrees of frost which we had on the nights of the 7th and 11th inst. respectively, and which, in consequence of the sheets and pyramids of Cherry, Pear, and Apple blossoms being fortunately dry at the time, have not done much mischief in that direction. I do not remember having seen for several years past Apple, Pear, and Cherry trees so profusely flowered as they are or have been during the present season; the blossoms, too, are large and strong. Bush fruits and Strawberries are also very promising, Currant trees being unusually heavily laden. The Fig crop, as might be expected after the beautiful wood-ripening weather which we experienced last autumn, also promises to be an abundant one. The orchards in this locality present a beautiful sight at the present time—a picture which gives promise of well filled fruit rooms and cider casks. *H. W. Ward, Longford Castle*.

#### A CURIOUS INSTANCE OF FRUIT PROTECTION.

I have had here a remarkable illustration of the effect of very simple protection both upon the quantity and earliness of Plum tree blossoming. Near my house there is a row of Plums known as "French Gages." The trees are large bush-headed standards some 20 feet in height, and have bloomed fairly well generally for their kind. Some two years ago, during a very high wind, a crocheted lady's shoulder-wrapper was blown up into one of these trees. It became entangled in the branches, and has remained there ever since. Judge of my surprise to see early in the month of April past a dense mass of blossom expand amongst and all around this mantle, the bloom being nine-tenths more in quantity than upon any other parts of the other trees and a couple of weeks earlier! In these days of fruit-growing advice and the desire for protection from spring frosts, what thoughts may arise from so simple a fact. Beyond this, the moisture-absorbing capacity of this woollen material, whether of rain or dew, must have acted beneficially towards the formation of an excess of blooms. *William Earley*.

#### NADRESFIELD COURT AS A FORCING GRAPE.

In an early vineyard at Gunnersbury Park, in which some of the varieties are already colouring, Nadresfield Court stands out from all the rest for its size and development of bunch. Relatively the berries and bunches are much larger than those of Black Hamburgh, and Mr. Roberts hopes to cut from both in about a fortnight. So pleased is Mr. Roberts with it as an early forcing variety, that he states were he to force Grapes for market, he should grow it much more largely than any other variety, and have it fit for table by the middle of May. *E. R.*

#### DYING GRAPE VINES.

As far as my experience goes, an exceptional occurrence exists in connection with a few of my neighbours' Grape Vines in the Ilford district of Essex. Vines, which have hitherto grown and fruited exceptionally well, had, during the past early spring months, made an effort to grow; having, in fact, formed about three young leaves, when about a third of the upper part of each cane ceased growing, the buds shrivelled, and no more progress was made. Generally, however, a fair growth continued on the lower third portion of the rods. This has happened both to strong one-rod plants, and to such as are grown on the extension system. The illustrations occurred in distinct establishments. My impression regarding an amateur's house, first visited, was, that it was attributable to scald or scorch, owing to the fact that the structure may have been kept closed during the hot sunny days of the early spring. This idea received for contradiction, however, the fact that one Vine at the end of the structure had broken and grown freely throughout its whole length. Besides, both one-rod Vines and others upon the extended system in charge of an efficient gardener, treated on the retarding system, show precisely the same symptoms. Indeed, the gardener, as soon as he observed it, removed the bedding plants from one structure, and had resort to syringings and a close warm atmosphere, and the Vines so treated have in great



measure surmounted the disorder, and are doing much better than the adjoining house, still kept cool and retarded. Present appearances vary. In one house, where the strongest single-rod Vines exist, one-third of each rod, with the exception of the one referred to, is quite dead, and the wood becoming quite black. Singular to say, however, if the wood be scraped deeply on one side, or if a portion of a spur be cut off, sap immediately flows out copiously from both. There are here and there weak, unhealthy shoots scattered about the Vines which are growing and showing similar symptoms. One large Vine, having two very large rods, in an airy, high conservatory, appears quite dead. Though in one structure one-third of each infected Vine is quite dead, yet the Vines in another, though apparently smitten to an equal degree, have the wood yet green nevertheless. Have other growers experienced anything similar during this or any other season? When prosecuting my enquiries regarding it, thinking it might be due to excessive root-drought last season (though all carried their crops well and ripened off their leaves apparently as usual), my attention fell upon Apple trees near by, upon which I observed that the upper shoots, the strong robust ones of last season's growth, seemed more or less blind. Whilst the trees generally were leafing and the flowers presented a marvellous display, the majority of these young growths stood up above the general mass of growth, like the tips of lightning conductors, and the thought occurred whether root drought, along with aërial dryness, heat, &c., acting together, may not during the last peculiar summer have been the cause. In any case, I send you herewith examples of Vines and Apples, being unable myself to broach any theory beyond. [Specimen not received.] William Earley, Ilford.

## TERRESTRIAL ORCHIDS.

(Continued from p. 639.)

ORCHIS.—In this genus are included many pretty plants, some of them common in England, and many more in Europe, which, like their allies, the Ophrys, and the majority of terrestrial Orchids, have quite a different form of roots from those of Cypripedium. The root consists of two white fleshy tubers, connected at the top by a neck, from which a few thick white roots proceed. Every year, as the plant withers, one of the tubers of the roots shrivels up and dies. In autumn a bud is produced from the top of the other, and fresh roots are thrown out, whilst a new tuber commences to form, and grows through the whole winter. In spring the leaves and flower-stem are thrown up, and gradually exhaust the old tuber, which is left shrunk and soft, so that by the time the plant is in flower it may easily be distinguished from the new one, now of equal size. If at this time, or a little later, the new tuber be broken off and planted separately, it will grow and flower next season, while nothing will remain of the old plant, so that in collecting Orchids at a distance from home it saves much space and trouble to take only the new tubers. These tubers can be kept dry for two or three months without injury, but should be planted not later than August or September. If intended for open-air cultivation, they should be planted on a dry bank, excepting some which inhabit wet meadows, and, if possible, among some dwarf-growing plants or grasses, so as to imitate their natural conditions. Some species increase by offsets, but the majority by seeds only, and it is believed that the minute seeds germinate on the leaves of grasses, and afterwards descend to the earth.

Observations on the mode of germination and reproduction of terrestrial Orchids are very much to be desired, as the uncertain appearance and occasional disappearance of some species from their wild haunts seems to indicate that the seeds either remain some years dormant or that the seedlings are very slow in growth. Little or nothing is known about this subject. [The results are principally due to the peculiar growth of the tuber, as shown by Prillieux and others. Ed.] Among the best of our native Orchids are:—

- O. mascula*, the spring Orchis.
- O. maculata*, the spotted Orchis.
- O. Morio*, the Fool's Orchis.
- O. pyramidalis*, the pyramidal Orchis.
- O. ustulata*, the Burnt Orchis.

All of which succeed well in a garden if the soil is of a suitable nature. *O. militaris* is another fine native species, but rarer, and not so easy to grow as the others.

Among the finest of the European species are:—

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|--------------------------|-------------------------|
| <i>O. Robertiana.</i>    | <i>O. papilionacea.</i> |
| <i>O. provincialis.</i>  | <i>O. laxiflora.</i>    |
| <i>O. undulatifolia.</i> |                         |

All of which are abundant on the shores of the Mediterranean, and, with the exception of the latter, like protection in hard winters.

*O. foliosa* is a species from Madeira, which used to be grown very well by the late Mr. Atkins, of Painswick, and is very suitable for pot culture. It attains 2 or 3 feet in height, and is nearly, if not quite hardy.

*O. spectabilis* is a pretty and distinct American species, which I once had, but did not succeed in keeping more than two or three years.

*O. sambucina* is an alpine species, which has yellow or purple flowers, and does well on a rockery among Gentians or Anemones. There are at least twenty or thirty other species in Europe, which may be procured with a little trouble, and are all worth trying.

*Aceras hircinæ*, the Great Lizard Orchis, is one of the most remarkable and rarest of our native species. It is nearly, if not quite, extinct in England, but grows abundantly in poor damp meadows in Brittany and elsewhere. I have found it easy to grow in my soil, where it attains a height of 2 or 3 feet.

*Nigritella angustifolia* is a pretty and curious little alpine species worth growing on account of its agreeable smell, but not very easy to keep. H. J. E.

(To be continued.)

## COLONIAL NOTES.

NEW ZEALAND (concluded from p. 578).—DAMMARA AUSTRALIS, known by the Maori name Kauri, is a very remarkable tree, and produces timber second to none in the world. In the province of Auckland this tree forms large forests in itself, amounting altogether to about 150,000 acres, the most of which is, however, in private hands. It is limited in distribution, being confined to the northern parts of the North Island, and found in no other country. The tree, especially when matured, presents a bold appearance, is handsome and symmetrical in habit, and when matured presents a hole destitute of branches for upwards of 100 feet in height. The tendency to confine itself to an upward growth, and the smallness of its laterals, gives to this tree the unequalled scarcity of knots. Planks of any size can be obtained without a single knot; in fact it would be possible to build a large house without a knot in it. The wood is of a pale yellowish-grey colour, fine grained, easily worked, takes a good polish, and is almost indestructible. It is used for building purposes, mouldings, furniture, &c. Besides the source of wealth arising from the timber of this tree, which now amounts to an annual sale of more than 100,000,000 feet, it gives to this colony an item of export worthy of great consideration. Kauri gum, a varnish resin used extensively in the United States of America for the manufacture of varnish, is exuded from the trunk of this tree. The most valuable gum is that which has been produced by extinct forests and is dug out of the ground. Over 5000 tons of gum are now annually exported, and I believe the price ranges about £50 per ton. Hundreds of men, known as "gum diggers," obtain a living by unearthing and collecting this resin, which often occurs in lumps larger than a man's head. It greatly resembles amber in colour, but is much more brittle. The gum obtained from trees on being cut down is of a paler colour and of less value than that which has been buried. This noble tree, providing two articles of export, is fast disappearing; nothing has been done towards conserving it or planting it, so that in a few more years this tree, which stands without a rival, will become a thing of the past, and with it also Kauri gum.

In a young state *Dammara australis* forms a beautiful object, and is well worthy the attention of floral decorators and nurserymen. When young the branches are whorled like a *Picea*, the whole plant being conical in habit. The leaves are flat, sessile, oblong, thick, glaucous, and smooth, about 2½ inches long. As the tree matures the branches become irregular in distribution, the leaves diminish in size, and to a great extent its beauty is gone. This tree is the only New Zealand Conifer which produces a true cone. (See figure at p. 525, vol. xx., 1883).

PODOCARPUS TOTARA.—This tree is a rival of the former one in the estimation of the people in this country; indeed, when the merits of both trees are well considered, it is a question which should occupy the first place; still in my mind the Kauri,

with its bold and handsome form, deserves the foremost. The Totara tree attains to a height of over 100 feet, with a diameter often exceeding 8 feet. In habit it has a more spreading tendency than most of the Conifers; its leaves are flat, narrow, and about 1 inch long. The fruit is edible, and resembles a small red bad-shaped Plum. The wood is red in colour, close-grained, easily worked, takes a good polish, gives a variety of shades and grains, is exceedingly durable, posts of it having lasted for upwards of fifty years; stands well in water, and is almost impervious to the attacks of the teredo worms, which play such havoc in timber used for ships and marine purposes.

It is limited to this country, but is generally distributed throughout both islands. The variety known as "Mountain Totara" should be perfectly hardy in England, as I am sure it has to stand rougher and colder weather up in the Alps than is ever experienced in England. *Libocedrus Doniana*, the *Arbovitæ* of the colonists, is another fine looking tree, approaching 100 feet high. The wood is red, fine grained, hard and heavy, is very durable, and considered valuable for masts and spars. It is only found in a few localities, and when its rare qualities are more generally known it will be one of the first trees to become extinct. The other species of this small genus found in New Zealand is *L. Bidwillii*, and produces the *Pahautea* wood of the Maoris and Cedar of the colonists. The wood is darker in colour than *Doniana*, not so heavy, and is in most respects a more useful timber although not so durable. It is found in several localities throughout the mountainous parts of both islands.

The "Black Pine" or *PODOCARPUS SPICATA*, produces an exceedingly valuable timber, applied to more purposes out here than any other variety. Bridges, wharves, sleepers, machinery, houses, &c., are all composed chiefly of this timber. Its durability is wonderful, and when long seasoned it is almost impossible to drive a nail into it. Yellow, close grained, and susceptible of a high polish. Abundant throughout both islands. The "White Pine" or *Podocarpus dactyloides*, although not a durable timber when exposed, is very much sought after for all inside work owing to its light colour, toughness and smoothness in working. Both these species grow to 100 feet high.

*DACRYDIUM CUPRESSINUM*, the Rimu of the Maoris, and Red Pine of the colonials, is beyond a doubt one of the handsomest objects in the tree line which it has been my good fortune to drop eyes on when rambling through these forests. In a full grown state a great deal of its beauty disappears, but when young and ranging in height from 2 to 20 feet it has the appearance of a gigantic symmetrically formed *Lycopodium*. Instead of being called *cupressinum* I think *lycopodioides* would have been more appropriate. The young tree rising in height with a main slender axis (resembling a plant fishing-rod), gracefully drooping at its apex, gives off in a regular manner side branches diminishing in length from base to apex, so forming a perfect pyramid. Each lateral branches into several long pendulous slender branchlets completely covered with the closely imbricated scale-like leaves, until the whole tree, beautifully adorned with these weeping branches, presents a picture which my pen cannot describe. However, if my readers will imagine a 10 foot specimen *Araucaria excelsa*, with its branches as small as the stems of *Lycopodium Billardieri*, all elongated into drooping lengths, they will be able to conceive something very much like it. As a timber tree it is excellent, the wood is red, beautifully grained, and gives a great many varieties of shades and marks, which with its easily worked nature have made it a great favourite with furniture makers. For all work where not exposed to wet, it cannot be surpassed. Distributed in both islands. *PHYLLADENDRUM CHOMANOIDES*, the Celery Pine, or Tanekaha tree, is a very handsome Conifer of a medium height, only producing its true leaves when seedlings, being phylloid in its branches. The habit of the tree is very symmetrical and pleasing; its wood is of first-rate quality, pale red, very durable, strong, and close grained. This tree possesses a bark very prolific in tannin, and I may say is the most powerful tan bark in the world, containing more than 23 per cent. of tannin. It is, moreover, unsurpassed as a dye, and is used extensively at Grenoble, in France, to which place it is forwarded from this country. Last year over



£20,000 worth of bark was shipped from the north of this country.

This concludes the New Zealand Conifers ranking as forest trees worth receiving the attention of arboriculturists. In my next contribution I will continue the remarks on the principal timber trees. *Chris. Mudd, Plant Collector.*

## BOTANICAL CURIOSITIES.

THE object which the Royal Horticultural Society sought to accomplish at the recent Orchid Conference being to get together for purposes of comparison and study as many species and varieties of the Orchid family as was possible, the result was prolific in the number exhibited of kinds which were of very little value horticulturally as compared with the rich colours and large sizes of the more popular garden Orchids. This exhibition had, therefore, much greater attraction for the botanists than is usual at flower shows, and to show that such was the case the following descriptive list of those kinds which are usually termed "botanical curiosities" has been drawn up. Of course it is hardly necessary to state that botanists are no less interested in the larger flowered Orchids than in the smaller ones, but it so happens that whilst, generally speaking, the large gaudy coloured Orchids are well looked after in ordinary gardens, the smaller and less attractive kinds are only rarely to be seen in a living state. In this respect, Kew does good service in cultivating all that can be obtained of these little out-of-the-way Orchids, and in the little group of rarities sent from the Royal Gardens to the Exhibition there were not more than three or four species which were represented in any other of the groups shown.

As many large and exceedingly beautiful rarities among the exhibits, such as the marvellous plant shown under the name of *Luddemania Pescatorei*, also *Sarcochilus (Camarotis) purpurea*, *Pescatorea Lehmanni*, *Diacrium (Epidendrum) bicornutum*, &c., were duly mentioned last week, it is intended here to speak only of the humblest of the species shown, or, in other words, the botanical curiosities.

*Acanthophippium bicolor*.—A fleshy bulbous terrestrial Orchid, with bulbs like large Onions, but with nodes, and bearing short ovate plicated leaves. The urn-shaped rather large flowers, which are white, with crimson tipped petals and sepals, are handsome, but the members of this genus are somewhat difficult to manage. They are natives of Ceylon and India.

*Bolbophyllum Dearei* is a large-flowered species of this extraordinary genus, which now includes a portion of the genus *Sarcopodium*, to which *B. Dearei* should belong. It is not unlike *B. Lobbi*, except that the lip is not so large, nor at all like that species in form. The tongue-shaped upper portion of this organ swings on a very delicate pivot, so that the slightest touch causes it to shake backwards and forwards. The same character is observable in *B. Lobbi*, which was also shown. The flowers of this species are pale yellow, shaded with cinnamon, and spotted with brown; they measure 4 inches across. It is a native of Java.

*Cirrhopetalum fimbriatum*.—A tiny *Bolbophyllum* from Bombay, with small Gooseberry-like pseudobulbs in a cluster, and erect hair-like scapes bearing radiating heads of flowers, which are curiously formed; they are composed of two long lateral sepals which are parallel and united, and are pale green, the petals and other sepal being very small, and fringed with reddish hairs.

*Celia Baueriana*.—A short-spiked white-flowered species from Central America, which is remarkably sweet scented. There are two other species cultivated, viz., *C. bella*, a long-flowered kind, recently figured in *Bot. Mag.*; and *C. macrostachya*, which has red flowers.

*Calogyne Parishii*.—A rare plant in gardens. It has long Banana-shaped bulbs, and graceful spikes of pale green flowers, the column being coloured deep sea-green, and the three-lobed lip dotted with black and curiously warted and ridged. One of the Rev. Mr. Parish's introductions.

*Calogyne ochracea*.—Several plants of this were shown under the name of *C. ocellata*. The two are much alike, but the latter is not so tall in spike nor so clear coloured in the flowers as the former; this has white flowers with two sulphur-yellow blotches on the lateral lobes of the scoop-shaped lip, and pseudobulbs which are pale green with light-brown sheaths.

*Compartmentia falcata*.—A graceful little Orchid with hair-like arching spikes of rosy-red flowers with kidney-shaped lips and long spurs. *C. macroplectron* is a beautiful species, and is in cultivation.

*Cybidium Devonianum*.—An Indian tree species with long pendent racemes of flowers with brown and yellow sepals and petals, and a dark purple, almost black, tongue-shaped labellum. First introduced through Chatsworth in 1837.

*Dendrobium*.—Of this genus the most noteworthy among the smaller fry were *D. Harveyanum*, remarkable in having its petals beautifully fringed, whilst the lip is small, shell-shaped, and almost fringeless, so that the idea of monstrosity is suggested, the flower being like what *D. fimbriatum* would be if the fringe were removed from the lip and placed on the upper edge of the petals. *D. tetragonum*, an Australian species with four-angled pseudobulbs and brown and yellow long-tailed flowers. *D. rhodopterygium*, remarkable in being intermediate between *C. macrophyllum* and *D. Parishii*, but not possessed of the attractiveness of either; though, as the species is a recent introduction, it may possibly develop better garden qualities than either of the specimens shown had.

*Epidendrum raniferum*.—Two unnamed plants of what appeared to be this species were shown. The flowers are rather large and fleshy, and are yellow, thickly covered with purple-brown spots.

*Grammatophyllum*, sp. nov. (?).—A plant with the growth of *G. Ellisi*, but having a long spike of greenish flowers. It is most likely a new species.

*Ionopsis paniculata*.—A pretty plant, with rigid small leaves and long graceful branching racemes of delicate flowers, the labellum in which is large, white, with a purple blotch at the base; the sepals and petals are very small. *I. utricularioides* is apparently synonymous with this, which is said to show considerable variety both in colour and form.

*Kefersteina graminea*, or, more correctly, *Zygopetalum gramineum*, as the genus *Kefersteina* is now placed in *Zygopetalum*, where it was first placed by Dr. Lindley. This species is sometimes called *Huntleya fimbriata*. It is a stemless plant, with erect herbaceous leaves and short prostrate flower-stalks, with flowers  $1\frac{1}{2}$  inch across, their ground colour green, with brown spots, the labellum being yellow, with a rosy edge and dark brown blotches. Plants of this genus are known under *Maxillaria*, as, for instance, *M. stapelioides* and *M. galeata*. (See fig. 144, p. 636.)

*Maxillarias*.—These were represented by *M. triangularis*, which has strap-shaped leaves and numerous short single-flowered scapes, the flowers being rich brown and red, with a labellum almost black; *M. luteo-alba*, a broad-leaved robust-growing plant, bearing numerous short-stalked flowers, which are large, the sepals and petals twisted and coloured white and yellow, the lip being brown; *M. Turneri*, a species with flowers like the last, but smaller, and having somewhat flattened fusco-coloured pseudobulbs.

*Masdevallias*.—These were well represented by the large-flowered kinds, and by several small-flowered species, of which *M. racemosa*, the beautiful little *M. tridactylites*, which is more like a *Restrepia* than a *Masdevallia*, its spoon-shaped purple flowers with three orange tails, and the narrow, almost terete foliage, forming a little tuft through which the hair-like flower-scapes push their nodding flowers being very pretty; *M. simula*, which the Professor has called "quite a little wonder of beauty in colours," and which has flowers less in size than a common house-fly, and are coloured purple and yellow, with an almost black lip. *M. Reichenbachiana*, a rare species, distinguished by its cup-shaped, dark red flowers and white slender tails; *M. Schlimii*, with tawny-coloured flowers and long yellow tails, were among those shown. *Megacalinium oxypterum*, a singular ally of the *Bolbophyllums*, to some of which it bears a close resemblance in everything except the flower-scape, which bears a pair of broad wings, the whole appearing to have been hammered out to a width of three quarters of an inch, and along the middle, springing from node-like points, are the tiny flowers, to see the beauty in which one must be armed with a powerful magnifying glass. *M. purpuratum* is very closely allied to this.

*Odontoglossums*.—Among these were plants of *O. Schillerianum*, which is a species between *O. niveum* and *O. luteo-purpureum*, and has flowers with the sepals and petals yellow and brown, twisted, 1 inch

long, and a yellow-white lip with a purple blotch; *O. læve*, *O. facetum*.

*Oncidiums*.—Of these the most noteworthy among the small flowered species were *O. sphacelatum*, a free growing, tall spiked species, with numerous flowers to a spike, and coloured yellow and brown. *O. pulchellum*, a small bulbous kind with distichous rigid leaves and erect slender scapes, bearing clusters of pretty white and bright yellow flowers, the lip being the most conspicuous part. *O. aurosum* bears a tall arching raceme of large lipped flowers, which are coloured bright yellow, with bars of reddish-brown on petals and sepals. *O. Cebolleta (juncifolium)*, a curious species, with spindle-shaped leaves, and erect branched flower-scapes, bearing numerous green, brown, and yellow flowers.

*Phalenopsis Parishii*.—A pretty little rarity, recently noted to our pages. *P. Manni* was also represented by a specimen; it has pale yellow flowers, barred with brown, the lip being 3-lobed and lined with purple.

*Panisea (Calogyne) uniflora*.—A tiny plant, with short foliage and pale brown and yellow flowers.

*Promenaea citrina*.—A dwarf lemon flowered species, of which a pan of fine, well flowered plants was shown.

*Ponthieva maculata*.—The curiously marked, hairy Orchid noted in our pages recently as being in flower at Kew.

*Polystachya pubescens*.—One of the few Orchids in cultivation which are natives of South Africa. It has pseudobulbs like those of *Lælia cinnabarina*, small foliage, and erect spikes of bright yellow flowers which are not twisted, so that the lip may hang downwards as is usual with Orchids.

*Sarcanthus Parishii*.—A Vanda-like plant, bearing long, slender, curved racemes of small yellow and red flowers, which are pretty when seen in the mass.

*Stelis muscifera*.—A bronzy-leaved *Pleurothallis*-like plant, with erect hair-like spikes of small red flowers, which are curiously angled when in bud. It comes near to *S. Bruchmulleri* and *S. spatulata* of *Bot. Mag.*

*Tetramicra (Leptotes) bicolor*.—This pretty little species was well represented by some nicely-flowered specimens. It has terete, sickle-shaped leaves, and short 3-5 flowered peduncles, the flowers being white with a blotch of purple on the lip.

*Trichocentrum albo-purpureum*.—A beautiful little Orchid, allied to *Burlingtonia*, but distinct in having fleshy leaves and pendent racemes, each bearing a single flower, which is 2 inches long; petals and sepals brown inside; the lip large, two-lobed, white, with two large purple spots at the base.

*Vanda cristata*.—A dwarf species, with curiously formed, large-lipped flowers, which are yellow and green except the lip, this being closely streaked with blood-purple; in form the lip is much like a lyre. *W.*

## FORESTRY.

### UNMIXED versus MIXED OAK WOODS.

I THINK that very few practical planters will agree with Mr. Michie in thinking that Oak can be grown best and most economically by itself. Supposing, as he says, that for the first thirty years the thinnings will not do more than pay for the cost of thinning, the rent lost before the plantation began to pay anything would amount to more than double the value of the land; and for twenty years after that the thinnings of a plantation containing nothing but Oak would pay a very small rent, whereas if the Oaks were planted at from 4 to 6 yards apart, and the plantation filled up with Larch and Spruce Firs, these latter would have paid a fair rent for the land by the time that they were all thinned out; and I am quite certain that, if they be properly thinned, the Oaks ought to be at least as fine at fifty years as those which have been grown in a plantation of nothing but Oaks. I see a great deal in this neighbourhood of both ways of growing Oak, because many of the Castle Howard woods have been planted with Oak alone; and I am convinced that in this country a plantation which at twenty-five years' growth consisted of Spruce Fir and Oak in proper proportion, would grow as fine, and I believe finer, Oaks than one in which there were only Oaks. Of course, Oaks will grow finer by themselves than in company with Ash and Elm and Chestnut. It is the first time that I have heard these trees



called "burses" for Oak. I have always thought it impossible to grow Oaks at all in company with Ash, and almost so with the other two; but there certainly is not the slightest difficulty in growing them to perfection with Spruce and Larch, so planted that the Larch shall be thinned out first, and the Spruce afterwards. It certainly also costs considerably less to grow an Oak with these than with Oak alone. *C. W. Strickland.*

## Orchid Notes and Gleanings.

### ORCHIDS ROUND MANCHESTER.

*Cypripedium Andersonii*.—This interesting Orchid has just bloomed in the stoves of C. E. Schwab, Esq., Heyscroft, Didsbury. No pretence is made that this is, in any sense of the word, an Orchid establish-

ment, for the blooms, which are very numerous, are of a fine size and very good colour. *Dendrobium Dalhousieanum* also is represented with blooms of unusual breadth of sepals and petals, the two crimson spots in the centre of the labellum are large and very dark. *D. Parishii* in baskets will in a short time be a mass of flower—the bulbs are showing buds almost the whole of their length. *D. infundibulum eburneum*, besides many of the more common forms, are here to be met with doing exceedingly well.

### ORCHIDS AT FERNSIDE, BICKLEY (II. M. POLLETT, ESQ.).

This is one of these garden in which Orchids are given a specialty, and where they give a good return for the care bestowed on them by growing luxuriantly and blooming profusely. At present the various houses have a large quantity of plants in flower. *Odontoglossum*, of which there is a large collection of choice varieties are represented by fine types of the following:—*O. Cervantesi*, *O. vexillarium*, *O. basti-*

*Phalaenopsis Luddemanniana*, and a nice lot of the following *Masdevallias*—*M. Lindeni*, *M. coccinea*, *M. ignea*, *M. Shuttleworthi*, and *M. Houtteana*—were all in bloom. A small "show" house, with a *Gloire de Dijon* Rose in flower on the roof, is just now very gay with a miscellaneous selection of Orchids and other flowering plants tastefully arranged with foliage and Ferns; it is a little paradise of both scent and scene, and the person it would not satisfy must indeed be very fastidious.

### ORCHIDS AT MESSRS. JAMES BACKHOUSE & SON'S, YORK.

THIS firm has long been noted for the cultivation of Orchids, having maintained for several years collectors in Mexico, Chili, and New Grenada, as well as receiving direct importations from correspondents in other quarters of the globe. "Cool Orchids" have always been a specialty, Mr. Backhouse having been one of the first to direct attention to the cooler treatment requisite for the successful cultivation of



FIG. 149.—E, FREESTONE PEACH; F, CLINGSTONE PEACH; G, HALF-CLINGSTONE PEACH. (SEE P. 661.)

ment, yet a few are to be found amongst the occupants of the stoves. Calling here recently I was much pleased to find a plant carrying a spike 4 feet long with twenty-four flowers of a bright yellow colour. Strange to say, this species and *C. punctatum* are not often seen in collections, being considered too common, yet when they flower are as interesting and beautiful as many of the *Oncidium*s that are now so eagerly sought after. The plant in question was received about two years ago from Brazil, when Mr. J. Fletcher potted it in a mixture of loam, sand and crocks; last year a stout bulb was formed, and now this spring, with the new growth, a spike has appeared and produced the results described above. *Lælia cinnabarina*, too, was flowering very freely, and close at hand was a good plant of *Renanthera coccinea* in a basket trained along the roof, near the glass, but sufficiently far to be safe from scorching.

*Eulophyllum barbigerum* and *Trichoglottis fasciata* are two very rare and singular Orchids that may be seen in the gardens of Mr. Railton, Harewood Lodge, Whalley Range. Both were secured at the sale of the Manley Hall collection just twelve years ago. The former is still growing on the original block, but it has twined round it, so that now the block is covered with its little plump bulbs and leaves. This is perhaps one of the most singular Orchids in cultivation. Its greenish-brown flowers are produced on a short spike, and the lip, which is covered with dark brown hairs, is attached to the base in such an apparently loose manner that the least movement of air, even the closing of the door, will cause the lip to jerk backward and forward, as though it were an insect striving to regain its freedom. The *Trichoglottis* (*Gardeners' Chronicle*, 1872, p. 699) is somewhat like a *Renanthera* in growth, leaves narrow and a little glaucous, producing short spikes of yellowish-brown flowers.

Amongst some well bloomed *Dendrobiums* at present flowering in the Orchid-houses of L. Ward, Esq., Didsbury, are several good plants of *D. tortile roseum*. These are grown on blocks, and have evidently well ripened



FIG. 150.—FLOWERS OF NECTARINE, SHOWING THE STYLE PROTRUDING AND IN ADVANCE OF THE STAMENS.

labium, *O. cirrosum*, *O. triumphans*, in several remarkable forms; *O. crispum*, too, is well represented in several good forms; *O. sceptrum*, *O. roseum*, *O. Pescatorei*, *O. Halli*, *O. Andersonianum*, *O. concolor*, *O. luteo-purpureum*, *O. Ruckerianum* and *O. R. insigne*, *O. Pollettianum*, *O. Edwardi*, *O. Rossi majus*, *O. citrosum*, *O. vexillarium*, and *O. Krameri*. *Cattleyas* in bloom were *C. Mendelii*, *C. Trianae*, the lovely *C. amethystoglossa*, and several unnamed species. *Cypripedium caudatum*, *C. villosum*, *C. Harrisianum*, *C. ciliolare*, *C. niveum*, *C. Warneri*, *C. barbatum*, *C. b. Crossi*, and *C. Argus* were in flower—all nice examples. *Dendrobiums* do well here, and some fine pieces of *D. densiflorum*, *D. Wardianum*, *D. Pierardi latifolium*, and others were well bloomed. *Oncidium pulchellum*, *O. ampullaceum*, *O. cucullatum*, and *O. sarcodes* were in flower. *Zygopetalum crinitum*, *Cymbidium Lowii*, a fine plant with large flowers; *Cœlogyne ocellata maxima*, *Miltonia cuneata*, *Aërides Warneri*, some nice pieces of *Sophranites grandiflora*, the waxy-looking *Chysis bracteescens*, the bright *Ada aurantiaca*, *Bletia hyacinthina*, *Lælia Dayii*, *Trichopilia crispa marginata*,

the denizens of the higher mountain regions of South America, and by a long course of patient experiments to ascertain the conditions of temperature, shade and moist, suitable for them. So also with *Cattleyas*, his study of their requirements led him to the conclusion that the close shading of former times was not desirable, but positively injurious; and in a large house, 90 feet long by 30 feet wide, may now be seen a very fine collection of these plants, and of the allied genus *Lælia*, grown without shading, and well known amongst cultivators for their healthy robust growth and free flowering habit. Some hundreds of fine plants of *Cattleya Trianae*, comprising amongst them such magnificent varieties as *Backhousiana*, *eboracensis*, *magnifica*, and many others, are here, although passed out of flower for the season; but there are still fine examples in bloom of *Cattleya Mendelii* and *C. Mossiae*, *Lælia elegans*, *L. purpurata*, and *L. majalis*. *Cattleya Mendelii*—which, by the way, was introduced by this firm through their collector in Ecuador about fifteen years ago, and sold to Mr. Meudel, after being flowered as *sp. Ecuador*—may be seen in many varieties, but all very beautiful; the large white sepals and petals, with finely expanded and richly coloured lip still stamping it as one of the princes of this grand family. The *C. Mossiae* are just coming in, and already afford promise of many fine varieties. Of *Lælia elegans*, a grand mass may be seen with ten spikes of bloom; the flowers, of which there are five and six on a spike, are very large and beautiful, the almost snow-white petals contrasting finely with the broadly expanded rich purple lips. *Lælia majalis* (the Mexican "Flower of May") is also flowering freely, and is very lovely; whilst the better known *L. purpurata* forms a fine feature in the same house, various plants bearing amongst them about thirty spikes of its large and striking flowers. One grand specimen carries ten spikes, some with six flowers on a spike. In the same house may also be seen nice plants in bloom of *C. Skinneri*, *C. Warneri*, *C. citrina*, and *C. inter-*



media; whilst grand specimens of *C. Sanderiana* and others give promise of a wealth of flowers a little later. Of *Vanda* teres there are several plants flowering freely; *Dendrobium thysiflorum* and *D. chrysotoxum* are also gay; nice plants of *D. macrophyllum* have just passed their bloom. A good collection of *Cypripedium* is cultivated, amongst which the following are now flowering:—*C. Sedeni*, *ciliolare*, *Lawrenceanum*, *naevium*, *longiflorum*, *villosum*, *barbatum*, *Hookeri*, and *caudatum*—*C. ciliolare* and *Lawrenceanum* being very fine. Amongst "cool Orchids" *Masdevallias* and *Odontoglossums* occupy a principal place. A plant of *Masdevallia Lindeni* bears forty spikes, and a smaller one has ten; whilst of *M. Veitchii* and others there are many fine plants in very fine condition. The *Odontoglossums* have a long span-roofed house all to themselves, and present a very healthy vigorous appearance. A large number of *O. crispum*, *O. Pescatorei*, and *O. cirrosum* have done blooming; but there are still a few nice varieties in flower, as also of *O. membranaceum*, *O. nebulosum*, *O. sceptum*, and *O. Chestertoni*, with others not yet proved. *Ada aurantiaca*, with its dense spike of warm reddish orange flowers, does well in this house, and is quite attractive; *O. Roezlii*, *O. citrosum*, and *O. Phalenopsis* are also well grown in rather warmer quarters. In the Mexican-house large plants of *Laelia autumnalis* (of which many fine varieties have been distributed from this nursery), and *L. anceps*, with its varieties, *alba*, *amœna*, *bella*, &c., may be seen; but, of course, the beauty of this house is in the dull months, when autumn is fading into winter. Large numbers of *Coelogyne cristata* and *Cymbidium eburneum*, in strong plants which have just passed out of bloom, may also be seen.

#### ORCHIDS IN FLOWER AT MESSRS. IRELAND & THOMSON'S, EDINBURGH.

<i>Cattleya Mendelii</i>	<i>Dendrobium infundibulum</i>
" <i>Mossiae</i>	" <i>cambridgeanum</i>
" <i>ameiystoglossa</i>	<i>Masdevallia Veitchii</i>
" <i>citrina</i>	" <i>igneæ</i>
" <i>Harrisoniae</i>	" <i>Haryana</i>
<i>Odontoglossum Alexandræ</i>	" <i>Lindeni</i>
" <i>Pescatorei</i>	" <i>Davisi</i>
" <i>gloriosum</i>	" <i>Estradæ</i>
" <i>luteo-purpureum</i>	" <i>Houtteana</i>
" <i>cirosum</i>	<i>Vanda tricolor superba</i>
" <i>Roezlii</i>	<i>Ærides Warneri</i>
" <i>alba</i>	<i>Angraecum sesquipedale</i>
<i>Oncidium Forbesii</i>	<i>Cypripedium Domini</i>
<i>Dendrobium Jamesianum</i>	" <i>Lawrenceanum</i>
" <i>thysiflorum</i>	" <i>Roezlii</i>
" <i>crass-nodæ</i> <i>Barberi-</i>	" <i>longifolium</i>
<i>acum</i>	" <i>le-gigatum</i>
" <i>Pierardi latifolium</i>	" <i>bulorum</i>
" <i>Boxalli</i>	" <i>barbatum</i>
" <i>densiflorum</i>	" <i>Spicerianum</i>
" <i>chrysotoxum</i>	" <i>ciliolare</i>
" <i>devonianum</i>	" <i>Harrisoni</i>
" <i>macrophyllum</i> <i>gigan-</i>	" <i>Boxalli</i>
<i>teum</i>	" <i>Hookeri</i>

#### HINTS FOR AMATEURS.

Now that one can procure bedding plants at such low prices from the market growers and others, persons having a small garden and greenhouse have in a great measure given over the propagation of bedding stuff for their plots, and obtain them from these sources. This, we admit, is the easiest way, but a great deal of pleasure may be obtained by propagating one's own plants, and it is very easily done if one only sets about it in the right manner. A great number of subjects suitable for bedding may be raised from seed, but one can never be certain of seedlings, although the strides towards improvement made of late years by seed growers and seedsmen have reduced failures to a minimum. Of course, *Asters*, *Stocks*, &c., must be raised from seeds, but it is a few words on propagation by cuttings that we intend giving.

*Pelargoniums* are best struck in August or September, either in boxes for convenience in housing, or in the open ground in a nice light border. Lift them when well rooted, and pot them in 3-inch or 4 inch pots; they will not require any more potting till they are planted out the following May. *Calceolarias* are best propagated by putting cuttings in a cold frame in September; they will require protection from severe frosts, and make better plants if they are planted out into nice light rich soil in March or April, where they can be well protected. By doing this they will lift with good balls, and there will be less chance of failure. *Pentstemons*, *Antirrhinums*, &c., may be treated in the same manner, only they can be transferred to the open ground in April or May. For the successful propagation of

such thiogs as *Alternanthera*, *Alyssum*, *Ageratum*, *Mesembryanthemum*, *Lobelia*, &c., a small hotbed and frame are necessary. Cuttings of the above in 5-inch pots and plunged in ashes inside the frame on the hotbed speedily emit roots, and soon become nice little plants.

*Mesembryanthemum* sometimes is apt to damp off in a dung frame. The best way to propagate it is to put the cuttings in shallow boxes over hot-water pipes, and withhold water till they are thoroughly rooted—of course watering them after they are placed in their striking boxes: care must be taken that there is no drip on them, or they will most assuredly damp off. After cuttings are struck in the hotbed they must be very carefully hardened off, or else they will not succeed. There is some trouble attached to raising your own plants, but one feels repaid by successful results for all the little "troubles that afflict" the amateur gardener.

## The Flower Garden.

#### CARPET BEDS.

In large flower gardens, where variety is of great importance, such plants as succulents and other carpet-bedders, now used in great numbers, should have proper attention. These elegant and chastely coloured beds are not only new to many, but can be made very charming additions to a garden, and my experience is that the beds come in for a great share of admiration. There are so many beautiful succulent plants which can be used for that purpose, and to show them to the greatest advantage they should be arranged in circular or oval beds. The beds should be in all cases slightly raised in the centre.

I will mention a few plants that are the most suitable for such beds, and I may add that the worst summer weather does not injure them, and they remain a long time bright after most other plants have faded. For the centre a large *Agave americana*, surrounded by variegated *Mesembryanthemums*; next to this *Sempervivums* of any desirable sort, *Kleinia repens*, *Echeveria*, *Cotyledons*, *Sedums*, and a great number of this class of plants can be used with good effect.

#### MISCELLANEOUS.

Old roots of *Dahlias* and *Salvia patens* may be planted out; *Sweet Peas*, *Tropæolums*, *Convolvulus*, and any climbing annuals should be staked.

#### BEDDING OUT.

The long continuance of north-easterly winds and nightly frost has hitherto prevented much progress being made in the planting out of the summer bedding-out plants, but when the weather changes for the better earnest efforts should be made to accomplish this work with all possible speed, so as to enable the plants to establish themselves early in their summer quarters. Great care should be taken in planting out, and as proper attention to watering the plants has much to do with their after-success, it is most essential that no pains be spared to perform the work well. Great care and attention should be bestowed on the soil, so as to have it in the most suitable condition in respect to moisture. The soil should be compressed firmly round the roots in planting. The advantage of mulching to all fresh planted plants cannot be over-estimated. The best mulchiog consists of short dung or leaf-mould or cocoa-nut fibre refuse.

#### ANNUALS.

If the weather is showery take advantage of it to plant out Ten-week *Stocks*, *Asters*, *Phlox Drummondii*, and any other half-hardy annuals. All will make a good display in autumn. It is also a good time to plant out *Antirrhinums*, *Pentstemons*, *Wallflowers*, and *Sweet Williams*, and the summer-flowering *Chrysanthemums* and *Pyrethrums*. With this varied colours are invaluable for cut blooms, for bouquets, and for glasses in rooms, as they last a long time fresh.

#### HERBACEOUS BORDERS

should also have attention to keep down all weeds. Stake and tie the plants to preserve them from injury.

#### BULBS.

As the foliage of bulbs dies away these blanks may be filled up by sowing or planting over them choice and suitable annuals.

#### ROSES.

Roses should receive abundant supplies of liquid manure; during the dry weather the surface of the beds should be kept loose and mulched with well decomposed manure, which will much assist their growth and the full development of their flowers. They should be kept free from insects, and the flower-buds freely thinned, if large blooms are required. *Wm. Smythe, The Gardens, Basing Park, Allon, May 18.*

## Plants and their Culture.

#### STOVE FINE-FOLIAGE PLANTS.

WHERE attention has been given to the culture of these, both in potting and various other minor details, their young growth should now be coming away in a satisfactory manner. Those plants that have been re-potted this spring will now be pushing fresh roots freely into the new soil, and therefore need a greater supply of water. Any of the stock that was not deemed to be in want of a shift then will possibly require it now, so as to give them a better chance of going through the summer months in a healthy condition; water will soon be needed in greater quantity, and those plants that have not then a good storehouse to draw upon must suffer to a considerable extent. After several months of growth (possibly a year or more) the soil becomes exhausted, and the nutritive elements have become assimilated by the plant. This is more frequently the case with fine-foliage plants than with others, they being grosser feeders as a rule, thus taking a greater quantity of water, which eventually results in an impoverished or an inert soil. Flowering plants, on the whole, need more careful watering for some time before the soil will sustain the plant; this is more particularly the case with plants of permanent growth. Almost without exception, it is by far the better plan with fine-foliage plants to keep a young thriving stock always coming on, so as to facilitate the doing away of those that are becoming unsightly or unwieldy in size. Palms may be taken as the chief exception, and these ought at all times to have their special requirements attended to, the plants being of value at all seasons of the year. When in a healthy condition, their chief needs are an almost unlimited supply of water to the roots, when these have well laid hold of the soil after a recent shifting. Nearly all of them will thrive far better when becoming pot-bound, even to the bursting of the pots themselves in some cases. We have particularly noted this in the case of the following genera, viz., *Areca*, *Chamædorea*, *Euterpe*, *Kentia*, *Phœnicophorium*, and *Seafortia*. We are quite confident that the old maxim "More haste less speed" may be applied to Palms where frequent shifts are given to endeavour to secure a rapid growth. When a *Croton* becomes leggy or shows symptoms of decreased vigour, it will be better to consign it to the rubbish heap, the same with the *Dracænas* (taking precautions against the decrease of the stock by securing suitable material for propagation). It will often happen at this period of the year that the *Alocasias* show signs of inactivity or a predisposition to produce flower-spikes rather than leaf-growth. In the former case, the best plan will be to shake them entirely out of the soil, provided this was not done early in the season, and then remake the plants to the size required; in the latter case, keep all the flower-spikes pulled out when long enough to be taken hold of by the thumb and forefinger; this is much better than cutting them off, in which manner the lower portion of the stem is left to decay. Afterwards, as an inducement to make flesh growth, the plants should be plunged in a brisk bottom-heat for a while. The fine-foliage section of the *Athuriums* need a similar treatment at such periods of their existence. *Cycads* and *Zamia*s that did not put forth a new crop of leaves last year should now be introduced into a higher temperature as an incentive to a fresh start. We have found this plan to answer well, taking every precaution against injury to the tender leaves when their rapid growth is being developed. *James Hudson, Gunnersbury House, Acton, W.*



## FRUITS UNDER GLASS.

### CHERRIES.

WITH the exception of Grapes we have no kind of fruit which is grown under glass in the ordinary way that will keep so long on the trees as Cherries, providing proper treatment be accorded for the purpose. If this is done they will hang on the trees and keep well six or eight weeks after they are ripe. This is one of the advantages connected with their cultivation under glass, and very significant in the case of those having to provide enough fruit to satisfy the demand and requirements of an establishment in London during the months of May and June. At the present time (May 7) the Cherry-house here affords an interesting sight. The clusters of black and white Cherries which hang profusely amongst the fully developed and healthy looking foliage of the trees produce a very pleasing and satisfactory effect. We gathered our first dish of Cherries—Black Circassian—on May 2, and that grand white variety, the Elton, is now fit; in fact, the whole crop is so far advanced towards maturity as to make it necessary to commence at once a course of treatment that will be most conducive to their preservation until they are required for use. This will consist in keeping a low temperature in the house at all times. Fire-heat will not be necessary here, and a free circulation of air should be allowed to pass through it whenever the thermometer does not fall below 50°; to counterbalance the effects of arid and sunbiny weather, the surface of the borders should be kept constantly moist, and the fruit entirely protected from rays of scorching sunshine. These conditions now will not only preserve the fruit, but will, moreover, be beneficial in retarding the maturation of the wood likewise, which in the case of Cherry trees subject to forcing operations year after year consecutively is an advantage.

### MELONS.

A first-rate Melon unquestionably is one of the most luscious fruits that we grow in an artificial way, and on the other hand a badly grown and ripened one is equally detestable; in point of excellence this kind of fruit varies more in its character than most others grown identically, and the reason doubtless arises from different causes, sometimes connected with the treatment or cultivation, but in my opinion more often primarily from the presence of that insidious enemy, the red-spider, if this pest abounds. Melon plants in all stages of growth are so susceptible to it, that they will sooner or later be infested, and then, even with every effort to kill or displace it, the pest will sometimes get the upper hand, and thus impair the foliage of the plants, and so deteriorate the quality of the fruit as to make it insipid and positively nauseous. First-rate Melons can only be procured when the vitality of the plant and the leaves are kept in a healthy state until the time the fruit is actually ripe; from a knowledge of these conditions alone are we able with any degree of certainty to estimate what the character of the fruit will be when it ripens. The notion that the quality of Melons can be determined by appearance or weight, is not worth contention; at all events the result of considerable practice leads me to such a conclusion; and the scores of Melons I have seen and tasted at the Committee meetings of the Royal Horticultural Society and elsewhere, some of which, as far as appearance, &c., was concerned, seemed to possess all the characteristics essential to constitute a first-class fruit, yet at the time of testing many failed from that all-important and indispensable element, quality, being absent; no pains should therefore be grudged that will tend to eradicate such a terrible pest. At many places houses and pits now filled with bedding stuff and other subjects will shortly be brought into requisition for Melon plants. Let them be well cleaned before they are used for this purpose. The walls and frames should be done over with hot lime-wash with some paraffin oil mixed in it. The surfaces should be removed, and fresh materials, of whatever description required, be put in. In the case of fermenting beds, if they are cold, fresh stuff should be added, and they should be turned over to renew the heat in them. See also that the plants in course of preparation for these places are being reared where spider does not abound. If the plants are to run over the surface of the beds, hillocks of ordinary soil should be put into the centre of each

light; put the plants in them firmly, and keep them above the ordinary surface level. If the pits are commodious, put two plants in the centre of each light, and stop them when they have made five or six leaves. This will induce the laterals to push forth readily. Four or five of these should be selected on each plant, and be run out regularly until they reach the limit desired—about 3 feet long in an ordinary way—when they should be pinched. Successional laterals will then be produced, which should be stopped at the first or second joint above that where the fruit exists. The airing and watering will demand the usual attention which has before been pointed out for this subject. The early crop of fruit, in some cases, will be ripe now, and in others it will be nearing the same state. Keep the heat about these plants well up at 75° at night and 80° in the daytime and utilise to the utmost solar influences, so that under its effects air can be admitted into the place freely without diminishing the temperature inside below 90°. As soon as ripening is indicated employ less moisture and avoid as much as possible wetting the Melons when in this state. If it be necessary to keep the Melons after they are ripe they should be cut when fit and be taken to a cooler, but not absolutely cold place. Successional crops will require attention in the way of stopping, training, and safely securing the Melons when they become heavy. Give copious syringings at noon, and in the afternoon, every day; ventilate at 80° and close up the house in the afternoon with sun-heat at about 90°. *Geo. Thos. Miles, Wycombe Abbey.*

## The Hardy Fruit Garden.

### WALL TREES

Will require constant attention for some time. Disbudding should be continued weekly. Pears, Apples, and Apricots, where thickly set, should be thinned without delay. Where the growing wood is crowded it may be thinned out with advantage to the trees, but the principal shoots had better not be stopped till the end of June, for if this is done too early it only encourages a thicket of small shoots to grow instead of forming fruit-buds.

### CURRENTS.

Red and black Currants should be mulched with straw or short grass to prevent the rains from spoiling the fruit about the time of ripening which often happens unless this is attended to.

### CHERRIES.

Morello Cherries should have the young shoots pinched out, except such as are required for laying-in later in the season. The trees will grow stronger and the fruit will be much finer if kept moderately thin of branches.

### STRAWBERRIES AND RASPBERRIES.

Both require abundant supplies of water when growing fast. King of the Earlies, Black Prince, and Vicomtesse H. de Thury are all in flower and appear like being ripe about the same time. Moss should be placed round Irish grafts and kept damp by syringing often.

### FIG TREES

should be looked over and the young shoots stopped when they have formed five or six leaves. *J. Smith, Mentmore, Bucks, May 18.*

## The Kitchen Garden.

### GENERAL WORK.

THE main crop of Carrots, Onions, and Parsnips should be thinned, if necessary, and hand-weeded between the plants at the same time, finishing off by passing the Dutch hoe between the rows. Neither should be thinned to the full distance in the first instance. Carrots may be left about 3 inches apart, the later thinning will then furnish delicate young roots for use. At the final thinning James' Intermediate should stand 6 inches apart in the rows, larger varieties 8 or 10 inches. If a good bed of autumn-sown Onion is on hand the greater part of the main spring sowing may be thinned out to the full distance as soon as the young seedlings are considered safe, leaving a few rows thicker for drawing for salad. Parsnips should be thinned in the first

instance to about 4 inches apart, finally thinning out to 1 foot.

Any plants which cannot be removed from the seed beds to permanent quarters should receive a second thinning if getting at all thick; the thinnings may be pricked out and watered if it is necessary to save them. This of course will not be needed (the second thinning) if the young seedlings were pricked out into nursery beds from the seed bed; but few gardeners can find time for this pricking out into nursery beds prior to finally planting out, neither is it necessary if a sufficiently large bed be sown and the young plants be thinned out twice, the last time leaving the plants 4 or 5 inches apart.

If not already done no time should now be lost in preparing the ground for the autumn and early winter Broccoli plants. This ground, if there is a sufficient depth of good soil, is best double dug, and the manure placed beneath the top spit. This double digging is much quicker than trenching, and has many of the beneficial effects of the latter on the crop.

Ground should also be held in readiness for planting out second early Brussels Sprouts, successional Cauliflowers and Lettuces. In making these plantations the weather should decide the time, and not the size of the plants. I have often planted large plots with young plants just in rough leaf (with the dibbler) during showery weather, and they have succeeded better than larger ones planted later with the trowel during less favourable weather, when it was necessary to water them at the time of planting. When placing them out into permanent quarters so early a few may be destroyed by slugs, these can easily be replaced and artificially watered for a time, or the making good can be postponed until rain comes again, holding some plants in reserve. When plants of Broccoli, Brussels Sprouts, Cauliflower, and Lettuce become large they should always be transplanted with the trowel, unless the ground should be well soaked with rain at the time of transplanting, and prospects of a little more coming down after it is completed, to finally settle the soil around them.

The trenches for the early Celery should now be got ready. I have found it a good plan, after the trenches are opened, to sow a row of Lettuce seed on the soil between, thinly and 1 inch deep. Give the seed a thorough good watering should the soil be dry. From now until the early winter sowing it is best to sow Lettuce in rows on the ground where it can remain to come to maturity (1 foot apart and 1 inch deep). It is not necessary to use more seed to grow it under these conditions than if sown in beds and transplanted. In some gardens slugs may prevent this system of cultivation.

### POTATOS.

As soon as the haulm is well above ground—say 3 or 4 inches—the hoe should be passed between the rows, in order to destroy any young weeds just starting into growth; it is important that the soil should be quite free from weeds before the final earthing-up takes place.

### UNHEATED FRAMES.

Plants of Cucumbers, Marrows, Tomatos, and French Beans must now be freely aired during the morning, and the plants well syringed or sprinkled and the frames closed with sun-heat in the afternoon. As soon as the Marrows commence bearing freely this treatment can be dispensed with and the lights removed. The lights should now be entirely removed from the Carrot frame, and also from successional crops of Potatos. Ashleaf Potatos planted in frames in February are now ripe, and the tubers will not increase in size, they should therefore be dug up and placed under sand or soil in a cool shed or cellar, where they will be much better than lying baking in the sun. Do not allow plants of French Beans to stand too thickly in the rows, they should at least be 1 foot apart, and a strong growing variety, such as Canadian Wonder, from 14 to 16 inches. To save continual watering give a good mulching of manure, such trouble will be well repaid by finer Beans of a superior colour. Potatos under walls should be finally earthed up and kept watered during dry weather.

### SEED SOWING.

This is the month to sow Ne Plus Ultra Pea for picking in the latter part of August and September. A sowing of Sturdy or a similar variety should be made at the end of the month. If not done, the last sowing of Celery should now be made. At the end of the month make a successional sowing of French Beans in good rich soil. Sow rotation crops of Spinach between Peas or on a semi-shaded border. Turnips (a few rows) should be sown now about every five weeks until the main winter sowing. *G. H. Richards, Somerley, Ringwood, Hants.*



## APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	May 26	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 1 A.M.; Scientific Committee, at 1 P.M.; General Meeting, at 3 P.M. Show of Pot Roses, Azaleas, &c.
WEDNESDAY,	May 27	Sale of Carnations, Plants, &c., at Protheroe & Morris' Rooms.
THURSDAY,	May 28	Sale of Imported Orchids, from Messrs. F. Horsman, and Shuttleworth, Carder & Co., at Stevens' Rooms.
FRIDAY,	May 29	Sale of Valuable Collection of Shells, at Stevens' Rooms.
SATURDAY,	May 30	Sale of Greenhouse Plants, at the Nursery, Latimer Road, Forest Gate, by Protheroe & Morris.

PUBLIC attention has been directed of late to the subject of FORESTRY by Dr. LYONS, Sir JOHN LUBBOCK, and others; a Forestry Exhibition has been held in Edinburgh, and an English Arboricultural Society has been founded which we hope may flourish, and hold discussions, and distribute information, as that of Scotland has done. There is no doubt as to the mismanagement which prevails in the cultivation of woods in all parts of England. The income of most estates might be largely increased by the felling of timber that has ceased to thrive, by adapting the trees to the soils, and by proper thinning, and filling the gaps in underwoods. "The waste and loss are dreadful."

Arboriculture is an art requiring much study and practice; it is a special industry, like that of the gardener. An untrained eye cannot detect the difference between a stunted tree, which ought to be felled, and another of the same size, which is growing fast, and should be saved. Few landed proprietors understand the rudiments of arboriculture, and persons whose knowledge is undisputed and who travel widely have assured us that the land stewards, even on timbered properties, are frequently as ignorant as their employers. In this matter our own personal experience is confirmed by that of the Premier. One may add to these strictures that if instruction in forestry was needed some years since, it has become still more necessary on account of the diminished resources of agriculture, the increased demand for timber, our dependence on foreign supplies, and the probability of an extension of those industries which require timber for their development. It is probable, too, that a large demand will be created by the necessity for increased shed-room for live-stock, especially in those parts of the country where the tendency is to diminish the size of farms and to extend the area of grass-land and increase the number of cattle. There is no need to fear the absence of a market for all the timber that may be planted.

The industry of basket-making, to cite only one case, is dependent on wood, and other kindred industries would grow out of it if the materials could be obtained. The land is here and its cultivation languishes, but the products most in demand, such as Willows, Ash and Chestnut poles are not easily obtained. Unfortunately there are no schools of forestry in England at present, though they exist in France and Germany, and are spoken of for England. The best seminaries for the training of a useful class of practical foresters are the great tree nurseries. The services of the various firms of nurserymen in the department of arboriculture have been very great, and one could not avoid observing this at the Forestry Exhibition. The grounds of the Exhibition at Edinburgh, planted as they were by competent nurserymen, were most instructive. Messrs. VEITCH'S *Sciadopitys verticillata* and *Quercus cuspidata* may or may not be the coming timber trees destined to shelter the bullocks of the future; but the enterprise which brought them here gave us many of the best of our trees—the Larch, for instance, and the Silver Fir, which is coming rapidly into use in the construction of

farm buildings, as well as the Corsican and Douglas Firs, which are both winning favour for their rapid growth and general usefulness. It is easy, then, to understand why Messrs. VEITCH were awarded a gold medal for rare specimens. At a former period novelties were introduced by noblemen and planters of wealth. Under the new régime of commercial activity they are due to the enterprise of private firms, to whom we owe the introduction from abroad, and the creation by breeding and crossing, of innumerable useful or beautiful specimens of trees, shrubs and flowers, in woods or gardens. The nurseries, then, have become the headquarters and schools where the most reliable information and soundest teaching upon forestry should be sought.

A column might easily be filled by describing the skilful planting and arrangement of shrubs in the various tree nurseries; how they are set in such form as to attract the visitor and render their inspection easy; how massed, the tallest behind, the low-growing sorts in front, forming a slope on either hand. The names alone of the attractive exotics that line this approach and introduce you to the forestry department further on would fill a column, and a slight sketch only of their history, whence they came, by whose enterprise imported, by whose skill, courage, and endurance as collector for the firm at home they were secured would fill a volume; in fact the reader may remember that the conveyance of several specimens of a single plant, the Breadfruit, formed the occasion of a volume,

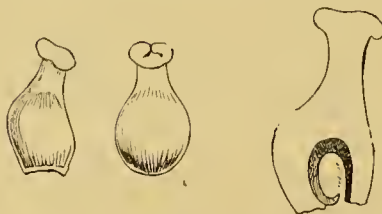


FIG. 151.—ANCHOMANES DUBIUS.

Female flowers isolated and enlarged; one cut open to show solitary ovule.

the *Mutiny of the Bounty*; and he may remember the elaborate precautions which were found necessary in fitting up Captain BLIGH'S vessel for the conveyance of its unusual freight. GEORGE III., however, was not more interested in the voyage of the *Bounty*, and the treasure it was believed to carry, than the various members of firms must have been in the passage and arrival of many of the shrubs which now seem quite at home. The history of the introduction of the Cinchona into India is also most creditable to Government authorities, and especially to those at Kew.

The Corsican Pine (*Pinus Laricio*) is a tree which has awakened a great deal of interest among planters. The Corsican Pine is now used in those localities where the Larch was formerly planted. It is largely used for telegraph poles. The Corsican Pine requires to be several times transplanted when young. The books on forestry—excellent and full of sound information as some of them are—do not mention this peculiarity, and yet it is of vital consequence that the plants should be transplanted three or four times before the final removal, since this tree is less disposed to produce a vigorous mass of fibrous roots than either the Spruce, Larch, or Scotch Fir, and is therefore more difficult to establish. These operations increase the cost of the plants, and for the sake of economy they ought, in planting for profit, to be set thinly and mixed with inexpensive nurses, such as Larch, which is a particularly suitable nurse, the plants costing little, owing to the small amount of labour required

in raising them, and because they are useful as early as ten or twelve years after planting, so that they can be cut for hop-poles or stakes, when they are no longer required as nurses, and this would not be the case with any other Conifer, none possessing the early utility of the Larch.

Another great merit of the Corsican Pine is its accommodating disposition in regard to soil; it will thrive in the lightest or the heaviest, and BROWN says in *The Forester*, "We have seen healthy crops of it on most soils, from a stiff clay loam to a sandy soil." It need hardly be added that it makes timber fastest on a "good soil," and, like the Conifers generally, it prefers sandy loams that are light and dry, and have an open subsoil. It will grow, however, both on the sites that are natural to the Scotch Fir and on those cooler soils which the Silver Fir delights in. On stiff land it is absolutely essential that the surface-water should be removed by gripping.

The Corsican Pine is coming rapidly into favour, as Mr. BROWN predicted that it would do, because, as he remarked, it grows much more rapidly, and attains a larger bulk of timber in a given time, all circumstances alike, than the Scotch Fir; and the timber, which is well impregnated with resin, is easy to work and very durable. A tall tree which Mr. LOUDON regarded as one of the finest in the country, grows to a height of 80 feet or 90 feet on the left of the main entrance to Kew Gardens; but it has few side branches, and will not hold its own long, in growth, against other specimens having more foliage.

So far as hedge plants are concerned, there is none to beat the Quick or Hawthorn, but the Myrobalan Plum is a fast-growing shrub, suited for any soil. It has been scarce, owing to the difficulty of obtaining the plums. It is a more robust, or at least faster growing Thorn than the Blackthorn (*Prunus spinosa*), as any one may discover who sees the beds of seedlings of the two sorts side by side, where the *Prunus myrobalana* stood 4 feet high and the Blackthorn only half as high at the same age.

The Alder is in demand by planters for the growth of timber for clog soles and bobbins, which are used by the million. Some may think the Sycamore an unimportant tree. It is becoming a very profitable one, selling when large at 10s. per cubic foot, or 5s. to 7s. when smaller. One was sold by auction at Hawick last autumn at £30. Sycamores of such large size are of course only found on good land. The Wellingtonia, on porous soils—but not on the marls, where it makes poor progress—is the tree of fastest growth in this country, and of smallest utility perhaps! Next to it, for rapidity of growth, is the Poplar (*Populus canadensis*), which not only makes much timber but very useful timber, in quick time. Some of the finest trees we have seen grow by the Trent at Burton.

—ANCHOMANES DUBIUS.—In our volume for 1872 we figured one or two flowers of this plant detached from the spadix, but we had no opportunity at the time of figuring the spathe and spadix. *Anchomanes dubius* is one of those striking Aroids which from a thick fleshy tuber send up, first a spadix, and afterwards a large stalked much cut leaf of much beauty. The inflorescence here figured (fig. 152) is remarkable for its singularly delicate and unusual coloration, the outer surface being pale olive-purple, the interior glossy cream-coloured. The spadix is covered for five-sixths of its length with densely packed cream-coloured male flowers, the lower sixth with dull purple female flowers, each consisting of an ovary only, turned downwards and destitute of perianth. The pollen-grains are elliptic, granular, mixed with needle-shaped raphides. For the connoisseur this is a grand plant, and we thank Mr. BULL for affording us the opportunity of figuring it.

—THE QUEEN'S VISIT TO NETLEY.—On Her MAJESTY'S visit to Netley Hospital on Saturday last, Miss EDITH BRADSHAW, youngest daughter of F. BRADSHAW, Esq., J.P., of Abshot Hall, presented Her MAJESTY with a beautiful bouquet, consisting of good blooms of *Maréchal Niel*, *Carnations*, *Eucharis*, *Tuberoses*, *Gardenias*, *Stephanotis*, *Orchids*, &c. This



is the third bouquet Messrs. DROVER, of Fareham, have had the honour of making which has been presented to Her MAJESTY.

— THE SOUDAN.—The following extract from a letter from an officer on service at Ottao will be read with interest :—"The whole country is perfectly different to what I expected to find it. I thought to find a flat, sandy plain, with scarcely any vegetation. I was very surprised to find any amount of almost impenetrable bush and bunches of Cactus [Acacia?] growing over them here and there. I know you take

— AMERICAN EXHIBITION, LONDON, 1886.—The managers of the American Exhibition have succeeded in securing a location in London for their enterprise—Earl's Court; the selected site is but a short distance from South Kensington, and is situated in the best part of London. The property to be occupied by the Exhibition covers about 20 acres, and has railway advantages in advance of any exhibition ever held in London. The station for the District Railway will be in the Exhibition grounds, and another one will be at West Brompton, a few steps from the entrance to the main building. Every railway in

pod; Figs are coming away nicely, and showing fruit at every joint; Gooseberries are plentiful, Currants ditto, Cherries abundant, Plums are beautifully set, and promise well; while in Strawberries Black Prince is a sheet of bloom, and Apples—the most important crop of the lot—are truly lovely in their pink and white blossom. And what is more beautiful than a well-kept Apple orchard?—in spring the trees clothed with blossom, and in the autumn laden with rosy-cheeked fruit of various shades. The situation of the garden here is bleak, 400 feet high. And in my judgment all this abundant promise of fruit comes of well



FIG. 152.—ANCHOMANES DUBIUS: SPATHE PURPLISH OUTSIDE, CREAM-COLOURED AND GLOSSY WITHIN. (SEE P. 668.)

interest in botany, so I send you a small yellow flower that grows all over the place. The centre, as you will see if you open it, is a dark orange, and the leaf is soft, being covered with a sort of velvet [Abutilon]. There is a singular absence of Palms, even at the wells here, and all up the different routes they are not to be seen. The only few I have seen are just outside Suakim, in a place called Osman Digma's garden. The country here is so like Scotland, except for the Heather, only the mountains are much more blue, and much grander. Experiments show that the country here is full of copper. I sincerely hope the country will be opened up, and that the Arabs may prosper."

Great Britain will have facilities for immediate and direct connection with the Exhibition building—as the two great Exhibitions—the Colonial and the American—will thus be in almost direct contiguity, millions of visitors will be saved the trouble and expense of cab-fare from one part of London to another.

— FRUIT PROSPECTS.—A correspondent writes as follows :—"Never did I take up my pen to address you with greater pleasure than on the present occasion. Speaking for the county of Sussex, I think I may say that we are likely to be blessed with the most abundant crop of fruit I ever remember. Pears are set most abundantly; Peaches as thick as Peas in a

ripened wood from the drought of last year, and also from the lateness and dryness of the spring, so that the frost did not do the damage it usually does. 'Don't halloo till you are out of the wood,' says the sage; true, but we are nearing the houndary, and I cannot help shouting my joy."

— HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* took place on Tuesday last, when there was a good attendance, including Mr. JOHN LEE (Chairman), Messrs. COUSENS, GIRDLESTONE, WHEATSTONE, STOLLENHOFF, DRUERY, &c. In the evening an interesting discussion took place on Ferns, the subject being opened by Mr. C. T. DRUERY,



who very clearly, with the aid of diagrams, showed the difference of reproduction in the case of flowering and cryptogamic plants both in their normal and abnormal aspects, alluding in the latter to his own recent discovery of apospory, which has already been alluded to in these columns. Mr. COUSENS dwelt on the possibility of hybridising Ferns, notwithstanding the minuteness of their organs of reproduction; and during the discussion which followed many interesting facts were brought forward, such as the occurrence of abnormal forms of varieties of British Ferns, where only one plant has been found. It was announced that the subject for the meeting in June would be alpine plants.

— REV. J. C. CLUTTERBUCK.—The death is announced of the Rev. J. C. CLUTTERBUCK, M.A., well known as the "father of hydro-geology." Mr. CLUTTERBUCK, who was in his 84th year, was for fifty-five years vicar of Long Wittenham, Berks, and for many years rural dean of Abingdon. The deceased gentleman was an acknowledged authority on all matters relating to our water supply. The evidence which he gave before the Parliamentary Committee in 1865, regarding the abstraction of water from the Thames valley and the regulation of the supply in periods of drought, was the subject of complimentary allusion in the report last year of the Select Committee of the House of Commons. Mr. CLUTTERBUCK was elected a Fellow of Exeter College, Oxford, a position which he held until his marriage with LOUISA, daughter of the Hon. and Rev. W. R. CAPEL, son of the fourth Earl of Essex. Mr. CLUTTERBUCK was one of the earliest contributors to this journal.

— LINNEAN SOCIETY.—The day appointed by the charter for the anniversary meeting, May 24, falling this year upon Sunday, and therefore, by the byelaws, postponed to the day following, which is a Bank Holiday, the Council have considered that it would meet the convenience of the Society by holding the anniversary meeting *pro forma* on the 25th inst., and then adjourning it to Thursday, June 11, at 8 P.M., when a meeting will be held for the election of a Council and officers for the ensuing year.

— BOUGAINVILLEA SPECTABILIS.—There is an extraordinary plant of this often despised species flourishing in a lean-to greenhouse at Heathfield, Torquay, the residence of E. CROYDON, Esq. It was planted out in this house some twenty years ago, and its growths have been so cleverly manipulated and trained up under the glass that they now cover most perfectly a space of about 40 feet by 6 feet. The myriads of its brick-red and scarlet-shaded bracts are just at their height of perfection, and form a sight not easily forgotten, speaking well, as it does, for the patience and skill of the gardener, Mr. CASELEY. There is no artificial heat given save during the severe weather in winter.

— NEW INDIAN AZALEAS.—It is possible that the great interest and attraction attaching to the display of Orchids in the conservatory at South Kensington on Tuesday, the 12th inst., drew away attention from the fine display of Indian Azaleas brought from Ghent by M. LOUIS VAN HOUTTE. The plants were trained in that way which appears to commend itself to the Belgian cultivators, but they were well grown and grandly bloomed; indeed, it seemed as if the colours were much brighter and more striking than in the case of plants bloomed in this country, such as Baron N. de Rothschild, Madame Van Houtte, and Marquis of Lorne. The group consisted of a few varieties not previously seen in this country, and to two of these First-class Certificates of Merit were awarded, viz., Prince Baudouin, vivid crimson, very bright and telling, with dark maroon-purple markings on the upper segments—a very fine variety that will make a rare exhibition variety; and Princess Victoria, delicate pink, with white margins, and having rich rosy-carmine blotches—a very fine double variety. Other fine varieties were John Lyall, double, pale red, finely formed petals, and large flowers—extra fine and free; Miss C. Jarrett, creamy-white, with bright green spots on the upper segments—the flowers much fringed on the edges; Theodore Reimers, double, bright glossy purple, large and fine; Madame Auguste Lemoine, pink, with rosy-red flake, the upper segments spotted with purplish-rose, and somewhat fringed—good form; Czar Alexander III.,

semi-double, bright red, the upper segments spotted with dark—very free; Louis Lubber rich crimson, stout, and good form; Oswald de Kerchove, the flowers charmingly fringed; Joseph Lefebvre, white, flaked with carmine and pink, fine and free; Baron N. de Rothschild, bright purple, shaded with violet—very fine; Madame Louis van Houtte, bright rosy-salmon, edged with pure white; and Marquis of Lorne, orange-red, very bright and showy. The foregoing made a very good group of decorative varieties, that are certain to take a high place among growers.

— ROYAL NATIONAL TULIP SHOW.—The annual exhibition of this Society is announced to take place at the Botanical Gardens, Manchester, on Saturday the 30th inst. This date has been fixed upon as that best suited to the body of growers, but it will be too early for some to exhibit, among them Mr. S. BARLOW, whose flowers come on very slowly indeed, owing to the cold and somewhat sunless weather.

— CALCEOLARIAS AT BEDFORD HILL HOUSE, SURREY.—Mr. RAPLEY, the gardener here, has a very fine lot of these showy flowers in luxuriant health just now. There is a pretty large collection, and from the flowers that were sufficiently far advanced we could see that the strain was an exceptionally fine one; the leaves are large and firm, and the heads of bloom are gigantic. The dreaded "rot" disease, or whatever local name it has, is not to be seen, or any signs of it either; the plants are kept very cool, and are as creditable a lot as one could wish to see. In the same cool-house *Lapageria rosea* and *L. alba* were making extra strong growths.

— CHANGE OF ADDRESS.—The lease of premises at 33, Highgate Road, N.W., having recently expired, Mr. WARHURST has removed his office to 31A, Beaufort Street, Chelsea, S.W., which is very near to the well-known nurseries of Mr. WM. BULL and Messrs. VEITCH in King's Road. Every class of glasshouses and heating for horticultural purposes have been erected for many years by Mr. WARHURST and his predecessors Messrs. HEREMAN & MORTON (and whose old building works are continued at 81A, Highgate Road), but the frequent enquiries necessitated a separate establishment for the ironwork portion. This has been carried on for some time past in conjunction with Mr. HOLLIDAY at the Pheasantry Wire Works, Beaufort Street, to whose works and show rooms the new office is now connected.—STEVEN BROS. & CO., Hot-water Engineers and General Ironfounders, 35 and 36, Upper Thames Street, E.C., have secured the lease of new and extensive premises at 4, Upper Thames Street, E.C., opposite the *The Times* Office, Queen Victoria Street.

— FANCY PANSIES FROM BOREATON PARK.—A box of blooms of beautiful fancy Pansies sent by Mr. HENRY ECKFORD, from Boreaton Park, Baschurch, is sufficiently noticeable as illustrating what Mr. ECKFORD is doing in the way of producing flowers with distinct scarlet and crimson hues. He has been fertilising and selecting with a view of intensifying the hues of colour found in Thomas Grainger and other flowers of that class, and he has succeeded to a remarkable extent, for many of them are singularly bright and effective. And they are also remarkable for their size, stoutness, smoothness, and the size, density, and clearness of the blotches. Perhaps there is something in the soil and climate that helps both the lustre of the colours and size of the flowers. Whether it is the intention of Mr. ECKFORD to name any of these varieties is not made known. Fancy Pansies are now not only numerous, but very fine, and any additions to the named varieties should be made with caution and care. Mr. ECKFORD is too good a florist not to recognise this necessity; at the same time the development in the fancy Pansy, high as it is at the present time, is confined by no arbitrary limits, and there is no knowing what remains to be revealed in the way of novelty.

— ORCHIDS AT BRIGHTON.—It has been suggested that at the meeting of the Bath and West of England Society, to be held at Brighton on June 8, additional means be taken to secure a representative collection of Orchids. The Steward of the department will, we are informed, be happy to offer special

inducements and every possible facility to exhibitors. It is necessary that applications for space and for further information should be made without delay to the Hon. and Rev. J. T. BOSCAWEN, Oxford and Cambridge Club, Pall Mall, London, S.W.

— A "GRAND OLD GARDENER."—On Sunday last, the 17th inst., the Rev. H. T. ELLACOMBE, the respected Rector of Clyst St. George, returned public thanks that it had pleased the ALMIGHTY to spare him to enter his 96th year in health and senses. We understand that he generally reads the Lessons for the day "distinctly, and with an audible voice, standing" at the eagle lectern, and "turning himself as he may best be heard of all such as are present."

— BOOKS RECEIVED.—*The Dairy of the Farm*. By J. LONG and J. C. MORTON (BRADBURY, AGNEW & CO.).—*Report of Sussex Association for the Improvement of Agriculture*.—*Transactions of the Botanical Society of Edinburgh*.—*La Culture Maraichère*. By M. GILLEKENS.—*Birmingham Botanical Society, its History, &c.*

— GARDENING APPOINTMENTS.—Mr. JAMES LOCKHART has been appointed Head Gardener to Sir GILBERT GREENALL, Bart., Walton Hall, Warrington.

## HOME CORRESPONDENCE.

The Orchid Conference.—The *Gardeners' Chronicle* has devoted so much space to the Orchid Conference in all its connections and surroundings that I should hesitate to ask you to supply an omission, did it concern me alone. In your report of the proceedings of the Conference you have not mentioned the marked reference I made to the great energy and enterprise which have been displayed now for many years by Mr. F. Sander, of St. Albans, and his collectors. They have added to these qualities conspicuous skill and success in collecting and importing Orchids, the results of intelligent care and observation, and of long and varied experience. Mr. Sander has largely added to the genera and species of Orchids in cultivation, and among his introductions have been many novelties of great merit. While I am writing, permit me to add that I did not say "almost all epiphytes grow upon trees." What I said was that while a large majority of Orchids were epiphytal and grew upon trees, not a few had the habit of herbaceous plants, such as Disas, &c. I avail myself of this opportunity of thanking the *Gardeners' Chronicle* for the liberality and heartiness with which it has done its utmost to support the Conference, and to promote the scientific and practical objects with which it was constituted. *Trevor Lawrence.*

Large Abies grandis.—As the result of an accident we were, the other day, compelled to cut down what I believe was the finest specimen of *Abies grandis* in this country. It was 72 feet in height, 2 feet 2 inches in diameter at the butt end, and it contained upwards of 70 cubic feet of timber, all the result of about thirty-three years' growth. The wood, about which later on I shall have more to say, appears of excellent quality, and has a most agreeable perfume. That it is a rapid grower will be known when I state that several of the annual rings near the butt end measured an inch in thickness. Strange to say, this fine tree never bore cones, although both last season and this male blossoms were produced in abundance. This is quite the reverse of *Abies Nordmanniana*, which usually produces cones for several years previous to bearing pollen, and even then the pollen is so scanty that we have frequently had to resort to artificial fertilisation. In Ireland, where there are some of the finest specimens of *Abies Nordmanniana* I have seen, artificial fertilisation was for many years resorted to, owing to the scarcity of pollen. *A. D. Webster, Penrhyn Castle, North Wales.*

Vegetables at the Bath Show on the 13th.—Although the prizes offered for the above were not very encouraging, there was a very fair display for the time of year, I should say a much better competition than was expected by the committee. The competitors, with the exception of a few, were all local. Unfortunately the wording of the schedule in respect



to the collection of vegetables is anything but satisfactory and not likely to encourage any one but local exhibitors, as herein the same mistake is committed as in many other schedules, viz., not specifying the number of vegetables to be exhibited in each dish, but leaving it entirely to the discretion of each exhibitor to stage what he likes in regard to the number in each dish. As well as stating the number of varieties to be shown in a collection, it should also be clearly stated how many of each variety are to be shown. This mistake gives judges unnecessary work, and dissatisfaction often prevails amongst the exhibitors which otherwise would not be felt. Some exhibitors here staged three or four times the usual and proper number of many varieties. This may probably make a larger display, but it certainly makes a rougher one, whereas if a limit were placed on the number to be contained in each dish, exhibitors would have more time to arrange them, and the whole would look as an exhibition should do, as if tastefully arranged and not crowded, instead of which the vegetable stage presented much the same appearance as a crowded greengrocer's shop window. *Visitor*. [A greengrocer's shop window often presents a much finer display than we witness at vegetable shows. *Ed.*]

**Phormium tenax variegata.**—A fine plant of the above is blooming in the conservatory at Castle Hill House, Huntingdon, the residence of the Ven. Archdeacon Vesey. The specimen is in a No. 2 pot (15½ inches in diameter). The flower-spike is already 12 feet high, and seems likely to reach another 2 feet. The spread of the beautifully striped leaves is 13 feet, and altogether the plant forms a striking object in an angle at the garden entrance to the conservatory. *F. W. Cooper*.

**Insects Visiting Daffodils.**—With reference to your inquiries as to the insects that visit the flowers of *Narcissus*, I may say that I have observed a small fly (*Empusa livida*) remain for a considerable time in *Narcissus* Sir Watkin, and on the 10th of the present month I saw the humble bee visit the flowers of *N. minor muticus* and *N. bulbocodium*. In these cases the bees remained but a very short time in the flowers, from which I inferred that they contain a very small quantity, if any, of nectar. Would Sprengel's idea of Orchids being "sham honey flowers" apply to the Daffodils as well? They certainly contain a great quantity of pollen. *A. D. W., May 15*.

**Late Grapes.**—Calling on Mr. Ward, of Bishop Stortford, the once celebrated Pine grower, a few days since, I was a little surprised, and very pleased to see some first-class samples of old Grapes, and also some new ones ripe. The variety that had kept so well was Lady Downe's, and they looked as plump and fresh as if it were the middle of December, instead of five months later. Mr. Ward had kept them suspended in his patent troughs on the back wall of one of his vineries, till about six weeks back when the sun got too powerful for them. As his new Grape-room was not quite finished, he placed them in a nice cool thatched summer-house, where they were hanging when I saw them. *W. H. Divers, Kettle Hall*.

**Fertilisation of Orchids.**—A rather curious fact that I have noted on several occasions is that the viscid discs of several Continental Orchids, notably *Orchis pauciflora*, *O. provincialis*, and *O. sambucina*, are, when grown in this country at least, not sufficiently adhesive to remove the pollinia when they become attached to an insect. Several times I have noticed the pollinia only half drawn out, and on experimenting found that this was owing to the viscid discs being not sufficiently adhesive to bear the strain of their removal from the anther cells. Is this due to the climate of Britain being too cold to fully develop the various parts of these Orchids? For were they natives I fear their extinction, owing to non-fertilisation, would be simply a matter of time. *A. D. W.*

**Purple Wallflowers.**—A spike of a single wallflower of an extremely rich crimson-purple hue, has just been sent to me by a person who regards it as quite a novelty in colour. But it is not such a novelty as the sender supposes. The fact is that if seed of single Wallflowers be obtained from Germany, several flowers will be found among them having tints of purple more or less striking just as they can be found among the double German Wallflowers. We have

known these selected, the seeds saved and sown, but a very large majority of the progeny will revert to the single dark form. It is yet possible, by means of patient selection, to overcome this tendency to revert, and it would be well if some one would attempt it, taking care to grow nothing else in the way of Wallflowers near it. The attempt is worth making. As far as I have experience of the single German Wallflowers, they are of a tall leggy habit, quite unlike that dwarf bushy free branching habit one sees in the dark and yellow strains grown for the London markets. Seed of purple Wallflowers can be seen in some wholesale lists, so there should be no difficulty in obtaining a supply to begin with. *R. D.*

**Nomenclature.**—What Mr. Baker in his letter on *Narcissus* names, p. 567, points out as a future note for guidance in nomenclature, if applied to *Narcissi* cannot stop there, but must apply equally to all cultivated plants. "If garden varieties of *Narcissi*, whether known hybrids or natural seedlings, are to be named and numbered in the manner adopted by florists and not by botanists"—with the proviso that "those forms are excepted which have already received Latin names"—then it follows that the same rule must be applied to Lilies, Orchids, &c. At any future Conference some such resolution will no doubt be passed affirming the above principle. If such were done, the principle involved would be decisively adopted, and come into force for the future without exception. *Alexander Wallace, M.D.*

**Narcissus Disease.**—An account of this disease is found in a small publication, *Onderzoek der Ziekten van Hyacinthen en andere Bol en Knolgewassen*, door T. H. Wakker. ("Researches into the diseases of Hyacinths and other Bulbs," by T. H. Wakker.) I think your disease is the "Wit snot" in Holland so-called, and in German "Wussen rotz." *J. C. W. P.*

**The Weather in Midlothian.**—We have had a week of cold blustering weather, with showers of sleet and snow, but crops have stood it well on the whole, and in the Lothians I see no injury done to the fruit crops by the nips of 3° or 4° of frost on several nights this week. Trees are full of blossom, very healthy, and free from insects, and are looking most promising for a fine crop. *M.*

**Damage from Hailstorm.**—We were visited by an extremely heavy hailstorm accompanied with vivid lightning and loud peals of thunder on the evening of the 3d inst.; it lasted about half an hour, many of the stones being the size of Hazel-nuts, which fell with great force and wrought severe damage to various subjects. Perhaps the hardy fruit crop received the greatest amount of injury; it is pitiable to look at the Pears and Plums (which before the disaster were aglow with blossoms, unmarred by frosts, and gave promise of unusual abundant crops), and witness the havoc played amongst them. In many instances the embryo fruits are cleanly cut off, while in others, except some protected by spurs or branches, they are irretrievably injured by the battering they received. The trees have also received a serious check in growth by being denuded of much of their foliage and having the remainder more or less torn and bruised. Fortunately the Apricot wall was protected with copings, and a few of the Pears were likewise covered. Bush fruits suffered considerably, particularly Black Currants, the blossoms of which were stripped off. Roses have received injury in having their foliage and young shoots bruised and torn. Peas, Onions, Parsnips, Lettuce, and seed beds of Broccoli, &c., are much battered, as is also the Rhubarb. The hail did not disappear, in some places, until afternoon on Monday. *Thomas Coomber, Hendre Gardens, Mon.*

**Single Dahlias.**—Some writers are falling into the error of recommending a rich soil for single Dahlias. Surely this is a great mistake. The poorest soil appears to suit them, and in what might be termed hungry soils they flower more freely and with much more refinement of character: in this respect, unlike the large double varieties, which require rich feeding at the roots, and in the case of now a few varieties, considerable disbudding. Happily single and the pretty pompon Dahlias require no disbudding. The act of cutting for decorative and other purposes is the best disbudding system which can be applied.

Another reason for planting in a poor soil is that, taking the newer varieties, the flowers are quite large enough without the need for planting in good soil to make them come finer. In order to enable purchasers to make suitable selections of varieties of single Dahlias, Mr. T. S. Ware, in his new catalogue, just issued, has put them into groups, viz., those with flowers much reflexed, those with flowers partially reflexed, those with quite flat flowers, and those with stellate flowers. This will no doubt be found a convenient classification, and will be appreciated by lovers of the useful and popular single Dahlia. *R. D.*

**Melon Canker.**—I very much doubt whether the deep planting of Melon plants has any tendency to produce canker, provided no injury be caused to the stems during the operation. As far as my experience goes I can at any rate answer very decidedly that it does not, having grown Melons precisely as recorded in a previous note for nine years past without the slightest trace of canker. I never allow the soil to become "too wet;" many plants besides Melons soon go the wrong way when the rooting medium is in that state. At the same time I water freely, and with those growing in pots during the operation of watering it frequently covers the base of the stems; but good drainage is always provided, and the surface of the soil soon dries. Is it a fact that "H. W. W." has never seen Melon plants canker when planted on raised mounds with the "base of the stems 3 inches higher than the bed of soil," and the latter "sloping sharply towards the surface of the beds on which they are formed"? I should imagine with the soil pressed very firm, as it should be, some difficulty would be experienced in keeping the central portion of the bed sufficiently moist. In conclusion, I beg most emphatically to differ from "H. W. W.'s" opinion as to the only cause of canker, and believe it is more frequently occasioned by some sudden check, such as watering with cold water, or a sudden fall in the temperature either of the house or bottom-heat. Too much water will undoubtedly cause the sudden collapse of Melon plants, and this is the more likely to take place when growing in large beds of soil. *C. H.*

**The Old Double White Rocket Attacked by Larvæ.**—The grand old border favourite, *Hesperis matronalis alba plena*, now too seldom seen, is at this time of the year subject to the attacks of a grub, which will as effectually ruin the coming flower-buds as will the well-known Rose grub, which, except in colour, it much resembles. It weaves a cocoon around the leaves that encircle the central embryo flower-heads, draws them together, and in a short time both leaves and flower-buds have disappeared, except the mid-ribs of the leaves. This morning I examined some of them thus attacked, and in some flower-heads found as many as eight of those destructive greenish maggots, about three-eighths of an inch long. My plants are pure white, not flesh-tinted, and very double, unlike what is commonly sold as the true double Rocket. *W. J. Murphy, Clonmel*.

**Booksellers as Seedsmen.**—When at the Praed Street station of the Metropolitan Railway a few days ago, I noticed that the Right Hon. W. H. Smith, M.P., has also gone into the seed trade, and any person travelling on the railway may purchase at his bookstall flower seeds in gorgeously coloured floral packets at 1d. each. With dukes as market gardeners, and Privy Councillors as cheap seedsmen, where is the limit to be fixed? Very soon all ranks and degrees will be sellers, and one is led to wonder where the buyers will be found. Is it possible for seedsmen to start in the competitive race as dukes and Privy Councillors? *R. Dean, Ealing, W.*

**New Chrysanthemum.**—I beg to submit flowers of a new hybrid annual Chrysanthemum, the result of a cross between *C. coronarium* and *C. carinatum*, which has originated with Mr. Robert Owen of the Castle Hill Nurseries, Maidenhead, and which is likely to prove a valuable addition to this already favoured group. As regards the colour of the flowers, it is identical with that of the typical *coronarium*, the petals are somewhat broader probably, whilst the foliage is that of *C. carinatum*. On some of the plants now flowering in these nurseries the leaf character of both parents is developed, thus establishing beyond a doubt



the origin of the plant in question. It may also interest some of your readers to learn that the plants from which the enclosed flowers were taken have been perpetuated by means of cuttings, and have been producing flowers for the last three weeks, with a profusion of bloom to follow. This fact gives additional value to a plant which already possesses many charms for those who prefer pleasing combination of colour. For the cool conservatory just now it is simply charming. Later on Mr. Owen intends to exhibit it at one of the meetings of the Royal Horticultural Society. *E. Jenkins.* [The *Fuchsia* our correspondent sent for our inspection was a large single flowered kind, without any coarseness, the corolla a rich purple, with scarlet lines on the upper portions, sepals bright red, and much reflexed. The *Chrysanthemum* is a pretty yellow and white, with an orange coloured disk, and is likely to make a showy greenhouse plant. *Ed.*]

**Narcissus Disease.**—I have many beds of Daffodils, but the disease of which the Rev. Wolley Dod writes has not yet visited them. I plant my bulbs in any soil, wet or dry, and without manure. *W. D. G. O., Biarritz.*

**Cabbages.**—Spring Cabbages are now turning in plentifully, and your correspondent, Mr. Sheppard, wisely suggests comparing notes and taking stock as to which are the best varieties to grow. Vanack is our favourite here, it turns in nice little compact heads nearly a fortnight earlier than any other variety we grow, and scarcely a plant of this fine variety has run to seed. Wheeler's Imperial comes next; market growers in this locality depend entirely upon this variety, not only for spring use, but as an all-round Cabbage, and in our opinion it has few equals. Little Pixie is also very fine with us this season, the same may be said of Heartwell Early, which is rather larger and likewise later than the three former varieties. Dwarf Winningstadt we have grown this season for the first, and last, time; it may be a Winningstadt, but with us it is anything but a dwarf. We make it a rule to sow our Cabbage seed thin in beds during the last week of July, or the first in August, and like to have the plants in their permanent quarters by the middle of September. *A. Smith, Cardiff.*

**The Service Clause of the New Franchise Bill.**—The question has been mooted, How will the dwellers in "bothies" be affected by the application of this clause? It distinctly sets forth that servants otherwise duly qualified, occupying premises distinct from that in which their employer resides—such, for instance, as a gardener, or gamekeeper, or steward, or bailiff, &c.—are entitled to have their names placed on the list of voters soon to be prepared. It is in this relation that the matter of the occupiers of "bothies" has come to the fore. I submitted the matter to the opinion of an eminent member of Parliament, and he replies, "The general impression is that your 'bothy' friends cannot qualify, but it is a point for the decision of a revising barrister." It is a matter on which revising barristers are certain to be divided in opinion, and it is probable some claims of this nature will be admitted while others may be rejected, but it would be of importance to get a favourable decision from a revising barrister. Surely there are among the inhabitants of "bothies" many as well able to exercise a vote intelligently as the ordinary lodger, who can qualify by paying 4s. 6d. per week, or the ordinary occupier of a tenement however small and wretched, provided there is a residential qualification. My advice to all occupiers of "bothies" interested in this question, who have been in the same situation and occupied the "bothy" since July 1, 1884, and who therefore have a residential qualification, and are over twenty-one years of age, is to claim to vote. This they can do through the medium of the agents of the several political parties, who will provide them with forms for the purpose, which have to be sent in to the overseers of parishes by a given time. My impression is that revising barristers will be inclined to interpret the Franchise Act in a broad and generous spirit, and that the agents of the contending political parties will not interpose vexatious objections. The simple rights of citizenship should be enjoyed by all, and as political information by means of a cheap Press is now widely disseminated, it is not to be wondered at that the inhabitants of bothies take an interest in political questions of the moment. I repeat my advice—Claim! claim! and

let the revising barrister say yea or nay. *R. Dean, Ealing, W.* [We strongly incline to the belief that bothy men will, except under special circumstances, do much better by not mixing themselves up with party politics. *Ed.*]

The "Widow" or "Mourning" Iris.—Rising from a sunny bit of rocky soil, made still more dry and warm by the roots of Holly trees, we have a colony of this quaint little Florentine Iris. It is not so beautiful, perhaps, as the great white Iris of Florence, but merely an unassuming little flower of silky texture, and green in colour, except the tips of the outer petals or "falls," which are blotched with black velvety patches, as shown in our sketch (fig. 153). One might be excused for passing it by when in flower without seeing it, but if the blossoms are



FIG. 153.—IRIS TUBEROSA: FLOWERS APPLE-GREEN AND VELVETY BLACK.

brought near to the eye indoors its distinctness and sombre beauty are quite indescribable. The leaves are erect, and four-angled, very like those of *I. reticulata*, but its tuberous roots are quite different; hence, no doubt, its specific name, *Iris tuberosa*. *F. W. B.*

**Fruit Prospects in the North of Scotland.**—The effects of the fine warm season of 1884 are now apparent everywhere in this northern district by the fine display of strong and healthy fruit-buds on all kinds of hardy fruit trees. Apples, which carried a very light crop, had the advantage of early storing their fluids and building up strong and well matured fruit-buds previous to the period of shedding their leaves, and are in consequence in a more highly developed state than usual. From the cold and backward spring weather, and especially that of the last three weeks, they are later in opening their blossoms, and will now have a better chance of escaping injury by frost. Pears on walls have set their fruit well, so

also have both Peaches and Apricots. Plums on walls have, however, been thinner in fruit-buds than usual, I suppose owing to the dry ground and heavy crop last season; they are as yet scarcely at a stage to be certain about a crop, as they sometimes apparently set well, and swell on until they attain the size of plumlets and then stop and fall off. Standard Plums and Pears have both flowered profusely, while all kinds of bush fruit are very promising. Spring having been dry and cold seeds of all kinds have been got into the ground in excellent condition, and crops, although late, are promising well. The rainfall for the last five months is about an inch below the average for each month for this district, and a deficiency of water from springs may be expected in the end of summer and the autumn months. The following is an extract of the rainfall registered here for the last five months, viz. :—Dec., 1884, 1.34 inch. 1885: Jan., 1.58 inch; Feb., 1.79 inch; March, 1.54 inch; April, 1.25 inch; May, up to 16th, 0.61 inch. The average fall for this place is about 2½ inches. Four degrees of frost is the lowest registered here during the present month, and some Potatoes on wall border, 6 to 8 inches high, have escaped owing to the ground being dry at the time. *J. Webster, Gordon Castle Gardens, May 18.*

**Maurandya Barclayana.**—This beautiful climbing perennial was formerly more generally known than it is now. Notwithstanding the neglect it has fallen into it is a plant that merits a place in every garden. It is suitable either for the greenhouse or for cultivating in the open garden as a climbing annual. During the summer it will grow and flower abundantly against a south wall or a trellis, but it requires the protection of a greenhouse in winter. A light rich soil suits it. It is readily increased by cuttings planted under glass or from seed, of which it usually matures an abundance. I prefer raising the plants from seed sown in the autumn. If the plants are carefully attended to in shifting, when necessary, and in watering, and kept on a shelf near to the glass, they will make better plants than those from spring-sown seed, and may be planted out in the open air some time before plants from spring-sown seed. Towards the end of the season it looks very beautiful. *M. Saul, York.*

**How to Keep Hardy Fruit Trees Clean.**—As the conditions of cleanliness and its reverse have a great influence upon the health of mankind so also have they analogous influence upon the health and condition of trees and plants. Bearing this fact in mind no time should be lost in examining all trees of the Apricot, Peach, Plum, Cherry, &c., to ascertain—now that they are pushing into leaf—whether they are attacked by blight, of which the black fly is—especially on Cherry trees—the most troublesome as well as difficult to dislodge. However, this and aphides in general, which play such havoc with the young leaves and shoots, may be destroyed by syringing the trees, as soon as the blight is noticed and before the leaves curl, with a solution made of 1 quart of tobacco-juice (as supplied by Griffiths & Avis, of Coventry), to 4 gal. of clear water, which will, in addition to killing the aphids, render the foliage distasteful to any other insects during the remainder of the year. *H. W. Ward.*

**Narcissus poeticus var. verbanus.**—Messrs. Collins & Gabriel offered this variety in their catalogue of last autumn, and by to-day's post I received a flower grown from their bulbs sent to me from Ireland by Mr. Poë. The same post brought me another flower, precisely similar, sent from a garden at Frome, in Somersetshire, where bulbs of it have been for many years: the house of that garden was formerly occupied by a gentleman who brought many plants home from the Alps and Italy. The flowers and leaf correspond exactly with Herbert's description under the above name: the leaf is very narrow and linear, the flower very small, hardly as large as an ordinary flower of *N. biflorus*, the stalk slender, the limb of the flower tinged with yellow at the base more distinctly than that of any other variety of *N. poeticus* (see Herbert's *Amoryllidaceae*, p. 318). Herbert gave the plant its name, which is derived from Verbanus, the ancient name of the Lago Maggiore, on the banks of which it was first found. He seems to have felt reasonable doubt whether the name of the lake, Verbanus, was a noun, adjective, or substantive. At first he treated it as a substantive, as the Greek way of writing it shows it to have been,



and formed from it an adjective "verbanensis," but when he compiled the index to his work he changed the name to verbanus, which is more convenient and quite unobjectionable in form, and had better be adopted. *C. Wolley Dod, Edge Hall, Malpas, May 12.*

## Reports of Societies.

### NATIONAL AND CENTRAL HORTICULTURAL OF FRANCE: May 19—31.

PARIS.—The international gathering of this Society commenced on Tuesday, in the building on the Champs Elysées, that forms one of the existing portions of the Exhibition structures of 1878.

We were here almost in the heart of Paris, yet the wonderful bloom of the Chestnuts, the balmy air, and the absence of noise would almost have led one to suppose that the spot was miles away in the country. The invitation to send specimens of British horticultural productions, however, was not met in the spirit of enterprise that is usual amongst Englishmen, yet a few Orchids arrived at the last moment.

In the departments of heating and construction of garden buildings, tools, implements, and gardening appliances, there was likewise an entire absence of English competition, so that it remained for our neighbours to fill the immense localities set apart for the purpose, and exceedingly well it was done by them.

The main saloon, where the choicest plants were assembled, is a parallelogram of perhaps 40 yards by 60 yards, of corresponding height—proportions that cannot fail to be damaging to all but plants of large size; as it was, the tall Palms, Tree Ferns, Philodendrons, and Crotons, which skirted the red-coloured walls, in slightly wavy lines, compelled the onlooker to admit that that objection was well met, and that the general view of this portion, when observed from any point whatever, was of a pleasing character, as might be expected from such clever arrangers as the French always show themselves to be.

The main doorway was flanked by Palms and Ferns; immediately in front inside was a breadth of gravel, extending nearly the whole width of the building—an excellent idea, as it allowed a great number of persons to assemble at this point, from whence, of course, the best view was to be had. The rest of the surface was divided into large irregular plots of turf, slightly undulated, the different groups of plants occupying raised beds, of a size equal to the requirement of the exhibitor. The kind of plants permitted to be used in these were such as were sufficiently dwarf to be seen over by the spectator, thus interfering scarcely at all with distant views. Those nearest to the spectator at the entrance were Caladiums, Begonias, small-sized Azaleas, Pelargoniums, Bromeliads, &c., arranged in beds usually of an oval form. At the opposite side from the entrance was a short vestibule communicating with a large pavilion of white canvas, containing the Roses, annuals, fruit, and Calceolarias. Abutting on the side walls of the permanent building were annexes for Clematises, Azalea indica, Kalmias, in one; and colonial productions, fruit, vegetables (a most interesting collection), and more exhibits of Azaleas and American plants.

A canvas pavilion at one angle was set apart for Clematises, Roses, and annuals in pots, Rhododendrons, &c. Disposed in long lines under the avenue of Horse Chestnut trees the exhibits of glass-houses, garden pavilions, vases, pumps, boilers, and all manner of garden appliances and tools were arranged, and between these and the building and round about the latter were found the collections of hardy and reputed hardy trees and shrubs, and hardy plants suitable for bedding purposes.

#### FOLIAGE PLANTS.

MADAME LA BARONNE DOUARIÈRE DE ROTHSCHILD (gr., M. V. Lesueur) had a splendid group of foliage plants, filling up a large recessed part of the wall in the pavilion, all the plants being remarkable for the perfection of their foliage and their healthy appearance. *Medinilla magnifica*, covered with its long racemes of rosy blooms, was a plant 8 feet in diameter by 6 feet high. The background of the group consisted of tall Palms, of which we may specify *Areca sapida*, 20 feet high, a handsome specimen, as was also *A. flexuosa*, of an equal height, a very large *Phoenix dactylifera*. In front of these tall plants were fine specimens of *Anthurium*, viz., *Duchartrei*, *Warocqueanum*, *subsignatum*; *Philodendrons* *Schottii*, *cristatissimum*, *Lindeni*; *Diefenbachias* *Parlatorei*, *Bausei*, *Bowmanni*; many beautiful *Crotons*, not yet in their true characters; *Dracaenas*, Ferns, and good miscellaneous plants formed the outer fringe of this group. A large tree trunk, hollow, and planted with *Philodendrons*, *Vriesias*, *Gymnostachyum Pearcei*, *Nepenthes*, &c., was a pretty piece of work.

M. A. CHANTIN, Paris, showed a fine collection of Palms, many of them being of large size, and all of them in the best of health. They comprised *Arenga Bonnetii* *Phoenix* sp., from Pondicherry, with silvery meanness on the underside of the leaf; several *Coryphas*, *Thrinax parvifolia* and *T. elegans*, *Kentia Forsteriana*, *Caryota Chantini*, and others. He showed a collection of Cycads, including nine species of *Zamia*, and two of *Cycas*; also 2 beautiful symmetrical plants of *Catakid-ozamia* McLeayi, in another class, a plant fully 14 feet in diameter.

M. Chantin's other exhibits were a collection of *Araucarias*, consisting of some new kinds, as *A. Neprashki*.

a very robust-habited kind, with round branchlets an inch in diameter, habit erect; *A. Binoti*, with brownish-green foliage, and *A. Napoleon Baumann*, with glaucous-green foliage, which is broad and flat. A small collection of greenhouse Ferns, a fine lot of Tree Ferns of no great merit, and a collection of *Anthuriums* in variety; *Vriesia tessellata* was a beautiful plant. A massive plant of *Vriesia Hellegerrana*, *Puya gigas*, a drooping Pandanus-like plant, with spines on leaves wide apart; *Cyphanthus zonatus*, with white banded leaf; *Nidularium splendens*, with brilliant scarlet centre tuft; and *N. acanthocrater*, with violet tufts of foliage.

MM. CHANTRIER FRÈRES, nurserymen, Mortfontaine (Oise), exhibited a collection of *CROTONS*, most of them being of their own raising, fine in form, and so far as the season permitted, in colour were—*Bergmanni*, General Pajol, *Bachii*, and *magnoliaefolia*—this last having grand foliage of yellow and green. *Chomer* is also a distinct green, mottled with gold, that would develop well with more sunlight. The same firm showed *Anthurium trilobum*, very fine large metallic-green foliage of great breadth, and others.

In a collection of stove plants by M. DAVID, nurseryman, Versailles, we noticed a *Maranta Kerchoviana*, dwarf, of two shades of green; and *Eranthemum atropurpureum*.

M. S. CHEVIER, a cultivator of Palms (Aube), dépôt, 54, Rue Spontin, Paris, showed some of the finest and most compact Palms at the show; especially fine was a *Brahea Roezlii*, a rare plant; *Cocos campestris*, *C. Blumenavia*, *C. Romanzoffiana*, *C. Gaertnerii*, and *Kentia Balmoreana*.

M. VINCKE, Shepshald, Bruges, had a grand lot of Palms, including *Phoenix senegalensis*, *P. canariensis*, *Cocos Bonnetii*, which were capitally disposed in a recess of the pavilion, and which were rather remarkable for the smallness of their tufts.

M. A. D'HAENE, Ghent, showed a great mass of *Leptopteris superba*, the stem being nearly 3 feet thick, and but 2 feet high; also *T. africana*, smaller; several *Cyatheas*, *Alsophila Van Geerti*, and *Lomaria cycadifolia*.

MM. THIBAUT ET KETLEER, Sceaux (Seine), had a nice collection of *CALADIUMS*, new colours being seen in *Madame Motjana*, crimson; *Madame Margottin*, white ground, crimson veins. They showed also collections of *Tillandsias*, &c., *T. tessellata*, a beautiful specimen, 2½ feet high, perfect; and *T. argentea*, a curiosity, grey-leaved, and hanging apparently a dried object from a stick.

#### FLOWERING PLANTS, &c.

M. D'HAENE also exhibited twenty-five Indian Azaleas, wonderfully bloomed—*Wilson Saunders*, *James Veitch*, *La Victorie* (bright cerise), *Reine des Puybas*, *La Brillant*, being noticeable for their pleasing and new tints.

M. ALEXIS DALLIÈRE, Ghent, exhibited a brilliant group of twenty-five Azalea indica, round-headed, well-bloomed, and usually well-known varieties. Amongst the double kinds were *Princess Stephanie Clothilde*, creamy-white; *Docteur de Mil*, cerise; *Baron Georges de St. Génoise*, scarlet; *Sabuntale*, white, distinct; *Deablotin*, purplish-crimson, a new colour; very pretty. *Königin der Weissen* is a good form among the single ones—white; as was *Tollmanni*, a scarlet flower.

M. SAISON, Lierval, Neilly, showed fifteen Palms of the usual kinds, in very good examples; also fifteen stove plants, including *Crotons*, *Alocasias*, *Anthuriums*, and *Dracaenas*.

M. L. DALLÉ, Paris, showed in the class for one plant an example of good culture, at its greatest beauty—a *Caraganta cardinalis*, the stem of 15 inches in height being surmounted with a bright tuft of scarlet leaves and a spike of the same hue. For twenty plants of remarkable foliage he showed *Philodendron Lindeni majus*, *Anthurium Van Houttei*, *Aralia Chabrieri*, *Tillandsia tessellata*, and several other uncommon species. Also a collection of Palms from 10 feet to 25 feet in height, many being remarkable for their perfect development.

M. L. LANDRY, nurseryman, Paris, had a collection of foliage plants used as market plants, amongst them being many things seldom seen at our markets, as *Ruellia maculata*, a nice easily grown white-spotted leaved plant; *Hechtia*, *Nidularias*, *Vriesias*, *Alocasias*, &c.

M. CROUX FILS, Vallée d'Aulnay, showed a collection of RHODODENDRONS from 3 feet to 8 feet in height, mostly English varieties, the trusses of which were not so large as we are used to see them. This firm had good specimens of *Kalmias*, thirty plants in three varieties, viz., *K. myrtifolia*, *K. latifolia*, *K. l. rubra*, *K. l. alba*, well bloomed; likewise a nice lot of *Azalea mollis* and *A. pontica*, with charming variety of colour.

M. MOSER, nurseryman, Versailles, showed a collection of eighty Rhododendrons, the plants ranging from 3 to 12 feet high, well bloomed and grown, but rather small trusses. *Kalmias* and *Azalea mollis*, well done, came from this exhibitor.

Another exhibitor of Rhododendrons in quantity was M. HONORÉ DEPRESNE, nurseryman, Viry, whose plants were not nearly equal in merit to the foregoing lots.

M. ADOLPHE FOUCARD FILS, and M. POIVIER, both exhibited zonal Pelargoniums and Ivy-leaved varieties, which were a pretty bit of colouring on the turf.

A splendid mass of plants of *Anthurium Scherzerianum*, arranged as an oval bed, 12 feet by 6 feet, shown by M. BERTRAND, was a brilliant addition, and many good spathes were observed on them.

A fine group of *Calceolaria* plants, compact, and flowers large, was shown by MM. DUPANLOUP ET CIE.

M. C. VUYLSTEKE, Loochristy, by Ghent, showed a plant of *Anthurium Andreanum grandiflorum*, with broad brilliant spathes, this being for the competition of the best single specimen.

M. A. TRUFFAUT had a very extensive lot of BROME-

LIADS, the group in which they were deposited making one of the best features of the pavilion. We noticed *Nidularium princeps caulescens*, *N. concinnum*, *N. Innocenti*, several *Tillandsias*, *Æchmea miniata*, a brilliant scarlet spike of inflorescence; *Cyrtanthus Benckeri*, with zebra-like markings; *Caraguata cardinalis*, and species of *Encholirion*. From the same nursery came a collection of *Dracaenas*, *Pandanads*, *Dasyliropsis*, *Rhopala corcovadense*, *Diefenbachia*, and similar plants, shown for collection of market ware.

MM. DUVAL, Versailles, a rising firm of specialists, had fifteen hothouse plants, including *Artanthe magnifica*, *Tillandsia mosaica*, and *Dracena novæ-caledonia*.

From M. A. A. PEETERS, Brussels, came a grand bank of *Azalea indica*, arranged in three long lines, the plants just touching each other: it was a feature in the side annex—a blaze of colour, unrelieved, not perhaps to be commended, but yet serving as a ready means of contrasting and comparing varieties.

In the annex opposite was another still larger collection by MM. ROYER FILS' successor, Versailles, consisting of 320 varieties, the specimens ranging from 1 foot to 3 feet in height, round-headed, untrained, as were all, and comprising the best of the species. On another occasion we shall return to the novelties seen in this exhibit.

A great number of CLEMATISES, mostly of English origin, were seen in the annex belonging to M. L. CHRISTEN, Versailles, but they were tall and lanky, and deficient in bloom.

#### ORCHIDS.

M. O. NILSON, Rue d'Honneur, Paris, showed a collection which, if it was not conspicuous for many large plants, yet had some that were remarkable or rare. *Vanda suavis*, the larger variety, had a splendid spike; *V. tricolor aurea* was also in flower nicely. A small plant of *Saccolobium Blumei majus* had a neat spike, and the shy flowering *Masdevallia rosea* was carrying a crop of forty blooms. *Oncidium Papilio* had three spikes; *O. Marshallianum* had a strong branched spray of bloom. Two *Lelia purpurata* had twenty-six and twenty flowers, *Coclogyne Massangeana*, several *Odontoglossum crispum* of much beauty, *O. Pescatorei*, *O. vexillarium*, a large-flowered variety; *O. citrosimum roseum*, the slender-flowered *O. Lindleyanum*, pale yellow star-like bloom, with brown spots; several *Phalenopsis*, *Lælia Schilleriana*, *Epidendrum Stamfordianum*, the pretty *Trichopilia coccinea*, with two blooms; and *T. suavis*, with two spikes of five or six blooms each; and *Dendrobium chrysiflorum* were the more noticeable species and varieties in the group.

M. TRUFFAUT, Versailles, had a group standing free on a table forming a part of his general collection of plants, in which were to be observed several nice bits of *Cattleya Mossie*, *Odontoglossum Halli*, *O. Alexandræ*, *O. citrosimum*, *O. triumphans*, *O. luteo-purpureum*; *Oncidium prætextum*, *O. cucullatum*, with two small spikes; *O. Papilio*, a small piece of *O. concolor*, several *Phalenopsis*, *Cypripediums*, and *Masdevallias*.

M. DUVAL, Versailles, had his collection of Orchids sunk in some material at the foot of a pilaster. There was a good *Cattleya Mendelii* with eight blooms; *Odontoglossum luteo-purpureum*, *O. Pescatorei*, with two good sprays; a nice collection of the newer *Cypripediums*, about a dozen varieties; *C. longifolium*, having four flowers open; *Cattleya Harrisoni*, with mauve petals and sepals, the throat being of a lighter shade; several *Masdevallias*, as *Lindeni* and *Veitchi*; *Oncidium ampliatum majus*. Orchid growing not having been as yet taken up by rich amateurs, as by us, we do not find either so many, or such fine plants at French exhibitions, and seemingly those selected are more remarkable for their grace and elegance, than for massiveness or gorgeous colouring. Thus we find many a slender growing small-flowered species, which would find its place on a back shelf with us occupying a foremost place in these French collections.

M. LE BARON A. DE ROTHSCHILD, Ferrières, had an enormous plant of *Odontoglossum vexillarium* in a tub, surrounded by other smaller ones, all loaded with bloom—an unique sight, and one not easily matched. A *Vanda teres* in a tub 3 feet in diameter was another wonder amongst Orchids. We do not know if this mass had been grown as shown.

#### TREES AND SHRUBS.

The following are the most interesting of the trees and shrubs. MM. TRANSON FRÈRES, Orleans, exhibit a nice group of young plants of a fine variety of the common Beech, under the name of *Fagus purpurea tricolor*; the ground colour of the leaves being a bronzy purple, which forms a striking contrast to the broad rosy-tinted margins.

From CROUX ET FILS, Vallée d'Aulnay, came a good series of fine plants of Japanese Maples, and a considerable number of flowering plants in pots of a variegated *Euonymus* bearing the name of *E. radicans latifolius foliis variegatis*. This is simply ordinary *E. radicans* which has arrived at a flowering stage—the typical *E. radicans* with small leaves being a sterile juvenile state. *Kalmia myrtifolia*, apparently a dwarf-growing, narrow-leaved, floriferous variety of the mountain Laurel, is a charming plant with white flowers, the only touch of red being a line or small blotch just above each stamen. *Ilex japonica fureata* is the name under which the same firm exhibit a fine plant of *Ilex cornuta*, bearing both flowers and fruit. *Abies pectinata pendula*, a fine specimen of the Weeping Silver Fir, completes the list of the most remarkable trees and shrubs—from an English standpoint—which are exhibited by Messrs. Croux et Fils.

From M. L. PAILLET, Chateau-les-Sceaux, came several groups of deciduous trees and shrubs and Coni-



fers, the latter being smaller specimens than those exhibited by M. Moser, of Versailles. Both firms show collections of Japanese shrubs and trees, which are more familiar to English gardeners than to their French brethren. As M. Paillet's collection contains a few things not to be seen elsewhere, they are mentioned first. The tree Pæonies are especially noteworthy—a large series of cut flowers is staged; Gloire de France, a double form with pale salmon-coloured flowers, and Reine Elizabeth; another with very large double rosy-red flowers, being amongst the most remarkable. A seedling form of *Abies Douglasii* named *nigra* is worthy of a distinctive name by reason of its blackish-green leaves and young shoots. *Juniperus canadensis aurea* is a decidedly pretty garden variety of our native Juniper, J. communis. *Acer platanoides umbiculifolium compacta*, which it is announced will be distributed in the autumn of the current year, is sufficiently described by its name. Without pruning, grafted on stems about 6 feet high, it makes a round-headed tree. The *Osmanthus nova* species is simply a fixed sport of the polymorphous *Osmanthus ilicifolius*, and is identical with the variety named *myrtioides*, distributed some years ago by Messrs. Veitch. *Aucuba laurifolia* is a very large green-leaved female *A. japonica*. *Berberis Darwini longifolia* is a remarkable form, with much longer leaves than the type.

Amongst the very fine set of *Rhododendrons* sent by M. MOSER—who, by the way, obtains the "Grand Prix d'Honneur" for contributing most to the undoubted success of the exhibition—is an old friend under a new name, viz., *Rhododendron hybridum*, or *R. bigener*, one of the earlier hybrids, raised, if we remember rightly, by Dean Herbert; it is here called *R. azaleoides*. *Mahonia Sieboldii* is one of the most distinct of the innumerable forms of *M. japonica* which we have yet seen.

A group of cut flowers of double Lilacs shown by M. LEMOINE, of Nancy, is well worthy of notice; there are several unnamed seedlings; the best of the named ones are *purpurea plena* and *Émile Lemoine*, the latter having paler coloured but much larger flowers, in finer panicles than the former.

*Daphniphyllum Teyssmanni*, exhibited by M. ROYER FILS, of Versailles, if it proves as hardy as the *D. glaucescens* which was introduced a few years ago and widely distributed by Messrs. Veitch, will probably become a general favourite. It has long red-stalked, handsome leaves, deep green above, and paler—but not glaucous—beneath.

Some of the most interesting of a large collection of shrubs sent by M. HONORÉ DEFRESNE are the following:—Perhaps the most noteworthy of all is a fine specimen of *Abies Nordmanniana pendula*, a perfect plant, of graceful habit, 10 or 12 feet in height. The *Ilex Tarajo* of this establishment is evidently the old *I. latifolia* of Thunberg, a very large-leaved Japanese Holly, which is unfortunately not quite to be depended upon as hardy in Britain; here it is flowering freely. *Pinus Baccata* is to all appearance a very dwarf compact form of the Scotch Fir.

#### ROYAL BOTANIC: May 20.

The first great exhibition of this Society was held in the Regent's Park on the above date, and, as usual, an excellent display of foliage and flowering plants, Orchids, &c., was provided for the Fellows and visitors. The large specimen flowering plants were as usual a striking feature, and not being fagged out by the season's work, were fresh and beautiful.

For twelve plants, Mr. CYPHER, of Cheltenham, was well 1st, his centre plant being a magnificent *Erica Cavendishii*, flanked by *Pimelea spectabilis* and good *Azaleas*, and a magnificent example of *Darwinia tulipifera*; Mr. JAMES, Castle Nursery, Lower Norwood, was 2d; and Mr. G. F. MOULD, Pewsey, 3d.

For ten flowering plants Mr. CHAPMAN, gr. to J. Spode, Esq., Hawkesyard Park, Rugeley, was easily 1st, and he occupied the same position for six in the amateurs' class, all his plants being well grown and in capital condition. *Ixora Dixiana*, very fine; *Anthurium Scherzerianum*, well flowered. He had also a densely flowered plant of *Tremandra ericifolia*.

Mr. G. WHEELER, Regent's Park, was 2d, with a group of small plants; Mr. RANN, gr. to J. Warren, Esq., Handcross Park, Crawley, was 2d for six specimens, *Darwinia tulipifera* being very fine.

In the trade class for six Mr. Cypher was 1st, Mr. James, 2d; and Mr. E. Tudgey, Waltham Cross, 3d. The ORCHID BANK was not quite so well filled as usual, owing, perhaps, to the cold weather. Mr. A. G. Catt, gr. to W. Cobb, Esq., Silverdale Lodge, Sydenham, was the only exhibitor in the amateurs' class. He had a fine form of *Cattleya Mossiae*, the white-petalled form of *Lælia purpurata*, two fine forms of the brilliant *Masdevallia Harryana*, a handsome specimen of *Dendrobium thrysiflorum* with 13 spikes; *Lælia purpurata* with twenty-two flowers, &c.

In the nurserymen's class Mr. Cypher was placed 1st, with 12 Orchids, made-up specimens. A *Dendrobium thrysiflorum* had thirty fine spikes; *Cattleya Mossiae*, over thirty blooms, and other fine specimens. Mr. James was 2d; Messrs. Jackson, of Kingston, 3d. The Society offers prizes this year for single specimens: Mr. Cypher was 1st, Mr. James 2d, and Messrs. Jackson 3d.

#### ROSES.

Messrs. PAUL & SON, The "Old" Nurseries, Cheshunt, obtained the 1st prize for nine magnificent Roses in pots. The variety Charles Lawson was a huge bush covered with bloom; Céline Forestier was also very fine. Messrs. Jackman, of Woking, were 2d with smaller but well-flowered specimens; Mr. G. F. Mould was 3d. For twenty Roses in 9-inch pots, Mr. Turner, of the Royal

Nurseries, Slough, was 1st, beating his old and well-tried antagonists, Messrs. Paul, who were 2d, both exhibitors showing in their usual fine style.

#### AZALEAS.

Mr. TURNER was easily 1st for six specimen Azaleas, and he occupied the same position for twelve plants in 12-inch pots. All the plants were densely flowered and in perfect health. Mr. G. Roach, gr. to R. Thornton, Esq., The Hoo, Sydenham, was 2d for twelve. For six specimens Mr. Roach was 1st, the plants being very large and well cultivated.

#### HEATHS.

In the open class for six Heaths, Mr. Cypher gained the 1st prize, Mr. Tudgey the 2d, and Messrs. Jackson the 3d.

#### PELARGONIUMS.

Mr. TURNER, of Slough, was a long way ahead of all competitors for show and fancy Pelargoniums; easily winning the 1st prize, Kingston Beauty, Prince Leopold, and Amethyst, show varieties; The Shah, East Lynne, Ellen Beck, and Princess Teck, fancies, were excellent examples of good culture. Mr. F. G. Hill, gr. to H. Little, Esq., Hillingdon Place, Uxbridge, was 2d to Mr. Turner for fancies, the variety Lucy being very fine.

In the amateurs' class Mr. Hill was 1st for show varieties.

#### CLEMATIS.

Messrs. G. JACKMAN & SON were the only exhibitors of Clematis in pots, and were awarded the 1st prize, for large handsome specimens—*Purpurea elegans*, very rich in colour; Fairy Queen, a magnificent variety, bluish, with a rose suffusion; Duchess of Edinburgh, fine double white; Jeanne d'Arc, very fine; Lady Caroline Neville, well flowered; and others.

#### FERNS.

Mr. BUTLER, gr. to H. H. Gibbs, Esq., Regent's Park, was 1st for exotic Ferns, Mr. George Wheeler being 2d.

#### FINE-FOLIAGE PLANTS

were much better exhibited than Ferns. Mr. Rann was 1st, with six excellent specimens, in the amateurs' class. Mr. Cypher was 1st in the trade class, *Croton Queen Victoria* being beautifully coloured.

#### ALPINES.

Messrs. CARTER & CO., of Holborn, were 1st for twelve alpine plants in pots, Messrs. PAUL being 2d, with smaller, though much rarer, species and varieties; *Globularia vulgaris*, *Geum montanum*, *Wulfenia carinthiaca*, and other choice things being represented in Messrs. Paul's group.

#### GROUPS.

The groups of plants (of which there were four) in the centre of the large tent formed an interesting and very effective feature; that from Mr. B. S. WILLIAMS, of Upper Holloway, contained choice Orchids, mostly *Odontoglossums*, *Cattleyas*, and *Masdevallias*; *Amaryllis*, of which an unnamed white one was most conspicuous. A pan of *Cypripedium ciliolare* was well grown.

Messrs. JOHN LAING & CO., of Forest Hill, were also well to the front, with an excellent assortment of Begonias, representing the greatest advance yet made in the tuberous section. Messrs. Laing have reason to be proud of their latest achievements—*Lady Falmouth*, a rosy-salmon, and W. Spinks, rosy-red, were each 6 inches across; Sir P. Lumsden, brilliant crimson-scarlet, 5½ inches, and of fine form. *Lady Lonsdale*, from the same seed-pod, evidently, as *Lady Falmouth*, is of excellent form, delicate salmon colour. *Lady Hulse* forms rosettes of sulphur-coloured double flowers. *B. formosa* seems an excellent variety for basket work, forming clusters of large rose-coloured flowers. *Caladiums* and *Palms* formed an excellent background to the Begonias.

Messrs. CUTBUSH, of Highgate, staged a group in which large dwarf standard Azaleas were a prominent though not over-pleasing feature; the background of Palms and Bononias, with an edging of Ferns, Heaths, and *Pimeleas*, had a good effect.

Messrs. E. G. HENDERSON & SON, Maida Vale, formed their group of well grown small stock, comprising *Caladiums*, *Palms*, and the usual run of small stove plants. A more artistic arrangement would have added to the effect of the group.

Messrs. PAUL & SON, Cheshunt, formed a most beautiful and interesting group of alpine plants in pots, and a box of cut flowers, some of the specimens being very rare and difficult to grow.

Mr. J. VAN DER REES, Exotic Nursery, Tooting, exhibited herbaceous and alpine plants in pots; *Saxifraga MacNabiana*, to which a Botanical Certificate was awarded, is very beautiful, with a good spike of white flowers thickly spotted with red in the centre. A pan of the charming *Sibthorpia europæa variegata* was well grown. A group of *Calceolarias* from Mr. W. Howard, of Isleworth, represented a good dwarf strain; and in a small group of plants from Mr. P. Perry, gr. to W. G. Rowlett, Esq., Cheshunt, six plants of *Mary Morris* Carnation were very fine.

Messrs. BARR & SON, Covent Garden, were still able to exhibit *Daffodils*; *Arum serotinum*, with white spathe, and dull purple flowers, internally striped, very curious; *Amaryllis formosissima*, in three forms, glauca longipetala, and the ordinary type.

Messrs. W. PAUL & SON, Waltham Cross, exhibited a splendid collection of Roses in pots, and sixteen boxes of cut blooms, as well grown as it is possible to cultivate the Rose. There were about a hundred pot Roses.

Mr. W. Rumsey, of Waltham Cross, also exhibited cut Roses and a few pot plants.

Mr. H. B. MAY, nurseryman, Edmonton, sent a capital collection of *Calceolarias*. The plants were well grown, and a strain of great merit. From Lady T. Guest, Hensbridge, Blandford, were sent cut specimens of *Aristolochia gigantea* [probably *A. brasiliensis* or *ornithocephala*, not *gigantea*.]

#### BOTANICAL CERTIFICATES.

Awards were made to Messrs. Veitch, of Chelsea, for *PHILADELPHUS MICROPHYLLUS*, a very handsome shrub, producing pretty white flowers very freely.

*RHODODENDRON CURTISII*, a neat-growing plant, with brilliant crimson flowers.

*ALLIUM KORATYIENSE*, a distinct species, with broad glaucous leaves, producing large round heads of inconspicuous greenish flowers on stems nearly a foot high.

*AMASONIA PUNICEA*, a beautiful stove flowering plant, producing pendulous flowers and brilliant reddish-crimson bracts.

*PIPER ORNATUM*, an elegant stove plant of scandent habit, with heart-shaped leaves of a bright green colour, marbled with rose; would be well adapted to train on walls or rockwork.

*DAVALLIA RETUSA*, a very elegant species, which will be greatly valued both as a distinct basket Fern and for exhibition.

*NEPHELOLEPIS BAUSEI*, a very handsome and distinct species of compact growth, producing bipinnatifid pinnae instead of entire. The same firm were awarded Floral Certificates for *Gloxinia Flambeau*, with brilliant crimson-scarlet flowers, erect flowering; and for *G. fulgens*, which has drooping flowers, rosy-red with dark red spots.

Messrs. Low of Clapton, received Botanical Certificates for:—

*CATTLEYA MENDELII STRIATA*, a fine form, with rich crimson lip, and a reddish-purple line in centre of petals.

*CATTLEYA SCHOFIELDII*, with brownish sepals and petals spotted dark red. The lip white, with violet lines in front.

*LÆLIA SCHROEDERI*, pure white, with merely a dash of purple in the throat; seems to be a form of *L. purpurata*.

The same awards were given to Mr. B. S. WILLIAMS, of Holloway, for

*LÆLIA PURPURATA WILLIAMSII*, a fine form, with rich crimson lip; sepals and petals purplish-rose.

*PAVETTA MONTANA*, a plant with large trusses of small white flowers; and

*HYMENOCALLIS MACROSTEPHANA*, a handsome species with delicate white flowers.

To H. Little, Esq. (gr., Mr. Hill), for *CATTLEYA MENDELII CARMINATA* and *LYCASTE SKINNERI PERFECTION*, a fine form with broad creamy sepals, the petals being rose-coloured.

Mr. H. B. May, of Edmonton, also received the Botanical Certificate for *PERIS CRETICA ALBO LINEATA* *ALCICORNE*, a beautifully crested form [which the Society should have disqualified for its preposterous name], and *Pteris serrulata cristata compacta*, very distinct and beautiful; also to W. V. Rees, for *SANIEFRAGA MACNABIANA*.

#### FLORAL CERTIFICATES.

The following plants were thus honoured:—*DECORATIVE PELARGONIUM VOLONTÉ NATIONALE ALBA*, a very beautiful free-flowering kind, with well formed flowers, from Mr. F. Perkins, Leamington.

*TREE CARNATIONS*:—Colonel Cox, large, full, crimson flowers; T. W. Girdlestone, buff, with broad scarlet flakes; Goliah, reddish ground, flaked scarlet—a showy and striking variety, from Mr. Turner.

*CALADIUM De Condeixa*, ornamental foliage; *BEGONIAS Formosa*, *Lady Hulse*, and *Sir Peter Lumsden*, from Messrs. Laing.

#### ROYAL HORTICULTURAL: May 12.

##### Scientific Committee.

Sir J. D. Hooker in the chair.

##### NICOTIANA HYBRID.

Colonel Clarke exhibited a plant which he has raised between *N. rustica* (female) and *N. Tabacum* (male). The flowers were intermediate in character, of a pale rose colour, and it proved to be completely sterile, the ovary only swelling, but containing no seed.

##### FORGET-ME-NOT.

The same gentleman exhibited a spray of the usually permanently red variety reverting to the blue form.

##### LACETTA LINTEERIA OR LACE-BARK TREE.

He also showed sprays of the flowers of this tree.

##### PUCCINIA VINCE.

A communication and specimens were received from Mr. Plowright, who states that, although the *Uredo* spores and *Teleuto*-spores were well known, he was now able to corroborate the statement that spermogones accompany the former. "The leaves thus affected exhaled a distinct odour. The plants bearing spermogones are taller than healthy ones. It is covered with dark brown spots, firm in structure. The leaves bearing them are dwarfed and thicker. The spots varied in size and colour, becoming paler with age, the oldest being surmounted by a delicate film of white dust. It consists of hyphae continuous



below with the mycelium, which pervades the whole plant, the threads being perpendicular to the surface. The free summits have colourless globose spores. In water they germinated. It is rare for *Æcidio* spores to be colourless, *Æ. rumicis*, however, being so. The life history is, therefore, as follows:—1. A perennial mycelium pervading the plant, which every spring produces spermatogones and *Æcidiospores*. 2. *Uredo* and *Teleutospores* which arise from the *Æcidiospores*, which probably have localised mycelia of short duration."

#### ÆCIDIDIUM BETÆ.

Specimens of this fungus on wild plants were also sent by Mr. Plowright, who writes as follows:—"The *Æcidiospores* of *Uromyces Betæ* are comparatively rarely seen. Having hitherto been unsuccessful in finding the *Æcidium* I determined to cultivate it from the *Uromyces Betæ*, which occurs so abundantly every year upon Marigolds. I succeeded about ten days ago in producing upon the foliage of two Marigold plants three or four clusters of the *æcidium* in question, but an accident happened to the culture, so that I am unable to exhibit them. Yesterday, however, I met with the *Æcidium* upon *Beta maritima* on the banks of the river Ouze, at West Lynn."

#### SACCOLABIUMS ATTACKED BY A LONGICORN BEETLE.

Mr. McLachlan exhibited living specimens, of *Dioxenes Taylori*, from Kew, and observed that it had been previously known upon *Phalenopsis* from the Philippine Islands, but it was very difficult to discover the real country.

#### DIOPEA PULCHELLA.

He also exhibited specimens of this moth, which was reported to have settled in hundreds upon a ship in latitude 0° 45' N. The nearest land was Brazil, but the probability was that they had been carried out to sea by the S.E. trade winds from the Cape de Verd Islands.

#### SILVER FIR ATTACKED BY COCCUS.

Mr. Boscawen exhibited a branch attacked by *Chermes abietis*, of very common occurrence.

#### VINE SHOOTS DYING.

Mr. Boulger showed specimens of leaves with impaired action, but it is not clear what the cause may be, though it might possibly have been scorching, as the appearances were the same on several sorts, and occurred at the same time.

#### HOLLIES AND QUERCUS ILEX ATTACKED BY INSECTS.

Mr. Sanders, of Lee, Kent, sent branches having the leaves much disfigured by some insect grubs. The Oak is a large specimen, and not a single leaf could be found which had escaped the attack. Mr. McLachlan said the Oak was injured by the caterpillar of a small moth, *Lithocolletis messaniella*; and the Holly by that small dipterous fly, *Phytomyza Ilicis*.

#### ADOXA MOSCHATELLINA DISEASED.

Mr. W. G. Smith sent specimens, with the following remarks:—"I send examples of *Adoxa* diseased with *Puccinia saxifragum*, Sch. According to the Floras, the *Puccinia* appears in summer, but I, this year, found it in abundance before the winter had fairly left us—viz., on March 15 last—infesting the subterranean parts only of *Adoxa moschatellina*. The examples were growing in a high bleak position on Dunstable Downs. On April 15 the leaves of the host plant were reached by the fungus, and on May 9 the floral organs and young berries were infested with the *Puccinia*, as the examples sent herewith show. In calling attention to the invasion of the floral organs and berries by the *Puccinia*, I have proof that not only does fungus mycelium often hibernates inside the membranes of seeds, but resting-spores are sometimes produced within the seed membranes, and these resting-spores germinate with the germinating seeds—in other words, many diseases of plants, as corn mildew, *Puccinia graminis*, are hereditary—i.e., the disease is transmitted from one generation to another through the seeds."

#### VERNATION.

Mr. Henslow called attention to the fact that leaves in unfolding assume the positions and conditions identically the same as in sleeping plants at night. As Mr. Darwin had suggested that the purpose of the latter might most probably be to protect them from radiation, so he would venture (apart from verification) to offer the same explanation for the behaviour and conditions of expanding and developing leaves. Those conditions being:—1. An erect or dependent position, so as to place the blades at right angles to the horizon. 2. To protect as much possible their upper surfaces. This was effected (i.) by contact of two leaves whenever they are "opposite;" (ii.) by

being conduplicate, or folding together of the two halves of a blade. A very common method, (iii.) by overlapping one another; (iv.) by rolling up the blades singly or together, laterally, or from above downwards (a rare case, as of the Tulip tree); (v.) radiation would be also reduced by a rough surface, as occurs in many leaves, as Horse Chestnut, &c.; (vi.) by temporary clothing of wool (Coltsfoot) or stellate pubescence (Ivy). Mr. Henslow illustrated all these cases. By exposing the leaves at night on grass instead of being protected as described, he found that Walnut and Lime showed marked effect from a moderate amount of frost. The other plants appeared better able to resist a few degrees. The experiment so far appeared to justify the inference that the conditions are most favourable for protecting the delicate growths from the effects of radiation.

#### FRUIT OF LAURUSTINUS.

Rev. G. Henslow showed sprays bearing fruit of last year. They were borne by a single shrub growing in a spot overhung by a Deodar, and otherwise shaded. Bushes well exposed bore none. The fruit is oval, of a bright metallic blue lustre. He remarked upon the curiously offensive odour given off by the *Laurustinus* when dying, especially when wet.

#### Floral Committee.

Present: G. F. Wilson in the chair, and Messrs. H. Bennett, W. Bealby, J. Fraser, A. Perry, J. Dominy, H. M. Pollett, J. O'Brien, J. Douglas, E. Hill, G. Henslow, J. James, H. Herbst, J. Walker, W. Wicks, H. Ballantine, H. Williams, J. Smith, H. Cannell, G. Duffield, W. B. Kellock, T. Bines.

Miscellaneous exhibits were not numerous, but such as were shown were of a high order of merit, and afforded a contrast to the lovely hues and tinges of the Orchids. Messrs. W. Paul & Son, Waltham Cross, Herts, had a collection of Roses in pots, profusely bloomed, and neatly arranged as to colour, &c., the whole bank being faced with tea boxes of cut blooms of various varieties not represented by plants. Mr. Louis van Houtte, Ghent, Belgium, had a collection of Azaleas, and a few other things that attracted considerable attention, not only for their quality, but also for the grand condition they were in after their journey; he had a grand plant of *Anthurium Andreanum* with splendid spathes, also a fine piece of *Sarracenia flava maculata*; his Azaleas were Louis Lubbers, semi-double dark scarlet, with a profusion of dark spots; Oswald de Kerchove, very bright pink, beautifully frimbriated edge; Madame Louis van Houtte, a noble-looking flower, flaked salmon, marked with purple at base of petals, and white-edged; Joseph Lefebvre, pure white, flaked with scarlet, and dotted with yellowish-green spots; Marquis of Lorne, semi-double brilliant scarlet; Baron Nathaniel de Rothschild, semi-double purple. New seedling Azaleas: Prince Baudouin, very deep dark crimson; Princess Victoria, double blush, with the colour deepening towards the base of the petals, where it becomes spotted and flaked with claret, white-edged; Miss E. Jarrett, fine frimbriated white, shaded with green spots; John Lyall, bright scarlet; Czar Alexander III., semi-double scarlet, shaded with dark spots; Theodore Reimers, semi-double purple, slightly spotted toward the base of the petals; Madame A. Lemoine, single pink, shaded with spots of a deeper colour.

Messrs. Paul & Son, the "Old" Nurseries, Cheshunt, had a choice collection of hardy flowers, conspicuous being *Kalmia laurina*, *Iris indicatifolia*, *Aquilegia canadensis*, *Thalictrum anemonoides plenum*, a dwarf white Meadow Rue; Gentians, *Fritillaria*, *Rubus arcticus*, *Daphne rupestris*, and various *Sempervivum* and Saxifragas.

Mr. Thomas S. Ware, Tottenham, had a neat collection of *Paeonies*, *Cypripedium calceolus* and *C. pubescens*, *Aquilegias*, *Primulas*, *Tulips*, and the pretty *Pinguicula caudata*. Messrs. J. Veitch & Sons, Chelsea, had a basket of *Acer polymorphum linearilobum*, *Spartium precox*, the pretty buff-coloured Broom, and *Rosa lucida*, or Rose Button. Messrs. Barr & Son, Covent Garden, had one of their choice collections of Daffodils, &c. Mr. W. Rumsey, Waltham Cross, had five fine boxes of cut Roses. A stand of *Amaryllis* from Messrs. Kelway & Sons, Langport, Somerset, exhibited great variety of colour. A seedling Rose crossed between John Hopper and the common Cabbage Rose, with the scent of the latter, named Mrs. House, was exhibited by Mr. J. House, Peterborough. Mr. J. Douglas, Great Gearies, Ilford, exhibited a new alpine *Auricula*, named Miss Mollie; and Mr. Ross, gr. to Sir George Macleay, Pendell Court, Bletchingley, exhibited flowers of *Brownea grandiceps*. Messrs. Waite, Nash & Co. had a small stand of Pansy blooms, which were very fine. The Lawson Seed and Nursery Company (Limited), Edinburgh, had some fine blooms of a white greenhouse *Rhododendron* of the Veitchii type. Mr. F. Perkins staged a few nicely grown white *Pelargoniums*, named *Volonté Nationale alba*; and Mr. Seidel, nurseryman, Striesen, near Dresden, exhibited a new *Rhododendron*.

#### Fruit and Vegetable Committee.

Present: Mr. H. Veitch, in the chair, and Messrs. F. D. Godman, J. Lee, C. Silverlock, J. Burnett, F. Rutland, S. Ford, J. Willard, G. T.

Miles, J. Woodbridge, J. Roberts, G. Paul, G. Goldsmith, S. Lyon, J. Ellam, H. Weir, R. D. Blackmore, C. Bunyard, W. Paul, T. B. Haywood, and A. Howcroft.

Mr. F. Perkins, Regent Street, Leamington, sent a collection of Leamington Improved Broccoli, for which a Vote of Thanks was given. Mr. Hunter, Lambton, Durham, sent a seedling Pine-apple, that the committee thought well of, but desired to see a specimen of ripened fruit. Mr. Sutton sent a collection of fourteen dishes of Apples, for which a Vote of Thanks was given, also *Vanilla aromatica*, which received a Cultural Commendation. Mr. W. Fyfe, Thames Ditton, sent two seedling Melons, one of which, a netted one, was awarded a Cultural Commendation as an early variety. Messrs. H. Lane & Sons, Great Berkhamstead, showed a collection of Apples, some of them being good for the season.

#### SCOTTISH HORTICULTURAL.

THE second ordinary meeting of this Association was held on Tuesday evening, the 5th inst., at St. Andrew's Square, Edinburgh, Mr. M. Todd in the chair. Mr. George MacLure, Trinity, read a paper on "Alpine Auriculas," giving an interesting account of the history and early cultivation of the plant. He said that a good border Auricula ought to have the following properties:—Stem erect and strong, high enough to carry the flower above the foliage; peduncles strong and elastic, so that each bloom may be distinctly seen; the number of pips should not be less than seven, and the truss round and compact; the anthers should nearly fill the tube and be flush with it; the eye should be a complete circle, the colour white, yellow, or cream; the ground colour bold and rich and equal on all sides of the eye.

The best season for propagating good sorts is about the beginning of August, either by division of the root or by side shoots, and planted in pots or a cold frame. Any ordinary potting soil will grow them; he had no confidence in the various nostrums in the way of compositions of soils which had been recommended. Every admirer of the flower should cultivate it from selected seed, to obtain which it was necessary to isolate the plants from inferior sorts to prevent cross-fertilisation. As the seed capsules ripen they should be picked and kept dry until the time for sowing. The month of August was considered the most suitable time, using wooden boxes and covering the seed very slightly with fine sifted soil, and placing over a sheet of glass, and shading until germination takes place. The after-process of pricking-off and growing was then described. He recommended its culture for town gardens, as it withstood the smoke.

Mr. A. N. McAlpine, B.Sc., Minto House, read a paper "On the Functions of the Root," giving a very instructive account of what takes place underground, and the process of growth was very successfully illustrated by means of the lantern. Mr. McAlpine used a combination of chemical substances, which he explained acted in the same way as the natural growth, and the artificial growth was so rapid as to be easily observed on the screen by those present. Both gentlemen received a hearty vote of thanks for their communications.

Several interesting exhibits were laid on the table. Mr. Young, Secretary of the Royal Caledonian Horticultural Society, showed a collection of seedling alpine and stage Auriculas; one of the former, named Mrs. McLeod, received a First-class Certificate; Mr. Black, West Calder, also received a First-class Certificate for a seedling alpine Auricula named Mrs. Black. A fine collection of *Narcissus*, said to be the finest ever exhibited in Scotland, comprising forty-five species and varieties, was shown by Mr. McKinnon, Melville Castle. The other exhibits included *Narcissus*, by Mr. Todd; a curious formation on the root of *Cupressus Lawsoniana*, by Messrs. McKay & Co., Cameron Bank; and seedling *Amaryllis*, by Mr. Garrett, Whittingham. The meeting concluded with a hearty vote of thanks to Mr. Todd for his conduct in the chair.

#### ANTWERP INTERNATIONAL EXHIBITION: May 10.

THE first of the series of horticultural shows at the International Exhibition at Antwerp opened to-day, and though the weather was very wet and cold for the season it attracted a large number of visitors. The chief features at this show were the Azaleas, Orchids, Palms, and Conifers. Orchids were never shown so largely in Belgium before; and really the bank of Cattleyas of some hundred plants shown by M. Massange de Louvrex was the *chef d'œuvre* of the show. In the other collections of Orchids, owing to the general bad taste of "making up" plants, which in some cases was strikingly offensive to the eye, and especially where several varieties of Cattleya and *Lælia* were seen in one pot, the cultural interest in them ceased. It is to be regretted the jury gave the palm to the collection in which this bad system was most practised. The plants of M. Massange were models of cultivation, and every plant was one plant cultivated as such. One of his *C. Mendelii* exceeded in beauty all other varieties, and the whole of his *C. Mossii* were good. The fifteen *Masdevallias* of Dr. Boddart were admirable examples of good cultivation, and so were his fifteen *Odontoglossums*. An imitation dead tree made up of *Trec Fera* stems and covered with flowering Orchids, Cattleya citrina predominating, was pretty and instructive to visitors, shown by Vervae & Co.

The thirty Azaleas shown by Mons. de Ghellinck de Walle were magnificent plants of the half-globe form so



commonly and persistently adhered to in Belgium. In time it is to be hoped there will be seen some other shapes, such as the pyramid form, on the model of these fine pyramid, *Laurus nobilis*. The collection of fifty Roses of M. Peeters were neat, fresh little plants of half-standard form. In this again there is room for great improvement in pot Rose cultivation, for we never see in France a pyramid-trained pot Rose such as what our Pauls and Turners produce in England; nor do we see a pyramid *Fuchsia*.

The large collection of Conifers of M. Charles van Geert & Sons was most refreshing to look at after the glare of the Azaleas, and were admirable specimens of the Fir tribe, for which this firm is famous. And the same remark may be applied to the Palms—for indeed a flower show is very tiring to look at without green, handsome foliage plants; and the large handsome temperate Palms here exhibited were examples of high cultivation.

It is to be hoped the committee will be a little more liberal with their next show, and not expect everybody to pay a franc for their catalogue and a franc to enter the show in addition to the entrance franc to the general exhibition.

## DEVON AND EXETER HORTICULTURAL.

The first exhibition of this Society was held on Friday, the 15th inst., in the Victoria Hall, Exeter. The exhibits were quite up to the average of former seasons; the collections of Azaleas being more in number, as well as of superior growth, of course formed a very great feature of the exhibition. Mr. Rowland, gr. to Wm. Brock, Esq., Parker's Well House, Exeter, took the lead in the principal classes for specimen stove and greenhouse plants, Azaleas, and Orchids. Mr. Seeward, gr. to Sir H. Davis, Creedy Park, Crediton, and Mr. Teed, gr. to Mrs. Ensor, The Bungalow, Topsham Road, shared the leading prizes in the other minor classes for specimen plants.

The classes for MISCELLANEOUS COLLECTIONS of plants arranged on stages 25 feet by 5 feet, and 15 feet by 5 feet, were very attractive features of the show, not only bringing out the cultural skill, but the taste for arranging of the plants as for conservatory work and especial displays, in which specimen plants cannot figure. As usual the local nurserymen rendered very valuable assistance by the loan of large collections of plants.

Messrs. Veitch & Sons made up a grand stand, composed principally of blooming subjects, backed up with Palms and Japanese Maples in variety. A great many novelties are generally introduced into the collections of this firm, both hardy as well as exotic subjects. A large pan of *Sarracenia flava* and other varieties was very attractive. Orchids in variety, such as *Dendrobium thyrsiflorum*, *D. densiflorum*, *D. Jamesii*, *O. Alexandræ*, *Cattleya Mossiæ*, and others, bore good spikes of bloom. Of course *Azalea indica* in great variety were introduced in quantity of neatly trained and abundantly flowered plants. *Pimelea spectabilis* and *P. Hendersoni* still retain their position as pretty decorative plants in a small state. Among hardy subjects, pans of dwarf *Phloxes*, *setacea* (The Bride), white and rubra, were very showy. They also exhibited the new white *Pelargonium* Queen of Whites, a superior form of *Madame Vaucher*. At one corner of their stand was a dish of Cabbage Lettuce, named Exeter Giant. This is a variety selected by this firm, and to be introduced for the first time next year. It is the largest and most perfect shaped Cabbage Lettuce grown, of immense size and perfectly round, and no doubt will take a leading position.

Messrs. Lacombe, Pince & Co., as usual, were strong in specimen plants. Azaleas, the flower of the season, were well represented, including several newly introduced varieties, *Empress of India*, *Theodore Reimers*, and *Souvenir de Vesta*; very fine specimens of *Anthurium Schzerianum majus*; Orchids in great variety, among them being *Epidendrum bicoloratum*, *Dendrobium thyrsiflorum aggregatum*, *Cattleya Mossiæ* and *C. citrina*, *Vanda bicolor*, *Odontoglossum Alexandri* and *O. ciriosum*. Some very fine plants of *Nepenthes Mastersii* and *Outrami* were very conspicuous, being suspended a little above the exhibit. This fine collection was backed by a fine *Latania borbonica*, *Cycas revoluta*, *Kentia Forsteriana*, *Cocos*, &c., and with the foregoing collection were great features of the exhibition.

### FLOWERS AND PLANTS IN POTS.

For twelve stove and greenhouse plants, half foliage and half in bloom, Mr. Rowland was awarded the Silver Cup. For six ditto, Mr. Teed was awarded 2d prize, Mr. Bartlett, gr. to Lady Hotham, taking 2d. For six stove and greenhouse Ferns Mr. Rowland took the lead. For a miscellaneous group of plants, arranged on a stage 25 feet by 5 feet, Mr. Seeward secured the £5 Silver Cup. Great taste was displayed in this arrangement, and the award was highly deserved. For a similar group, arranged on a stage 15 feet by 5 feet, Mr. Teed was awarded 1st, with a very pretty collection, composed almost exclusively of Palms, Ferns, and variegated grasses, a few *Amaryllis* and *Eucharis* being interspersed between them. Mr. Powell, gr. to the Earl of Devon, Powderham Castle, was 2d. For six Orchids, Mr. Rowland took 1st—also for six Azaleas, distinct, Princess Royal being magnificent.

### CUT FLOWERS.

Twelve Roses, one variety.—Mr. Barnes, gr. to J. C. Daniel, Stoodleigh, was 1st, with a splendid box of blooms of *Maréchal Niel* of immense size and substance. Twelve Roses, distinct varieties.—Mr. Barnes was again 1st, with a superb lot of blooms. Mr. Barnes also staged two dozen trebles in very fine form, which were awarded an extra prize.

### FRUIT.

Pine-apple.—Mr. Powell staged the only fruit exhibited. Three bunches of black Grapes.—1st, Mr. Lang, gr. to Lord Poltimore; 2d, Mr. James, gr. to Sir John Walrond, Bradfield, Culmpton. Three bunches of white Grapes.—1st, Mr. James. Strawberries, dish of eighteen fruit.—A good many competitors staged, all having excellent fruit. Mr. Leach, gr. to G. Drew, Esq., Park Villa, Kenton, took 1st, with James Veitch, very fine fruit, but colour absent. Apples were shown by several exhibitors, for which no prizes were offered, Royal Russet being the best staged by Captain Greatwood.

### VEGETABLES.

Vegetables were shown in large quantities for the season of the year, and seldom have they been of such good quality as on this occasion. Five competitors staged for the collection of six distinct kinds, Mr. James taking 1st, with American Wonder Peas, French Beans, Asparagus, Potatos, Cauliflower, and Cabbage; Mr. Main being a good 2d, with a fine dish of Early Nantes Carrots, French Beans, Potatos, Asparagus, Cauliflower, and Cabbage.



## Florists' Flowers.

### THE CINERARIA.

I WOULD fain impress upon those intending to grow the Cineraria well that the present month is the starting-point from whence we begin to grow our plants, whether they happen to be seedlings or named varieties. First, as to seedlings. Sow the seeds for the earliest flowering plants any time during the month of May. They will vegetate best in a gentle bottom-heat in an ordinary hotbed, care being taken to protect the seed pots from the sun until the seeds vegetate. If the surface of the soil should be scorched by the sun, or dried up in any way during the germination of the seeds, a complete failure may be looked for. As soon as the young plants are large enough they may be potted off, say three of them into a small 60. By the time the plants are this size the weather will be warm, and the best position for them is in a frame with its back facing to the south. The sun does not act injuriously upon the leaves if the glass-work of the frame is towards the north. We have grown our plants during the summer in a well-ventilated span-roofed house running nearly north and south, but in that position they are always shaded from hot sunshine. At no time are the plants allowed to become pot-bound; if they do, the leave become pale in colour, and the flowers are consequently of an inferior quality. The potting soil should be composed of good turfy loam, to which has been added a fourth part of leaf-mould, as much cow-manure, and a sprinkling of sand. Named varieties, or any choice selected seedlings, should be propagated by offsets. Those plants that we intend to take for stock have been cut down and placed in a light airy position, but protected from hot sunshine; as the offsets become large enough they are carefully removed and potted in small pots, placing them in close hand-lights until they are well established. Amateurs complain of the difficulty they experience in growing Cinerarias owing to the persistent attacks of insect pests. In the first place the plants must be kept vigorous and healthy from the first, and they must never be allowed to become badly attacked with aphids. Indeed this pest should be kept off altogether by regular fumigations, say, once a month.

### THE CHRYSANTHEMUM.

During this and the previous month there is some danger of these plants being neglected, not only from the pressure of work, but owing to the frames, pits, &c., being required for bedding and other plants. The Chrysanthemum, being hardy, has to be turned out sooner than is desirable to make room for plants that suffer more readily from frost winds or cold winds that may not be so low as the freezing point.

All plants intended to form large handsome specimens for exhibition should still be protected by glass lights, and it is better that they should be in such a position to admit of the lights being removed in fine weather; by that means the plants are kept in a very healthy and altogether satisfactory state, so that when the time comes to place them out-of-doors the tran-

sition state is not even felt by them. I remember on one occasion turning our plants out-of-doors the first week in May, tempted, of course, by fine weather; but a change came immediately, and we had 8° of frost on May 8; that is nearly twenty-five years ago, but I have not yet forgotten the lesson. We are not so careful of the plants intended for the production of large blooms. These plants may at any time be placed out-of-doors, they are not likely to suffer materially from frosts. The plants are now in 5 and 6 inch pots, and in these they will remain until the end of June, when they will be potted, one plant in an 8 or 9-inch pot, or two plants in a 10-inch one. These are cut back about the first week in June to within 9 inches or a foot of the surface of the pot; the re-potting takes place when the plants have made some growth, and as they want it very much by that time the rich compost gives vigour almost beyond belief.

### THE PELARGONIUM.

The earliest plants are now in flower, and those that are to succeed them later in the season are showing their flower-buds. It is a safe and good practice to fumigate the plants just before the first flowers open, and if they are at that time comparatively free from insect pests, this final smoking will probably keep the plants clean until the time for flowering is over. It does not answer to fill the house with smoke when the plants are in flower, as by doing so most of the fully expanded blooms will drop off. Continue to tie out and regulate the growths on late plants intended for exhibition from the middle to the end of June, and keep them close to the glass. The pots are by this time crammed full of roots, and it may be necessary to water them three times daily. If any of them should once get over-dry some of the leaves are sure to become yellow, and the flowers will be perceptibly reduced in size. Weak manure-water should be occasionally applied. Put in cuttings of zonal Pelargoniums to produce plants for flowering in November and December. *J. Douglas.*

### DOUBLE AURICULAS.

I send you some flowers from my collection of double Auriculas that you may see what improvements are being effected in them. At the recent Auricula show I exhibited one named *violacea*, of a very pleasing shade of violet suffused with a deeper tint; the flower sent is small and faded and from the plant that was exhibited at South Kensington; it is very free and pretty, and as some one described it, like a large double Violet. *Purpurea* is a very handsome, large, and full flower, and free in every respect. It throws a fine truss, and is striking when in flower. *Cleopatra* is a maroon-coloured flower dashed with purple; the example sent has faded, and is therefore under-sized. It is a very free and thoroughly good variety. *Hercules*, you will observe, is very distinct, and I regard it as the gem of my collection. It is difficult to describe. There is a mixture of purple, lilac, salmon, and buff. It is an extremely fine variety. *Delicata* is very fine and distinct; a good grower and very free. Thus, *Hercules* and *purpurea* remind one of Balsams, so large and full are the flowers. *Pandora* and *Juno* are two varieties of very dwarf growth and remarkably free; *Juno* is paler than the first-named, but I can send you flowers only of *Pandora*. I have also added flowers of the old and the double yellow, but both undersized, yet at their very best much inferior to the newer sorts, which I send with them. I have just received from Ireland flowers of a double yellow that is of a paler tint than the one sent, and has smooth rounded petals. The foregoing varieties do not exhaust my collection.

The double varieties are all late in flowering, and therefore I am not able to produce them in good form at present. They do well under the treatment given to my general collection of Auriculas. *R. Dean, Ealing, W.* [Mostly dull-coloured, uninteresting blooms, not nearly so pretty as the single flowers; one only might pass muster, a yellow. Ed.]

### THE ELEPHANT SUGAR-CANE IN JAMAICA.

The Elephant-cane, says Mr. Morris in the report of the Botanic Gardens of Jamaica, continues to maintain its preeminence as a rapid grower, with early maturity; but it requires very rich soil, a moist climate, and to be taken off as soon as it is ripe. It "ratons" well the second year, but, like most vigorous growers, it requires to be renewed in the third or fourth year. In favourable localities the Elephant-cane, where it has been tried, throws immense canes, looking almost like clumps of Bamboos; the yield per acre has not, however, been quite equal to the show of canes, but it has yielded at the rate of 2 to 2½ tons of sugar per acre, which is far beyond the average of ordinary canes in Jamaica.



## APPLE CULTURE.

EACH spring reminds me that Apple growers are in want of further information on some points in their trade. It is clear that those who think with me, that it is a risk "to put all their eggs into one basket," would find a list of trustworthy Apples, with the comparative dates about which they come into blossom, a most useful addition to their notebook for the year.

An orchard planted half-and-half with early and late blossomers would be more likely than a haphazard collection of varieties to ensure to its owner a good annual half crop (and this is as much as we want), owing to the certainty in favour of its escaping in part the season of cold spring wind, and the trying effect of morning frosts on wet bloom at setting time.

With this view I have secured the help of a friend in Kent, and if any of your readers will forward to me any notes made during this season, I shall have great pleasure in making known, with your co-operation, the results of our inquiry. I am also anxious to know whether the kind of stock used, Crab or otherwise, has any effect on the period of blossom.

There is not time now to dwell upon such other points as the great absence of practical instruction in the art of pruning, and the absolute necessity of wholesale destruction of the insects which are injurious to fruit; but if all growers would at once take example from neighbours who have set their orchards in order, and comply with the recommendations of Miss Ormerod, the energetic entomologist, who is now attached to the Royal Agricultural Society, depend upon it one year would show a marked advance in the history of the Apple, not only in Herefordshire, but elsewhere. These objects might be worthily taken up by our county agricultural and horticultural societies. *John H. Arkwright, Hampton Court, Leominster.*

## THE PROPAGATOR.

## THE PROPAGATION AND CULTURE OF DRACÆNAS.

IT will not be necessary to recommend the *Dracæna*. In every collection worth the name it holds a prominent place. In it are combined a diversity of beauty; it is graceful in appearance, symmetrical in form, and scarcely surpassed for the many shades and tints of colour in its leaves.

With regard to their propagation, this can be done first from seed. To raise new varieties, two plants, each as distinct from the other as possible, should be taken and fertilised every day while the flowers remain open, the pollen being conveyed from one plant to the other by a small camel's-hair brush. The best time for hybridising purposes is between 12 and 2 o'clock in the day. These plants should be set apart from the others in a part of the house where they will not get syringed. Care must, however, be taken not only to allow them to become dry at the roots, but also to prevent them becoming soddened with water; in both cases it would have an injurious effect upon the seed. As soon as the seed is ripe it should be taken from the pod and sown. Well-drained 48-pots or pans should be filled to within a quarter of an inch from the top with the soil given below, pressing it in firmly, and making the surface level, and after thioly sprinkling the seeds, the remaining quarter of an inch of the pot should be filled up with soil. After levelling the surface of the soil the seeds should be well watered with a fine rose-pot, and placed in a cutting-case or frame upon a good bottom-heat. Here they must be kept sprinkled when becoming dry and shaded from the sun; they should also be ventilated for an hour at night, and in the morning. When the seedlings have grown 1½ inch in height, they should be pricked off one by one into thumb-pots. They must be well watered and placed upon the open bottom-heat, to be sprinkled night and morning with a fine rose pot and shaded from the sun. As soon as the plants are strong and well rooted they can be potted into large 60's, putting a small stick to each plant and tying it only once at the bottom. This will not only support the plant, but will also prevent much injury should it happen to be knocked over in syringing or watering. They must be replaced upon the open bottom-heat, well watering them

beforehand, and keeping them carefully watered afterwards, as well as lightly syringing them beneath the foliage twice a day. They must be protected from the sun and moderately ventilated upon every mild day. When the plants have well rooted through 60-sized pots they can be potted into larger ones as many times as required until they are well developed.

To go back a little: as the seeds do not germinate regularly the seedling should be pricked off when they have grown to the required height, replacing the seed-pot in the case as many times as may be necessary until the whole of the seeds have been raised. It is a fact not generally known, that fertilised seed of one variety, even if saved off the same plant, will often produce a plant of different form, and this accounts for the many new varieties that have been introduced during the last ten years.

## FROM CUTTINGS.

*D. terminalis* and the varieties named at the end hereof.—In the first place the top of the selected plant should be cut off, together with about 2 inches of the main stem, and after the bottom of the cutting has been cut off it should be potted into small 60-pots pressing the soil in firmly. A little sand should be placed at the bottom of the cuttings, where the roots are produced. The cutting should be supported by a stick, to which it should be tied at the bottom, the leaves being also loosely looped up in an erect position. They should be well watered and placed in a cutting case upon a good bottom-heat. It has an injurious effect upon the cuttings to water them overhead, it is therefore much the better plan to take them out of the frame when they are to be watered, which should be done with a spout-pot, and replaced in the frame when this has been done. They should be watered as they become dry, as well as shaded from the sun. For ventilation the lights should be removed for an hour night and morning, but after seven days the lights can be raised an inch without being taken off day or night. When they are well rooted they can be turned out upon the open bottom-heat. In a few days they will have become hardened enough to be potted into large 48's. They should be watered and replaced upon the open bottom-heat until they have grown into well developed plants, and then they can either be potted again, if larger plants are required, or removed to any other warm house, where they be required for decorative purposes.

The plants the tops of which have been taken out for cuttings can be further propagated. They should be cut down to an inch below the bottom leaf, and cut up into pieces 2 inches in length. These pieces should be divided down the centre of the stem in such a way that if, for instance, there are two leaves upon the piece, one may be upon each of the two pieces it is divided into. They can then be potted each into a long thumb-pot, putting a stick to each one, to which the foliage should be loosely tied up. After watering them they can be put in the cutting case, to be treated in the same way as the top cuttings.

There is another way of propagating those plants which have a long stem without any leaves upon it, excepting at the top. The leafless part of the stem should be cut off and split down the centre, and then cut up into lengths an inch long. Some well drained 48-pots should be filled with the cutting soil firmly pressed in and a little sand placed upon the top; when the soil has been levelled twelve or eighteen pieces of stem can be dibbled in, allowing the top of each piece to appear a little above the surface of the soil. After watering them they should be placed in the cutting-case, and there they should be sprinkled as they become dry. When they have rooted and grown into small plants they should be potted off singly into thumb-pots; they can be further potted as required.

*Dracænas* can also be propagated by taking long leafless pieces of the main stem and cutting it into pieces from 6 to 8 or more inches long. These pieces should be laid upon the bottom-heat, and lightly sprinkled over with a little cocoa-nut fibre, but hardly covering them. They will produce a quantity of cuttings which, when they are strong enough, can be taken off and then treated as ordinary cuttings.

Root-cuttings can also be made. Pieces of the tap-roots 1½ inch in length can be put in a pot or pan and covered over with cutting soil, and after they have been in the cutting-case some time they will produce a quantity of cuttings, which should be taken off when they are strong enough, and treated in the same way as those above mentioned. The old

roots should not be thrown away, because they will continue for some time to produce cuttings.

The above-mentioned methods of propagation can be applied to the following varieties:—*D. anerleyensis*, *D. amabilis*, *D. alba nana*, *D. albo-marginata*, *D. Baptistii*, *D. Bausei*, *D. Berkeleyi*, *D. Cheltoni*, *D. Cooperi*, *D. elegantissima*, *D. Elizabethæ*, *D. Ernesti*, *D. Fraseri*, *D. Frederici*, *D. Guilfoylei*, *D. Hendersoni*, *D. hybrida*, *D. ignea*, *D. imperialis*, *D. Laingi*, *D. Leopoldi*, *D. Macarthuri*, *D. Mooreana*, *D. Mrs. Freake*, *D. Mrs. Wills*, *D. nigro-rubra*, *D. Princess Margaret*, *D. Rebecca*, *D. Regina*, *D. Robinsoniana*, *D. robusta*, *D. roseo-picta*, *D. rubra*, *D. Sidneyi*, *D. speciosa*, *D. stricta*, *D. superba*, *D. terminalis alba*, *D. Thomsoni*, *D. Weismanni*, *D. Willsii*, and *D. Ferax*, &c.

With regard to the soil, the following compositions should be used:—1st, for cuttings and seeds: one-half peat, one-quarter loam, and one-quarter sand, and a small quantity of finely broken potsherds. This must be well mixed together and sifted, and rubbed through a 4-inch sieve before it is used. 2d, for the plants the soil should be a mixture of good turfy loam, peat, a small quantity of leaf-mould, some well-decayed cow-manure, a little charcoal in pieces of Walnut size, and a small quantity of river-sand. *T. O.*

(To be continued.)

## PLANTS AND CUT FLOWERS.

It is a remark of most frequent occurrence amongst gardeners, that such large quantities of flowers are required now-a-days compared to what was considered sufficient some few years back as to cause much inconvenience to produce them. This is true in the majority of cases, the prevailing fashion being now so different to what it was in the memory of most of us. In order to be abreast of the times it is necessary to undertake the cultivation of such plants as are best calculated to give the greatest returns in the supply of flowers for cutting. I have in previous papers on plant culture advised the more general cultivation of some genera for this purpose; it is not on cultivation, however, that I wish now to offer a few hints, but on the selection and use of flowers in general.

Having regard to the uses for which plants are now needed, it becomes obvious that the slow-growing hard-wooded plants are in great danger of being discarded from our collections, by reason of the length of time needed to work them up to a useful size. In some cases the unsuitability of a few genera for these purposes is certainly thought to be by some a strong point against them, but there are others that can be advantageously grown to supply cut flowers, and out of the common run of plants grown for that purpose. Take, for instance, the whole family of the *Epacris*, what excellent subjects they are in a cut state, lasting ten days and more in good condition, as well as being capital flowers to travel. These are to be had in flower from October to May with ease.

Many of the Cape Heaths also are of equal value to the *Epacris*. It is not necessary to mention those that are seen in such numbers as *E. hiemalis* and others, but merely to name a few that are well worthy of the same amount of attention, viz.:—*E. Bowiciana*, *E. intermedia*, *E. cerinthoides coronata*, *E. metulæflora*, *E. Siodryana*, *E. mammosa*, and *E. verticillata*; these are all of good free growth, some of which, when in flower, can very well be afforded for cut purposes. There are several of the slower growing types on which several stray shoots can, with advantage to the plant even, be taken off when in flower and be found most useful for small specimen glasses on the table. The *Eriostemons* are also an excellent type of plant for the same purpose, supplying flowers that are always favourites with the ladies. *Boronias*, such as *B. elatior* and *B. megastigma*, will also be sure to be appreciated; these should be treated as we have often advised in the case of *Epacris*, *Adenandra fragrans*, *Aotus gracillimum*, *Dracophyllum gracile*, *Leschenaultia biloba major* (the latter unsurpassed in its colour), *Lagerstroemia indica*, *Pimelea spectabilis*, *Polygalas* in variety, *Statice imbricata*, and *S. profusa*, with *Swainsonia galegaefolia* and its white variety are each and all most useful plants for the supply of cut flowers. It may be urged against some of this genera that we have quoted that they are difficult of cultivation; all we have to say to this is, that the sooner their requirements are understood the better, and no harm will accrue, but the reverse, to those who over-



come their peculiarities, and are thereby enabled to produce a supply of cut flowers out of the common run of things. For some a greenhouse course of treatment is essential all the year round, and those who do not command a cold house cannot be expected to cultivate such things.

Amongst the climbing plants for the greenhouse there are many very useful subjects that are not nearly so often seen as they deserve to be. Take, for instance, the Chorozeas, especially *C. Chandleri*, *C. cordatum splendens*, and *C. Lawrenceanum*, all most profuse bloomers; *Lonicera sempervirens minor*, and *Trachelospermum jasminoides*, *Jasminum grandiflorum* (flowering freely in a temperate-house), with *Sollya Drummondii* and *S. linearis*; these are plants that do not make rank growth, which produces an undue amount of shade, more than greenhouse subjects require.

The Bignonias are best calculated for a lofty conservatory, so also are the climbing varieties of the Acacias. Where the opportunity is afforded of turning out a few plants of *Daphne indica alba* and *D. indica rubra*, far better returns may be expected; sufficient growth will then be made to admit of a good quantity being cut when in flower. Of bulbous plants that are not frequently seen we might quote the *Blandfordias*, the *Nerines* (in choicer varieties), and *Crocus aurea*, all being very useful for cutting.

We have thus far only noted some from amongst the greenhouse plants; there are, however, many occupants of the stove and intermediate-house that may with advantage be added to collections. The *Ixoras* are not half enough grown, the old tale of the mealy-bug is generally the excuse that is urged against them. The *Dipladenias* are also worthy of every attention, and if trained near to the roof will not occupy much room. The *Vincas* and *Rondeletias* are alike excellent, and of easy culture, bearing a liberal amount of cutting before any harm will accrue to the plants. Of tuberous-rooted plants there are *Gesnera Donckelaeri* and *G. Merckii*, *Streptocarpus* in variety, and *Urceolina aurea*, that are each useful in their season. *Hymenocallis macrostephana*, with its *Pancratium*-like flowers, will be more valued as it becomes better known.

Plants in pots of medium size will in most cases be found to give the best returns on the whole; when of excessive dimensions, the labour of moving them about is greatly increased. In the case of plants that are not annually pruned, a considerable amount of foresight need be used not to spoil the plant for another season. *Azalea indica* in its varieties will soon show signs of exhaustion if too severely cut, resulting in a few years in a stumpy, decrepid plant, and a corresponding crippling of the roots. I have not touched upon hardy herbaceous and other plants and bulbs; many of these, we are glad to see, are far more prized than they used to be, affording a great relief to the stock of plants in pots, thus allowing the greater amount of the latter to be so arranged to fit in when outside flowers are not so readily obtainable. If attention, however, can be directed to other sources of supply, so as to give diversity to the arrangements, it certainly should be practised when possible. The days of large specimen plants appear to be numbered in many places in order to give way to smaller and perhaps more useful plants. *J. Hudson.*

(To be continued.)

## FURZE DOWN, SURREY.

THIS fine establishment, the residence of C. Seely, Esq., at present presents a very charming appearance in its spring raiment, and we know of no place in such close proximity to the metropolis that presents a more "countryfied" aspect, or invigorates one more with a visit than this place does. The grounds are tastefully laid out, and the shrubberies are rich in uncommon and beautiful species of shrubs and trees, many of which at this season of the year afford striking contrasts, and none more so than a fine bush of the purple pinnatifid *Acer*, with a background of a fine *Pyrus luxuriant* in bloom. Many other happy combinations could be cited illustrative of the same subject. In a sheltered "cove" *Camellias* were flowering freely, and had every appearance of doing well. The Judas tree (*Cercis siliquastrum*), a tree that with the Elder divides the ignominy (?) of being that on which the arch traitor hung himself, is here

a fine specimen, and this year is literally covered with bloom from the base of the trunk to the top-most twig. A fine specimen of *Crataegus coccinea* is also very full indeed of flower. Perhaps the most charming feature here is the conservatory, which, at the time of our visit, was decorated with an amount of taste, and with as nice a selection of flowering plants as would do credit to any conservatory in the country. Although the arrangement may have been given before, we give it again for the benefit of those who may not have noticed it and have not the chance of a visit. Instead of stiff iron or wood stages being placed "all round and up the middle," a series of beds are here substituted planted with suitable subjects such as lofty Palms, tree Ferns, &c., on the stems of which are hung exceptionally fine pieces of Orchids, and on the beds are arranged "naturally" such things as *Imantophyllum*, *Amaryllis*, *Azaleas*, *Cinerarias*, *Cytisus*, *Primulas*, *Mignonette*, *Marguerites*, &c.—the whole arrangement harmonising most happily and presenting a charming view from the rooms of the mansion. Let into the back wall are three large glass cases for *Feros*, with a water arrangement, which have a very telling effect from the central walk.

We must not neglect to record the fine effect produced by *Berberis tenuifolia*, which is planted all round the base of the mansion and is blooming most profusely, as is also *Cytisus præcox*, a very telling "canary-buff" coloured, free-flowering Broom in the shrubberies. In the houses many meritorious examples of different subjects are to be seen. *Dracæna Laingii*, raised by the respected head gardener here, is a nicely variegated variety and harder than the other varieties that are suitable for table decoration, for which purpose the one in question is admirably suited. A very fine large plant of the graceful Palm, *Kentia gracilis*, is doing well. A large batch of *Anthurium Scherzerianum* is flowering freely. *Platycodon stemmaria* is a good variety of the Elk's-horn Fern.

The Peach-houses and vineries are looking very well just now, especially a house of *Muscats*. The *Roses*, trained up the stay rafters of the *Camellia*-house, are a sight worth seeing, so luxurious are they, and so floriferous. *Stephanotis floribunda* is also fine in one of the stoves. Orchids are well done here, and are mostly used for conservatory decoration; one of the most useful of these is *Dendrobium nobile*, which is here principally grown in 5-inch pots, and makes fine growths and flowers well; the variety known as *D. n. pendulum* is largely grown. Some fine pieces of *Cattleya Mendelii* and *C. Mossiae* are in bloom, also *Cypripedium barbatum*, *C. Hookeri*; *Phalaenopsis* look strong—*P. Luddemanniana* was in bloom. A nice lot of *Aërides*, *Saccolabium*, and *Vandas* are doing well and showing flower freely. A fine plant of *Phaius grandifolius* was just going out of bloom; *Epidendrum odoratissima* and *Dendrobium Parishii* were well in flower, and in a cool-house *Odontoglossum cirrosum*, *O. Alexandræ*, *O. Hallii*, *O. Andersonianum*, *Oncidium serratum*, and *Masdevallia Veitchii* and *M. Harryana*.



## Law Notes.

IS A HOTHOUSE A BUILDING?—At the Lambeth Police Court recently, Mr. E. B. Haynes, nurseryman and florist, of Penge Nursery, Beckenham Road, was summoned at the instance of Mr. G. Elkington, jun., surveyor, of Penge, with regard to the non-payment of a fee of £1, alleged to be due in surveying a hothouse upon the defendant's premises, according to the terms of the section of the Act of Parliament dealing with the erection of a building. The defendant declined to admit the claim, and submitted that the structure in question did not come within the real meaning of the Act.—The complainant said he found the defendant had erected a greenhouse some 22 feet long, and under the section of the Act considered the fee should be paid.—Defendant also urged that florists were not supposed to be liable to such costs where carrying on business as he did.—Mr. Chance said he believed it had been before now decided that a greenhouse was a building within the meaning of the Act.—The defendant said the complainant had made a discovery of the so-called building after it had been placed in position and was being painted, and then he wanted £1 for just looking at it. He (the defendant) had erected thirty-nine structures of a somewhat similar character upon his property, and until now had never

been asked for such a fee. It was not a question as to the amount, which he would willingly give to any charity, but he contested the case on principle, and in the interest of florists.—Mr. Chance said at present he could not see florists would be exempted from the terms of the Act.—Defendant denied that he had "built" the structure in question. It was already "built" when he bought it in Anerley Road, and had it removed by eight or nine men in his employ, and deposited on the ground.—The complainant said the structure was placed upon brick-work, and had it been movable in the ordinary way he might have summoned him for irregularity with regard to building.—Mr. Chance again repeated that he would not decide the case now, but give the defendant every opportunity to bring forward every argument he could.—The defendant said he looked upon it only as a question of principle, and in the interest of florists.—Mr. Chance said the defendant would first of all have to get over the argument as to whether the structure in question was a "building" or not within the meaning of the Act. He (Mr. Chance) considered at present it was, and it he gave a decision upon the facts now before him he should have to decide against the defendant. The proceedings were adjourned.



STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MAY 13, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6TH EDITION.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr. Deducted from Average of 48 years.	In. 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Dew Point.	Degree of Humidity. Sat. = 100.		
May 7	29.54	—0.21	54.5	39.5	15.0	43.7	8.0	39.8	86	In
8	29.77	+0.03	54.5	34.5	20.0	42.7	8.9	36.7	83	S.W. 0.27
9	29.75	0.00	59.6	37.5	22.1	46.8	4.7	39.3	76	S.W. 0.04
10	29.75	+0.01	56.3	41.2	15.1	47.6	3.7	36.4	66	W. S.W. 0.00
11	29.93	+0.19	57.3	36.5	20.8	44.6	6.6	38.7	79	N.W. 0.00
12	29.94	+0.20	58.0	33.0	25.0	45.2	5.9	34.6	67	N.W. 0.00
13	29.65	—0.08	57.0	33.0	24.0	44.2	6.9	35.3	71	E. 0.00
Mean	29.76	+0.02	56.7	36.0	20.7	45.0	6.4	37.3	75	variable 0.31

May 7.—Rain in early morning, dull day, rain from 3 P.M. to 4.30 P.M., showery afterwards.  
8.—Fine bright morning, dull afternoon, fine night.  
9.—Fine day and night.  
10.—Fine day and night.  
11.—Fine bright day and night.  
12.—Fine bright day and night.  
13.—Very fine day and night.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MAY 20, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.				HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6TH EDITION.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr. Deducted from Average of 48 years.	In. 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Dew Point.	Degree of Humidity. Sat. = 100.		
May 14	29.67	—0.07	58.0	36.0	22.0	45.5	5.8	35.5	68	N.W. 0.01
15	29.79	+0.05	60.5	39.5	21.0	48.8	3.4	36.7	63	W.N.W. 0.00
16	29.63	—0.10	61.5	42.0	19.5	50.2	2.1	49.3	66	S.W. 0.12
17	29.56	—0.17	56.5	41.5	15.0	47.1	5.7	39.0	74	W. 0.07
18	29.74	0.00	56.0	39.5	16.5	45.4	7.8	37.9	75	N.W. 0.00
19	29.77	+0.04	58.5	39.5	19.0	47.3	6.3	40.8	79	S.W. 0.00
20	29.30	—0.44	57.8	43.3	14.5	57.8	4.1	56.1	95	S.S.E. 0.13
Mean	29.64	—0.10	58.4	40.2	18.2	48.9	3.8	42.2	79	variable 0.33



May 14.—Fine and bright at times, slight falls of rain.  
 — 15.—Dull morning, fine bright afternoon.  
 — 16.—Fine day, heavy rain from 5.15 P.M. to 5.30 P.M., cloudy night.  
 — 17.—Dull day, showers of rain, thunderstorm in afternoon.  
 — 18.—Fine and bright at times, dull mostly.  
 — 19.—Fine bright morning, dull day and night.  
 — 20.—Slight showers of rain during all day, fine night.

LONDON: *Atmospheric Pressure.*—During the week ending May 16, the reading of the barometer at the level of the sea increased from 29.91 inches at the beginning of the week to 29.94 inches by 1 P.M., decreased to 29.91 inches by 5 P.M. on the 10th, increased to 30.18 inches by 5 P.M. on the 11th, decreased to 29.80 inches by 5 P.M. on the 13th, increased to 29.87 inches by 9 A.M. on the 14th, decreased to 29.84 inches by 1 P.M. on the same day, increased to 30 inches by 9 A.M. on the 15th, decreased to 29.79 inches by 1 P.M. on the 16th, and was 29.81 inches by the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.95 inches, being 0.28 inch higher than last week, and 0.03 inch higher than the average of the week.

*Temperature.*—The highest temperature was 61°.5 on the 16th; the highest on the 10th was 56°.3. The mean of the seven high day temperatures was 58°.4.

The lowest temperature was 33° on the 12th and 13th; on the 16th the lowest temperature was 42°. The mean of the seven low night temperatures was 37°.3.

The greatest range of temperature in one day was 25°, on the 12th; the smallest was 15°.1, on the 10th. The mean of the seven daily ranges was 21°.1.

The mean temperatures were—on the 10th, 47°.6; on the 11th, 44°.6; on the 12th, 45°.2; on the 13th, 44°.2; on the 14th, 45°.5; on the 15th, 48°.8; and on the 16th, 50°.2; and these were all below their averages by 3°.7, 6°.6, 5°.9, 6°.9, 5°.8, 3°.1, and 2°.1 respectively.

The mean temperature of the week was 46°.6, being 0°.2 higher than last week, and 4°.9 lower than the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 121°, on the 14th. The mean of the seven readings was 110°.7.

The lowest reading of a minimum thermometer placed on grass was 23°.2 on the 12th. The mean of the seven readings was 28°.5.

*Rain.*—Rain fell on three days, to the amount 0.17 inch.

Thunderstorm on the 17th.

ENGLAND: *Temperature.*—During the week ending May 16, the highest temperatures were 62° at Truro and Hull, 61°.5 at Blackheath; the highest at Newcastle was 54°, at Bolton 54°.1, at Preston 54°.5. The general mean was 57°.7.

The lowest temperatures were 30° at Hull, 30°.5 at Wolverhampton, 30°.6 at Bolton; the lowest at Liverpool was 38°.8, at Brighton 38°, at Newcastle 37°. The general mean was 37°.5.

The greatest ranges were 32° at Hull, 30° at Truro, 28°.9 at Cambridge; the smallest ranges were 17° at Newcastle, 17°.2 at Liverpool, 20°.5 at Preston. The general mean was 24°.2.

The mean of the seven high day temperatures was highest at Blackheath and Cambridge, 58°.4, at Truro 58°, at Sunderland 50°.4, at Newcastle 51°, at Bolton 51°.8. The general mean was 54°.8.

The mean of the seven low night temperatures was highest at Liverpool, 41°.3, at Truro 41°, at Plymouth 40°.5; and was lowest at Wolverhampton and Hull, 34°.4, at Sheffield 34°.9. The general mean was 37°.5.

The mean daily range was greatest at Cambridge, 23°.1, at Hull 21°.9, at Blackheath 21°.1; and was least at Liverpool, 11°.5, at Newcastle 12°, at Sunderland and Preston 14°.5. The general mean was 37°.3.

The mean temperature was highest at Truro, 47°.8, at Plymouth 47°.4, at Blackheath 46°.6; and was lowest at Sunderland, 41°.4, at Wolverhampton, 42°.7, at Sheffield and Bolton 42°.8. The general mean was 44°.5.

*Rain.*—The largest falls were 1.08 inch at Sheffield, 0.63 inch at Bradford, 0.58 inch at Leeds, the smallest fall was 0.07 inch at Plymouth, 0.08 inch at Truro. No rain fell at Brighton. The general mean fall was 0.31 inch.

SCOTLAND: *Temperature.*—During the week ending May 16, the highest temperature was 58°.8, at Paisley, at Greenock the highest temperature was 54°. The general mean was 55°.6.

The lowest temperature in the week was 30°, at Glasgow; at Paisley the lowest temperature was 34°.9. The general mean was 32°.2.

The mean temperature was highest at Aberdeen and Paisley, 45°.4; and lowest at Dundee, 41°.2. The general mean was 43°.8.

*Rain.*—The largest fall was 1.31 inch at Aberdeen; the smallest fall was 0.35 inch, at Dundee. The general mean fall was 0.64 inch.

JAMES GLAISHER, F.R.S.

## Obituary.

WE regret to announce the death of MRS. EWING, which occurred at Bath on Wednesday last, from blood-poisoning, at the comparatively early age of forty-three. Mrs. Ewing, who was the second daughter of the Rev. Dr. and Mrs. Gatty (the latter authoress of *Parables from Nature*, and editor of *Aunt Judy's Magazine*), will long be remembered as the writer of many delightful tales for girls, notably of "Jan of the Windmill," "A Flat Iron for a Farthing," "Six to Sixteen, &c." Some of her shorter stories are equally charming, as for instance "Jackanapes," "A Brother of Pity," and "Daddy Darwin's Dovecot," the latter a prose idyl. Many of Mrs. Ewing's stories in verse are full of a quaint humour, and descriptive power not often met with in books written for children. Mrs. Ewing was very fond of flowers and of gardening. At the time of her death she had succeeded in establishing the Parkinson Society, intended to aid in the wider distribution of wild flowers and hardy garden plants, as well as to preserve those liable to become exterminated by thoughtless depredators. Mrs. Ewing's "Letters from a Little Garden" were much appreciated in *Aunt Judy's Magazine*, and had unfortunately to be discontinued in consequence of the illness of the writer.

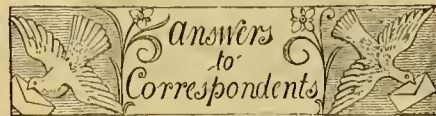
— We also hear of the death of Mr. HUGH HUGHES, who for the past thirty years had been head gardener to Sir Gilbert Greenall, Bart., Walton Hall, Warrington. Mr. Hughes was in the seventy-eighth year of his age, and as he continued his duties until a few days before his death, which took place on the 9th inst., may be said to have died in harness. Walton Hall has long been noted for Pine growing, and, indeed, few establishments can boast of having kept up its high reputation for so many years.

— The death of Mr. EDWIN COOLING, on the morning of Tuesday, May 12, so soon after that of Mr. Charles Turner, removes from our midst another of that generation of florists who made their influence so powerfully felt in their day and generation, and did so much to foster a love for flowers throughout the Midland districts. For the past few years his health had gradually declined, and for some months he had been confined to his room, patiently waiting for the end he knew could not long be delayed. In quietness and peace he died, at the age of seventy-seven years, loved and regretted by his family and a large circle of friends.

Edwin Cooling was born at Beeston Field, Notts, in 1808. He was the son of Abraham Cooling, an enthusiastic florist and gardener of the old school, whose whole life was devoted to his profession, and who died at the ripe age of eighty-nine. A short notice of this fine old gardener appeared in the *Gardeners' Chronicle* at the time. About the year 1838 Edwin Cooling commenced business in Derby as a nurseryman and florist, and soon took a good position and made a reputation as a clever cultivator and a good administrator. He was associated with Mr. E. S. Dodwell and others in the formation of the Midland Horticultural Society, a Society which did much for the advancement of horticulture in the Midland Counties, its spring and summer exhibitions rivalling in interest those held in the metropolis of London. He was an enthusiastic lover of Ferns, and for many years the collection at the Mice Ash Nurseries was one of the most extensive in the trade. A general stock of plants was grown in the nurseries, and it was always to be seen in the best condition. And while a diligent man of business and successful horticulturist, he also took a keen interest in scien-

tific pursuits, and was a member of the British Association for the Advancement of Science, the Royal Geographical, the Royal Horticultural, and kindred Societies. He was for many years a member of the Derby Chamber of Commerce, and many undertakings having for their object the welfare of the town of Derby found in Edwin Cooling an ardent supporter. He was one of the earliest supporters of the Railway Servants' Orphanage, and the welfare of the working classes especially he had deeply at heart. Of him it may truly be said:—

"Life's work well done,  
 Life's race well run,  
 Life's crown well won,  
 Now comes rest."



BEDS, &c.: *Cheshire.* See Carter's Catalogue.

"DICTIONNAIRE DES ROSES." J. E. E. We do not know of any such publication. Do you mean the *Journal des Roses*?

DISEASED GESNERA: A. B. C. A common malady, the result of some bad management.

INSECTS ON VINES: G. T. The very minute, oval, slightly convex, dark chestnut coloured, and very glossy objects found on Vines (whereabouts is not stated), which look like tiny beetles, are a species of bark mite (more oval than the *Acarus geniculatus* figured by "Ruricola" in the *Gardeners' Chronicle*, May 27, 1843). Unless they appear in great numbers they are scarcely injurious; if they do so, they may be got off with a fine brush and Gishurst fluid. W.

LACED POLYANTHUS: J. C. None of them are good enough to be classed with the best named varieties. They are only worth growing as border flowers.

LICHENS, &c.: A. D. W. On large leaf, immature condition of *Strigula Babingtoni*, mixed with young *Capnodium Footii*; on small leaves, the conical condition of some *Capnodium* other than C. Footii. This stage is ordinarily known by the name of *Fumago vagans*. M. C. C.

NAMES OF PLANTS: *Camjee.* *Prunus triloba*, propagated by grafts or layers.—*L. P.* *Passiflora Imperatrice Eugénie*.—*X.* *Rhododendron campylocarpum*.—*C. W. S.* *Fritillaria macrophylla* (see figure in *Gardeners' Chronicle*, June 14, 1884).—*E. C. C. D.* *Corydalis nobilis*.—*C. S. & Co.* *Amelanchier vulgaris* (Savoy Medlar).—*W. W.* *Coronilla Emerus* (figured in *Gardeners' Chronicle*, July 23, 1881).—*C. W.* *Euphorbia amygdaloides*.—*J. Morton.* The bulb is, perhaps, *Hæmanthus Arnottii*, but leaf required; no other specimen was found in your letter.—*C. E. Reade.* 1. *Cupressus Corneyana*; 2. *Thuja nutkaensis*, syn. *Thuopsis borealis*; 3. *Epacris obtusifolia*; 4. *Erica mediterranea*.—*E. C. C. D.* *Lepidium sativum*.—*C. W. Dod.* *Cerastium arvense*.—*W. M. Beale.* *Rhododendron glaucum* and *Andromeda polifolia*.—*P. H.* 1. *Saxifraga crassifolia*; 2. *Trollius europæus*; 3. *Lamium purpureum*; 4. *Daphne pontica*; 5. *Aubretia deltoidea*; 6. *Scilla autans* var. *alba*; 7. *Aloe*, not known.—*Hortus.* *Lælia purpurata*.—*H. B.* *Pholidota pallida*.—*G. H.* *Dendrobium Calceolus*.—*E. R. K.* *Vanda tricolor*, in the way of V. Patersoni.

ORCHID: D. This word is used in the attempt to Anglicise "Orchidaceæ." Orchis is the name of one genus of Orchids; similarly Iris is a genus of Irids, or Iridaceæ. Unhappily perfect symmetry and consistency are unattainable. Lindley endeavoured to persuade botanists to adopt a uniform termination, "aceæ," for all orders, and to adopt a uniform system for English names, but the attempt has been only partially successful.

PORTUGAL LAUREL: X. The disease is only too well known in this shrub, as in Peaches, Plums, Almonds, and other allies of the Portugal Laurel, but no one has yet ascertained the cause, or suggested a remedy. The Rose is the double yellow Banksian, requiring a greenhouse or south wall.

PRIMROSES: W. Cauldwell. A fine lot in form, colour, and substance. Low Moor Beauty is a fine hose-in-hose variety.

SCORCHED VINES: G. C. Probably the glass is in fault.

STEPHANOTIS NOT FLOWERING: Young Gardener. It is at present too early for a planted-out specimen to flower much. You must either restrict the space in which the roots are, or wait some time longer for much bloom. Tie out the shoots thinly, and near the glass, and do not give manures till the plant seems to require them.

TESTIMONIAL: G. M. B. Now that the matter is launched it would be ungracious to discuss it further. Your opinions are shared by a large number of our correspondents.

INTELLIGENT READERS, PLEASE NOTE.—Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and NOT to the Editor.



## CATALOGUES RECEIVED.

JOHN LAMONT & SON, 2, Hope Street, Edinburgh—Single Dahlias, &c.  
WILLIAM FELL & CO., Hexham—Bedding, Alpine, and Herbaceous Plants, &c.

COMMUNICATIONS RECEIVED:—G. M. B.—Dr. Bonavia, Secretary of Edinburgh Botanical Society.—A. D.—J. M.—C. W. D.—J. D.—Linnean Society.—R. C. T.—H. R.—C. B. P.—W. G. D.—A. D. W.—W. N.—C. W. S.—Dr. Sturtevant.—New Plant and Bulb Company.—K. C. B.—W. C.—T. C.—J. R.—C. M. C.—R. M.—Reading Horticultural Society.—Captain King.—B. S. W.—W. I. C.—J. T. F.—Justus Corderoy.—H. G. Rchb.—F. A. N.—F. W. O. (next week).—W. H. F.—J. R. B.—W. S.

## Markets.

## COVENT GARDEN, May 21.

HEAVY supplies still to hand, Strawberries meeting a very bad trade. Good samples of Grapes from the Channel Islands reaching us at steady prices. *James Webber, Wholesale Apple Market.*

## FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 6-5 0	Lemons, per case ..	9 0-15 0
— Nova Scotia and		Melons, each ..	2 6-4 0
Canadian, barrel 12	0-21 0	Peaches, per doz. ..	21 0-0 0
Gooseberries, per		Pine-apples, Eng., lb. 1	0-2 0
½-sieve ..	6 6-7 6	— St. Michael, each 2	6-8 0
Grapes, new, per lb.	3 0-5 0	Strawberries, per lb.	2 0-4 0

## VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Lettuces, Cab., doz.	1 0-0 0
per doz. ..	4 0-6 0	— French Cos, each	0 6-0 0
Asparagus, English,		Mint, green, bunch.	0 4-0 0
per bundle ..	1 6-6 0	Mushrooms, p. basket	1 0-1 6
— French, bundle 2	0-6 0	Onions, per bushel.	6 0-0 0
Beans, Eng., per 100	0-0 0	— Spring, per bun.	0 6-0 0
Beet, per doz. ..	1 0-0 0	Parsley, per bunch.	0 4-0 0
Cabbages, per doz. ..	1 6-2 0	Peas, per quart ..	2 6-0 0
Carrots, per bun.	0 6-0 0	Potatoes, new, per lb.	0 6-1 0
Cauliflowers, Eng.		Radishes, per doz. ..	1 0-2 0
ish, dozen ..	2 0-4 0	Rhubarb, bundle ..	0 6-0 0
Celery, per bundle ..	1 6-2 0	Small saladings, per	
Cucumbers, each ..	0 6-1 0	pucnet ..	0 4-0 0
Endive, per dozen ..	2 0-0 0	Spinach, per bushel	1 6-2 0
Garlic, per lb. ..	0 6-0 0	Tomatoes, per lb. ..	2 0-2 6
Herbs, per bunch ..	0 2-0 4	Turnips, new, bunch	1 3-0 0
Horse radish, bun.	3 0-4 0		

POTATOS.—Old Potatoes 10s. per ton advance. Jersey Kidneys 3d. per lb.

## PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-24 0	Ferns, in variety, per	
Arbor-vitæ (golden),		dozen ..	4 0-18 0
per dozen ..	6 0-18 0	Foliage Plants, vari-	
— (common), dozen	0 12-0 0	ous, each ..	2 0-10 0
Arum Lilies, dozen	0 15-0 0	Fuchsias, per dozen	0 12-0 0
Azaleas, per dozen.	18 0-24 0	Geraniums, 12 pots ..	6 0-0 0
— Ghent, per doz. 12	0-24 0	Hydrangeas, doz. ..	12 0-18 0
Begonias, per doz. ..	6 0-12 0	Lilium auratum, per	
Bouvardia, dozen ..	9 0-18 0	dozen ..	30 0-40 0
Calceolarias, doz. ..	6 0-0 0	— longiflorum, doz 24	0-60 0
Cinerarias, per doz. ..	8 0-12 0	Lily-of-the-Valley, 12	
Cyclamens, per doz. 9	0-24 0	pots ..	12 0-18 0
Cyperus, per dozen	4 0-12 0	Marguerite Daisy,	
Dracæa terminalis,		per dozen ..	8 0-15 0
per dozen ..	30 0-60 0	Musk, per dozen ..	3 0-4 0
— viridis, per doz. 12	0-24 0	Myrtles, per doz. ..	6 0-12 0
Erica, various, doz. 9	0-18 0	Palm in variety,	
— Cavendishii, doz. 30	0-48 0	each ..	2 6-21 0
— ventricosa, doz. 18	0-60 0	Pelargoniums, per	
Eunonym in var. doz.	6 0-18 0	dozen ..	9 0-18 0
Evergreens, in var.,		— scarlet, dozen ..	4 0-9 0
per dozen ..	6 0-24 0	Rhodanthé, per doz.	6 0-8 0
Ficus elastica, each	1 6-7 0	Spiræa, per dozen ..	9 0-18 0

## CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0-4 0	Lilium candidum, 12	
Anemone, 12 bunch.	1 6-4 0	blooms ..	2 0-2 6
Arum Lilies, 12 blms.	3 0-6 0	Marguerites, 12 bun.	3 0-6 0
Azalea, 12 sprays ..	0 6-1 0	Mignonette, 12 bun.	3 0-9 0
Bluebells, 12 bunch.	1 0-1 6	Myosotis, 12 bun. ..	2 0-4 0
Bouvardias, per bun.	1 0-1 6	Narcissus, various,	
Camellias, per doz. ..	1 0-4 0	12 bunches ..	2 0-4 0
Carnations, 12 blms.	1 0-2 0	— French, 12 bun. 15	0-18 0
Cinerarias, per bun.	0 6-1 0	Pelargoniums, per 12	
Cyclamen, 12 blooms	2 0-4 0	sprays ..	0 9-1 0
Eucharis, per doz. ..	4 0-6 0	— scarlet, 12 sprays	4 0-9 0
Euphorbia jacquini-		Primroses, 12 bunch.	0 4-0 0
flora, 12 spr ..	3 0-6 0	Primula, double, bun.	0 9-1 0
Gardenias, 12 blms. ..	1 6-4 0	Rhodanthé, 12 bun.	6 0-9 0
Heliotropes, 12 sp. ..	0 6-1 0	Roses (indoor), doz.	1 0-3 0
Jonquils, 12 bunches	2 0-4 0	— coloured, doz. ..	2 0-4 0
Lapageria, white, 12		— French, per doz. 0	4-6 0
blooms ..	2 0-3 0	Spiræa, 12 bunches.	6 0-12 0
— red, 12 ..		Stephanotis, 12 spr. ..	2 6-4 0
Lilac, 12 bunches ..	4 0-9 0	Tropæolum, 12 bun.	1 0-1 6
Lily of Val., 12 bun. ..	3 0-9 0	Tulips, 12 bunches.	2 0-4 0
Lilium longiflorum		Wallflower, 12 bun. ..	2 0-4 0
12 blooms ..	6 0-8 0	White Jasmine, bun.	0 6-1 0
		Woodroffe, 12 bunch.	3 0-6 0

## SEEDS.

LONDON: May 20.—There was scarcely anything doing on the seed market to-day, extreme quietness being the characterising feature. Stocks all round prove lighter than was supposed, and values for holding over show generally great firmness. There is an increasing inquiry for sowing Mustard and Rape seed; really fine parcels command long prices, and are with difficulty met with. A small demand is still experienced for spring Tares. In neither Mustard nor Rape seed is there this week any quotable variation. Rather less money is taken for feeding Linseed. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

## CORN.

At Mark Lane on Monday trade was dull and depressed, sales of Wheat were extremely difficult to effect, and prices were 1s. to 2s. lower on the week. Flour met an equally dull sale, and was 6d. to 1s. per sack down from the nominal rates of Monday se'night. On similar comparison, Oats and gridding barley were 6d. lower, with very limited sales. There was, however, rather more disposition to buy the former at the reduction. Beans and Peas were quiet and unchanged. American Maize remained at the 6d. reduction noted on Friday, round corn being more depressed.—On Wednesday there was extremely little doing in any description of Wheat, buyers holding off in view of easier prices. Flour remained inactive and drooping in value; Barley was steady, and Beans and Peas were quiet and unchanged. There was a steadier market for Oats, although the business was very limited. Maize was rather firm in all positions.—Average prices of corn for the week ending May 16:—Wheat, 37s. 5d.; Barley, 30s. 8d.; Oats, 22s. 10d. For the corresponding period last year:—Wheat, 37s. 10d.; Barley, 29s. 9d.; Oats, 21s.

## CATTLE.

At the Metropolitan Market on Monday beast supplies were rather less than on the previous Monday, but prices of British-fed stock were not quotably better, and trade slow. Foreign sold rather better. Sheep and lamb supplies were larger than on Monday week. The former sold slowly without quotable change, but a flagging trade; the latter showed decidedly lower prices. On the week calf trade dull, and prices lower. Quotations:—Beasts, 4s. to 4s. 8d., and 4s. 10d. to 5s. 2d.; calves, 3s. 8d. to 5s. 8d.; sheep, 4s. 8d. to 4s. 10d., and 5s. to 5s. 8d.; lambs, 7s. to 7s. 6d.; pigs, 4s. to 4s. 6d.—On Thursday a heavy tone characterised the trade, and prices favoured buyers. About an average supply of beasts met a slow trade at about late rates. As regards sheep, supplies were equal to the demand, which was wanting in animation, prices remaining about the same.

## HAY.

Tuesday's Whitechapel Market report states that best hay met a fair inquiry, but the trade otherwise was dull, especially for Clover and straw. Supplies were large. Quotations:—Clover, prime, 80s. to 105s.; prime second cut, 85s. to 105s.; inferior, 60s. to 75s.; hay, prime, 70s. to 100s.; inferior, 40s. to 60s.; and straw, 26s. to 36s. per load.—On Thursday there was a rather large supply on sale. The trade was dull at Tuesday's rates.—Cumberland Market quotations:—Clover, best, 85s. to 105s. 6d.; other quality, 60s. to 84s.; hay, best, 84s. to 92s. 6d.; other qualities, 45s. to 75s.; and straw, 30s. to 34s. per load.

## POTATOS.

The Borough Market report states that for best samples there was a steady demand, but the general trade was dull. Quotations:—Scotch Regents, 80s. to 95s.; Kent ditto, 70s. to 85s.; Champions, 40s. to 50s.; Magnum Bonum, 50s. to 60s.; and Victorias, 70s. to 90s. per ton.—The imports into London last week consisted of 4310 packages, 400 half boxes, and 14 boxes from Hamburg, and 205 bags from Harlingen.

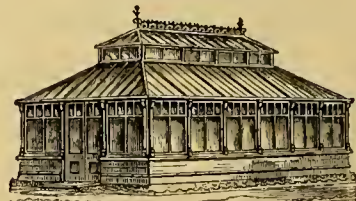
## COALS.

The following are the prices current at market during the week:—Ravensworth West Hartley, 14s. 9d.; East Wylam, 15s. 6d.; Walls End—Tyne (unscreened), 11s. 3d.; Hetton, 16s.; Hetton Lyons, 14s. 6d.; Lambton, 15s. 6d.; Wear, 14s. 6d.; Chilton Tees, 14s. 9d.; East Caradoc, 16s.; East Hartlepool, 15s. 3d.; South Hartlepool, 14s. 9d.; Tees, 16s.

Government Stock.—Consols closed on Monday at 99½ to 99¾ for delivery, and 99½ to 99¾ for the account. Tuesday's prices were 99½ to 99¾ for both delivery and the account. The final figures of Wednesday were 99½ to 99¾ for both transactions. Thursday's closing quotations were 99 to 99½ for both delivery and the account.

## Variorum.

A SPARROW'S NEST.—I think the accompanying interesting fact in natural history deserves a record:—The time of day is announced to the garrison and neighbourhood of Woolwich every day at 1 P.M. and at 9.30 P.M. by firing a blank charge of powder from a 9-pounder bronze gun. This gun is mounted, in the Gun Park, on a wooden travelling carriage, which is fitted with two axle-tree boxes, each about 1 foot square by 6 inches deep, with the inside divided into several compartments. This box is designed to carry case-shot and cartridges with the gun in action. The carriage is an old one, and the right axle-tree box has a small hole in one of its sides. Some days ago the gunner on firing the 1 o'clock gun observed a sparrow flying out of this hole, and an examination of the box showed that it contained, instead of case-shot, a sparrow's nest with five eggs. The box was carefully padlocked, so as to guard the nest from inquisitive boys, but the gun was fired twice a day as usual; and on the morning of Saturday, May 16, five little sparrows made their appearance, and are doing well. *W. H. Noble, Lieut.-Colonel R.A., Gun Park, Woolwich, May 16, in the "Times."*

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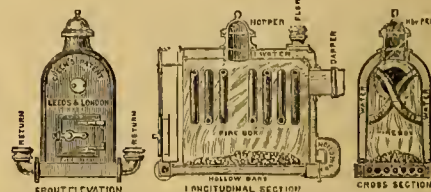
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The *Journal of Horticulture* of June 9 says:—"HEATING APPARATUS.—A great number of boilers, valves, &c., were exhibited by eight competitors, and considerable interest was manifested in the verdict of the judges, and much discussion was brought to bear on the merits and shortcomings of the different boilers. The apparatus for which the Silver Medal was awarded was a wrought-iron saddle boiler, with a series of intersecting tubes, somewhat in the form of a letter X, but the tubes in open form, in the crown of the boiler. Most gardeners who examined the boiler expressed a favourable opinion of it. It is no doubt a quick and powerful boiler without being complex, the latter condition having, no doubt, had weight with the judges."

The *Garden* of June 11 says:—"The premier prize, a Silver Medal, was taken by Messrs. Green & Son for their new patent tubular saddle boiler. It is a modification of their original patent, the boiler being longer and not so high. It is found to be a powerful and efficient boiler, and heats a large quantity of water quickly with a small consumption of fuel."

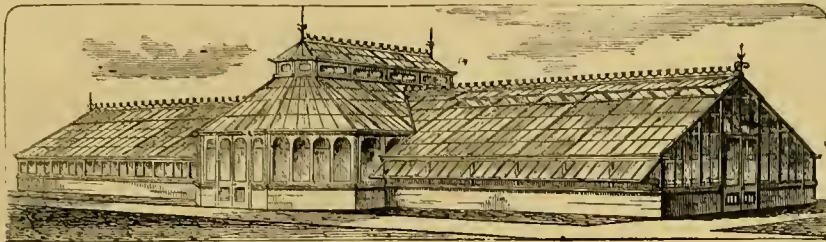
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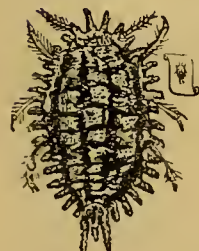
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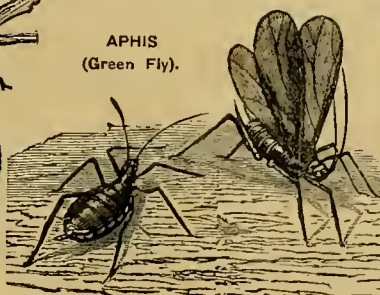
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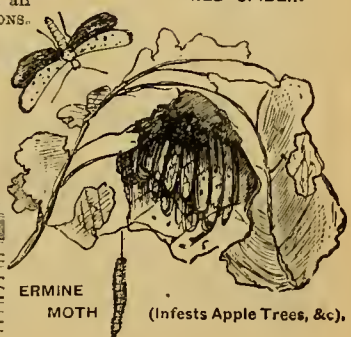
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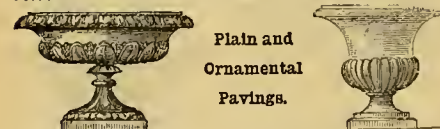
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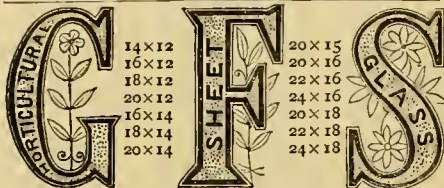
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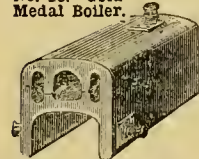
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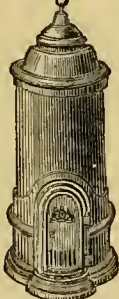
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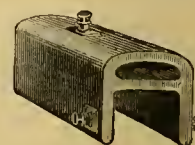
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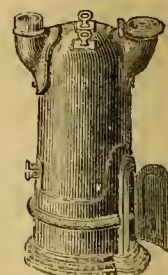
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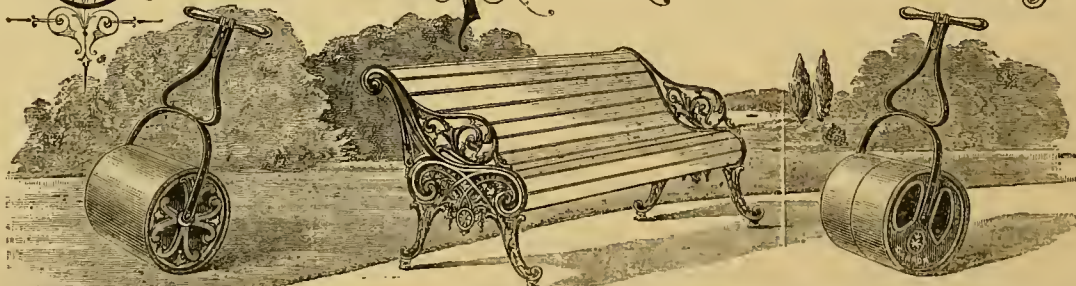
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No. 596.—VOL. XXIII. { NEW SERIES. }

SATURDAY, MAY 30, 1885.

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**J. TOWNSEND BOSCAWEN, Oxford and Cambridge Club, Pall Mall, London, S.W.**

## RICHMOND HORTICULTURAL SOCIETY.

The ELEVENTH ANNUAL SUMMER EXHIBITION will be held in the Old Deer Park, Richmond, Surrey, on WEDNESDAY, June 24. Prizes, amounting to TEN GUINEAS, are offered for Dinner Table completely laid out for ten persons.

**NOTICE TO CHRYSANTHEMUM GROWERS.**—The CHRYSANTHEMUM SHOW will be held on MON. & TUE. 25th & 26th inst. Ex. entrance large. Prizes are offered, including TWENTY POUNDS for 48 distinct, 24 Japanese, and 24 Incurved. Schedules for both Shows may be had on application to

22, George Street, Richmond. J. H. FORD, Hoo. Sec.

## LEEDS FLOWER SHOW, Horticultural Gardens, JUNE 24, 25, and 26. Schedules of Prizes on application to

15, Briggate, Leeds. J. H. CLARK, Sec.

## COLCHESTER and EAST ESSEX HORTICULTURAL SOCIETY.

EXHIBITIONS will be held at the New Corn Exchange, Colchester, on TUESDAY, June 30; and a CHRYSANTHEMUM SHOW on THURSDAY and FRIDAY, November 19 and 20. Particulars of

5, Head Street, Colchester. Mr. J. C. QUILTER, Sec.

## SAFFRON WALDEN and NORTH ESSEX HORTICULTURAL SOCIETY.

At the SUMMER SHOW, on JULY 15, Six Open Prizes offered for COLLECTIONS of FRUIT or VEGETABLES. Particulars of

Saffron Walden. To Nurserymen, Seedsmen, and Florists.

**DUTCH BULBS**—Season 1885.

**WHY** pay freight from Holland to London on Dutch Bulbs, when you can buy at a cheaper rate the same quality and get them brought over free by ordering from LEWIS ISAACS, WHOLESALE IMPORTER OF DUTCH BULBS, at 3, Victoria Warehouse, Mansell Street, Aldgate, E.C. Established since 1856. Wholesale Catalogue sent post-free on application. An immense stock of all kinds of Bulbs is kept at the above address from August up to the end of Dec. in each year.

**SUTTON'S PRIZE LAWN GRASS SEEDS.** DIPLOME D'HONNEUR, AMSTERDAM, 1883.

**SUTTON'S PRIZE LAWN GRASS SEEDS.** Special Gold Medal, Melbourne, 1880.

**SUTTON'S PRIZE LAWN GRASS SEEDS.** Prize Medal, Paris, 1878.

**SUTTON'S PAMPHLET ON LAWNS,** their Formation and Improvement, gratis and post-free.

**SUTTON AND SONS, SEEDSMEN,** by Royal Warrants, to H.M. the Queen, and H.R.H. the Prince of Wales, Reading.

**THE ROYAL NORFOLK NURSERIES COMPANY** (late Ewing's), Eaton, near Norwich, can supply fine Plants of MARECHAL NIEL, and best varieties of TEA and NOISETTES, CLEMATIS JACKMANNI, and others, 12s., 18s., and 24s. per dozen.

**Panicles—Dahlias—Phlox.**

**R. B. LAIRD AND SON'S Descriptive** Priced LIST of their Celebrated Collection of Florist's Flowers is now issued, and may be had free on application, Royal Winter Garden, Edinburgh.

**Now Ready.** TEA and NOISETTES ROSES, of best sorts only, in great quantity, and of best possible quality. Priced CATALOGUES gratis. A sample dozen (sorts left to ourselves), carefully packed for travelling, will be put on Railway on receipt of 12s. 6d.

**EWING AND CO.,** Sea View Nurseries, Havant, Hants (late of Eaton, near Norwich).

**PALMS.**—Specially hardy grown, for Cool Greenhouses and Dwelling-houses. Latania borbonica and Seafortia elegans, splendidly foliaged, 20 inches high, 12s. per dozen; sample plants, 12s. 6d. Same kinds, 12 inches high, 25s. per 100; sample twelve for 4s. All packages and parcels post-free.

**Postal Orders to** GARDENER, Holly Lodge, Stamford Hill, London, N.

**JOHN LAING AND CO.** BEGONIA ROOTS.

Collections, unnamed, our selection.—Singles: G, 25s.; H, 18s.; J, 15s.; K, 12s.; L, 10s. per dozen. Doubles: J, 30s.; K, 24s.; L, 18s. per dozen. Singles, for Bedding, 4s. and 6s. per dozen—all free by Parcel Post. The immense demand has much reduced our saleable roots of named varieties for the present.

**ALPINE and SUB-ALPINE PLANTS.** Apply to Dr. F. E. WEISS, Munich, Bavaria.

**Now in Full Bloom.**

**BEGONIAS.**—Gold Medal Prize Plants, presenting an unrivalled floral display. Visitors are cordially invited. Frequent trains from the City and from the West End to Catford and Forest Hill Stations.

**LAING AND CO., Nurseries, Forest Hill, S.E.**

**BEDDING PLANTS.**—Extra strong GERANIUMS—Scarlet, Silver-leaf, White, Salmon, Pink, Golden Harry Hieover, Crystal Palace Gem, each, 8s. per 100. CALCEOLARIA, Golden Gem, 5s. per 100. LOBELIA, Emperor William, &c., 3s. 6d. per 100. AGERATUM, 5s. per 100. Package free. Terms Cash.

**B. K. DAVIS, Yeovil Nurseries, Yeovil.**

**To the Trade.**

**SWEDS and other TURNIP SEEDS.**

**H. AND F. SHARPE** invite the attention of the Trade to their fine selected Stocks of home-grown SWEDS and other TURNIP SEEDS of 1884 growth, and raised from transplanted Bulbs. Prices and further particulars may be had on application.

**Seed Growing Establishment, Wisbech.**

**WISE and RIDES, Covent Garden, W.C.,** are open to RECEIVE CONSIGNMENTS of Choice FRUIT and FLOWERS.

**SQUELCH and BARNHAM,** Loag Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatos, Cucumbers, choice Flowers, &c.

**SQUELCH and BARNHAM,** giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

**SQUELCH and BARNHAM.** ACCOUNT SALES sent daily, and CHEQUES forwarded weekly.

**BANKERS and TRADE REFERENCES.** BASKETS and LABELS supplied.

**WANTED, 200 BOUVARDIAS** of sorts, 200 ADIANTUM CUNEATUM, and 300 Cuttings best winter blooming Zonal GERANIUMS. State lowest price to

Mr. THOS. WOOD, Rudgeway House Nursery, East-ville, Bristol.

**WANTED, Tall PALMS,** in good condition, such as Areca lutea-scens, Seafortias, Kentias, &c.; also Aspidistra variegata. Quote sizes and cash price to

FRANCIS R. KINGHORN, Nurseryman, Richmond, Surrey.

**CARTER'S VICTORIA PRIZE CALCEOLARIA.**—Best evidence of superiority. Awarded: First Prize, open to England, 1883; Banksian Medal, Royal Hort. Soc., 1883; Large Bronze Medal, Royal Bot. Soc., 1883; Bronze Medal, Royal Bot. Soc., 1884. The Extra Prize, Crystal Palace, 1884. Price, in Sealed Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s., Post-free.

**CARTER'S BRILLIANT PRIZE CINERARIA.**—Best evidence of superiority. Awarded: Two Large Bronze Medals, Royal Bot. Soc.; Two Banksian Medals, Royal Hort. Soc.; Silver Medal, Royal Bot. Soc., 1883; Banksian Medal, Royal Hort. Soc., 1883; Two Extra Prizes, Price, in Sealed Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s., Post-free.

**CARTER'S HOLBORN PRIZE PRIMULA.**—Best evidence of superiority. Awarded: First Prize, open to England, 1884; Banksian Medal, Royal Hort. Soc., 1883. Price, in Sealed Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s., Post-free.

**CARTER'S SEEDSMEN** by Royal Warrant to H.R.H. the Prince of Wales, 237 and 238, High Holborn, London, W.C.

**General Roberts.**

**NEW SINGLE FUCHSIA.**—A splendid dark variety, blooms 4 inches in length, borne in large clusters. Strong plants in 5-inch pots, 2s. 6d. each, 24s. per dozen. Also HARDY AQUATIC PLANTS.

**J. YANDER REES, Exotic Nursery, Tooting.**

**BRITISH and HARDY EXOTIC FERNS.**—Twenty-five distinct and good kinds offered, in strong well-selected plants, for 12s. 6d. Names on application.

**HUSSEY and SON, Mile End Nursery, Norwich.**

**CARNATIONS.**—Strong Seedlings, from a splendid Collection of Choice Named Flowers. All to bloom this year. Per dozen, 2s. 6d.; per 100, 15s.

**DANIELS BROS., Town Close Nurseries, Norwich.**

**GLADIOLI, PYRETHRUMS, and DAHLIAS,** the largest collections in Europe. CATALOGUES gratis.—KELWAY and SON, Langport, Somerset.

**"YE NARCISSUS or DAFFODIL,"** containing its History, Poetry, and Culture, with Notes on Hybridisation, and Illustrated with many Woodcuts. Price 1s. BARR and SON, King Street, Covent Garden, W.C.

**HOLLYHOCKS.**—A full Collection of fine named Hollyhocks, in good Plants. Also choice Collections of all FLORISTS' FLOWERS.

**CATALOGUE on application.** JOHN FORBES, Nurseryman, Hawick, N.B.

**GERANIUMS, 3000 Tricolor—Mrs. Pollock, 25s. per 100; Flambeau, 30s. per 100—one of the best for bedding out. Good strong plants in 3½-inch pots.**

**Messrs. TURNER BROS., Nurserymen and Florists, Green Hill Nursery, Allerton, Liverpool.**

**PRIMULA, Double White (sinensis),** strong plants, in 3-inch pots, ready for potting out, 50s. p. 100. Packing free. Cash with order from unknown correspondents.

**TURNER BROS., Nurserymen and Florists, Green Hill Nursery, Allerton, Liverpool.**

**Carnations, Picotees, Cloves, &c.** CHARLES TURNER has still a fine stock of the above to plant out for blooming this season.

**The Royal Nurseries, Slough.**

**HERBACEOUS and ALPINE PLANTS.**—Now is the season to plant and insure success. Write for R. H. VERTEGANS' Pocket CATALOGUE, and make your choice from his unrivalled Collection.

**Chad Valley Nurseries, Edgbaston, Birmingham.**

**CALANTHE DISCOLOR.**—Sepals rich brownish-claret, labellum white, suffused with rose. A charming hardy species. Good flowering buds, just received, 1s. each, three for 2s. 6d., twelve for 8s. Price per 100 on application.

**HOOPER and CO., Covent Garden, W.C.**

**GILBERT'S PRIMROSE HARBINGER** has won the heart of the R.H.S. Floral Committee, beat all the Critics, and solved the great problem at last. More valuable for cutting than White Azaleas. Pure white, very large flowers; no myth, but a Sampson in strength. Firm young off-shoots, well-rooted, 5s. per dozen. Cash with order. Carriage paid. Apply to

R. GILBERT, High Park Gardens, Stamford.

**Grand New Yellow Hybrid Perpetual Rose.** LOIRE LYONNAISE, very strong, clean, and healthy plants of the above novelty, 20s. per dozen.

**LADY MARY FITZWILLIAM, NIPHETOS, MADAME CUSIN, &c., 15s. per dozen.**

Cash with order from unknown correspondents.

**JOHN HOUSE, Eastgate Nurseries, Peterborough.**

**PRIMULAS.—PRIMULAS.—PRIMULAS.** Sixteenth year of distribution.

**WILLIAMS' SUPERB STRAIN, 1s. 6d. per doz., 10s. per 100.** CINERARIAS same price. Package and carriage free for cash with order. Above are strong, and fit for potting into 3-inch pots.

**JOHN STEVENS, The Nurseries, Coventry.**

**ASPARAGUS.**—True Giant, 2, 3, and 4-yr. Price sample 100 or 1000, with price, on application.

**JAMES BIRD, Nurseryman, Downham.**



## SALES BY AUCTION.

Thursday Next. (Sale No. 6919.)

VERY VALUABLE IMPORTATIONS.

**MR. J. C. STEVENS** will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on THURSDAY NEXT, June 4, at half-past 12 o'clock precisely, a grand importation of the magnificent *DENDROBIUM CAMBRIDGEANUM*, fine lots of *DENDROBIUM LITIFLORUM*, *FREEMANII*, *JAMESIANUM*, *HETEROCARPUM*, and *NOBILE*; also many *CATLEVAS* and *MEXICAN ORCHIDS*, the new and rare *ANGRECEUM CAUDATUM*, and *ANGRECEUMS* from Africa.

On view morning of Sale, and Catalogues had.

Thursday Next. (Sale No. 6919.)

MASDEVALLIAS IN FLOWER.

**MR. J. C. STEVENS** will include in his SALE by AUCTION at his great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 4, a few choice *MASDEVALLIAS* and other *ORCHIDS* IN FLOWER, including a fine plant of *M. militaris purpurea*, with ten spikes, &c.

On view morning of Sale, and Catalogues had.

Orchids in flower.

**MR. J. C. STEVENS** begs to announce that his NEXT SALE OF ORCHIDS in flower will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 10, and he will be glad if gentlemen desirous of entering plants for this Sale will please send particulars of same not later than THURSDAY NEXT.

New and Valuable Orchids.

**MR. J. C. STEVENS** has received instructions to SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., EARLY IN JUNE, a magnificent COLLECTION of NEW and RARE ORCHIDS, brought home by Mr. Leon Humbolt. Amongst others will be found:—

*ANGRECEUM FUSCATUM*, Rehb. f.  
*ANGRECEUM ROSTELLARIA*, new sp.  
*ANGRECEUM LEONI*, new sp.  
*ANGRECEUM FLORULENTUM*, new sp.  
*EULOPHIA MEGISTOPHYLLA*, new sp.  
*LISSECHILUS GHYLTES*.  
*VANILLA HUMBLIOTII*, new sp.  
*POGONIA BARKLYANA*, &c.

Professor Reichenbach's descriptions of above will appear in Catalogue. The plants are in grand condition. Further particulars in next Advertisement.

Tuesday Next.

FLOWERING ORCHIDS.—SPECIAL SALE.

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, June 2, at half-past 12 o'clock precisely, about 300 lots of ORCHIDS IN FLOWER, from various well known collections in the country. Amongst them will be found *Cypripedium Stenoi*, fine plants; *Cattleya Mossiae* and *Mendeli*, superb varieties; *Oncidium Weltoni*, extra fine plant; *O. macranthum*, *O. curtum*, *Thunia Marshalliae*, grand specimen; *Cattleya Schroederiana*, true; *C. gigas Sanderiana*, *Masdevallia amabilis lineata*, dark crimson variety; *M. Chelsoni*, *M. ignea*, *Stobartiana* and *Masaganea*, *M. Harryana*, *Bull's-blood*, with 30 and 9 flowers respectively; *M. Harryana Walkeriana*, an equally fine plant; *Odontoglossum Phalaenopsis*, 20 flowers; *Coleogyne cristata alba*, true; *Dendrobium tortile roseum*, *Odontoglossum Alexandrae* and *Pescatorei*, some specially fine varieties; *Acriodes Leonia*, with 13 leaves, &c.

On view morning of Sale, and Catalogues had.

Friday Next.

*ONCIDIUM JONESIANUM*, gathered in flower, and guaranteed true.

*ONCIDIUM MARSHALLIANUM*, the largest pieces ever imported.

*LÆLIA ELEGANS*, grand pieces, and well-leaved. And other New and Rare PLANTS, all in superb condition.

**MESSRS. PROTHEROE AND MORRIS** are favoured with instructions from Messrs. Fred. Horsman & Co. to SELL the above valuable importations by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, June 5, at half-past 12 o'clock precisely. For full particulars, see Catalogue.

On view morning of Sale, and Catalogues had.

Stoke Park, near Slough, Bucks.

THE VALUABLE COLLECTION OF PALMS, CAMELLIAS, LAURELS, &c., formed by E. J. Coleman, Esq.

**MESSRS. NORMAN AND SON** are directed to SELL, after the disposal of the contents of the mansion, on WEDNESDAY, June 10, the above COLLECTION of PALMS, including *Corypha australis*, *Scaevola elegans*, *Lantana borbonica*, *Chamaerops humilis*, *Phoenix reclinata*, &c.; valuable CAMELLIAS and other PLANTS more particularly described in the Catalogue.

On view, with orders to be obtained only from the Auctioneers, Uxbridge, Middlesex.

## D I A L O G U E.

1st Orchidophilist *loquitur*.—"Have you heard the late news?"  
 2d Ditto.—"No. What?"  
 1st Ditto.—"Oh! the finest White Mossiae ever seen are coming over! Created quite a sensation at Caracas."  
 2d Ditto.—"Well they can't beat last year's fine pieces."  
 1st Ditto.—"They do. The Colchester people say, their flowers are larger and grander, and their plants are huge."  
 2d Ditto.—"Don't you believe all you hear? SEEING IS BELIEVING."  
 1st Ditto.—"TRUE: AND WE ARE TO SEE THESE AT STEVENS' SHORTLY. I SHALL BE THERE."

To Nurserymen, Florists, Seedsmen, and others.

**FOR DISPOSAL, the HOLYBOURNE VINERIES**, an eligible going concern, comprising Lease, Goodwill, Stock-in-Trade, and Plant of the above established Florist, Fruiterer, and Seedsmen's business, situated within 1 mile from Alton Town and Railway Station. The above comprises a detached span-roof Greenhouse, 84 feet x 50 feet, containing 120 healthy bearing Vines, and fitted with heating appliances, with soft-water tank attached holding 17,000 gallons, Forcing House, Ground Vinery, Lean-to Greenhouse, Potting Sheds, Stores, good Garden, and large Yard. The House contains Shop, Office, two Sitting-rooms, Kitchen, five Bed-rooms, and Attics. The whole at a nominal rental. For orders to view and further particulars, apply to Messrs. WILLIAMS AND YOUNG, Auctioneers and Estate Agents, Alton, Hants.

To Nurserymen, Landscapes Gardeners, Florists, and SEEDSMEN.

**FOR SALE, an OLD ESTABLISHED BUSINESS**, in one of the best suburbs of Birmingham, owing to a very serious accident to the present proprietor. The Nursery contains about 2½ Acres, and is well stocked with Shrubs, Trees, and Herbaceous Plants, and Four Glass Houses, Seed Warehouse, Frames, &c., together with a stall in Market Hall. The above is thoroughly genuine, and will be sold as a going concern. Possession can be had at once. Price £750. Full particulars from FLEETWOOD and GOODEVE, Auctioneers and Valuers, 42, Cherra Street, Birmingham.

**NURSERY FOR SALE.** Five Houses, new and well stocked. Only 5 miles from City. Doing a good London and home trade. Rent £50. Lease twenty years unexpired. Sufficient ground for several more erections. Ill-health the cause of leaving.  
 Address A. H., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

To Gentleman, Gardeners, Florists, and Others.  
**TO BE DISPOSED OF, a genuine SEED, FLORIST, and JOBBING BUSINESS**, in a good neighbourhood; main Road. Rent £24, with long lease.  
 Address, C., *Gardeners' Chronicle* Office 41, Wellington Street, Strand, W.C.

Warminster. (Fo. 6137.)

**TO BE LET or SOLD, with Possession, THE HOME NURSERY**, late in the occupation of Mr. George Wheeler, comprising about 2½ Acres, walled in, with Detached Residence, Seed Shop, Coach-houses, Stabling, Sheds, 11 Greenhouses, Ranges of Pits, &c.  
 Particulars had of PROTHEROE and MORRIS, 67 and 68, Cheapside, London, E.C.

**T. HARKHAM, PRACTICAL ROCK BUILDER,** and GENERAL HORTICULTURAL DECORATOR for Caves, Waterfalls, Fountains, &c., 107, Church Street, Edgware Road, London, W.

**TO Landed Proprietors, &c. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS. Plans prepared. 115, Listeria Park, Stamford Hill, N.

**JOHN KENNARD'S HORTICULTURAL** Sundries, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

## CHEAP BEDDING PLANTS.

Reduced prices, to clear out.  
**GERANIUMS**, strong autumn-struck plants.  
 " Vesuvius (scarlet), Jean Sisley, Dazzler (crimson), Master Christine, Madame Vaucher, Happy Thought, 1s. 6d. per dozen, 10s. per 100, from single pots.  
**LOBELIA** (true), from cuttings, "Emperor William," 2s. per 100, 15s. per 1000.  
**DAHLIAS**, Single, named sorts, of all shades of brilliant colours, including White Queen and Paragon, 2s. per dozen, 15s. per 100, from single pots.  
 " Double, best named show varieties, 2s. 6d. per dozen, 18s. per 100, from pots.  
**CHRYSANTHEMUMS**, selection of finest named show varieties, strong, and well-grown, 2s. per dozen, 15s. per 100, from single pots.  
 Package free. Plants allowed for carriage. Terms cash. CATALOGUE gratis.  
 H. I. HARDY, Stour Valley Florist Grounds, Bures, Suffolk.

## BULBS TO BE SOLD

at low prices:—  
 Double White NARCISSUS, Pheasant's Eye NARCISSUS, and DAFFODILS. A large Assortment of these superior Bulbs are offered to the Trade for the Season 1885. Apply to W. A. PARKER, East Sheen, Surrey.

**FOR SALE, a Collection of STOVE PLANTS and FERNS** in good condition. For particulars, apply to Mr. J. WHITE, Gardener, Cowbridge House, Malmesbury.

## GIANT DOUBLE WALLFLOWER.

Assortment of 12 fine varieties, containing each 100 seeds.—Tall varieties, splendid mixed, 1000 seeds, 1s. per pkt. 6d. & 3d. Dwarf " " 1000 seeds 1s. 6d., per pkt. 6d. & 3d. See report in the *Gardeners' Chronicle*, June 9, 1883, p. 723. CATALOGUE forwarded, post-free, on application.  
 FRED. ROEMER, Seed Grower, Quedlinburg, Germany.

## EIGHTY THOUSAND CLEMATIS in

Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.  
 RICHARD SMITH AND CO., Nurserymen and Seed Merchants, Worcester.

Grand New Fuchsia.

**GENERAL GORDON.**—The largest single Fuchsia known, good habit, free bloomer and grower, extra large blooms; corolla plum, veined scarlet; sepals and tube scarlet.  
 "The Fuchsia sent was a large single variety, without any coarseness. The corolla of a rich purple with scarlet lines on the upper portion, sepals bright red and much reflexed."—*Gardeners' Chronicle*, May 23, 1885.  
 Plants, 2s. 6d. and 3s. 6d. each, by post 6d. extra.  
 ROBT. OWEN, Floral Nurseries, Maidenhead.

**HARDY BRITISH FERNS.**—Asplenium maritimum. Ceterach crenatum, viride; Trichomanes, Lastrea æmula, Thelypteris rigida, Colina, Oreopteris dilatata, erosa; Athyrium lobatum, Parsley, Polypodium semilacrum, calcarum; Oak, Beech; Cystopteris dentata, Scolopendrium boreale. 1s. 6d.; 20 large rockery rocks, 2s. 6d.; 50, 5s. 6d.; 100, 10s.; botanically named, carriage paid.  
 JAMES BELL, 6 and 15, Stramontgate, Kendal.

**PELARGONIUMS**, best Regal and Market sorts, fine plants coming into bloom, in 4½ and 5 inch pots, 40s. per 100. Strong FUCHSIAS, coming into bloom, 20s. per 100.  
 W. JACKSON, Blakedown, Kidderminster.

Oncidium Jonesianum.

**MONS. LOUIS DE SAINT LÉGERE**, the introducer of the beautiful ORCHID, *ONCIDIUM JONESIANUM*, has the honour to inform Amateurs and Nurserymen that he comes to England to resign to Messrs. F. HORSMAN AND CO., NURSERYMEN, Colchester, all the disposable stock. It is the only and sole depositary of this beautiful plant, found in 1878, on a voyage which he made to the province of Mato Grosso, Brazil, in the high forests bordering upon the Rio Paraguay. In these elevated parts the thermometer descends several times a year to zero.

As this Orchid is very difficult to meet with, it growing on a peculiar tree, it is necessary for Amateurs and Nurserymen who are desirous to enrich their collections, to direct their requests to Messrs. FRED. HORSMAN AND CO., for the stock of this plant is in their hands.

LOUIS DE SAINT LÉGERE, Desterro, Santa Catharina.—April 24, 1885.

American Plants.

**ANTHONY WATERER** begs to announce that the AMERICAN PLANTS at Knap Hill will be in their greatest beauty during the first fortnight in June, and will afford unquestionably the finest display of its kind that can be seen in any Nursery in the World. May be seen daily, Sundays excepted.

The large Standard and other Rhododendrons and Azaleas in Rotten Row, Hyde Park, are supplied by Anthony Waterer. The Exhibit of the American Plants in the Royal Botanic Gardens, Regent's Park, will be an new view daily throughout June. Admission by order of Fellows of the Society, or from the Exhibitor.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

## BEDDING PLANTS.

of A 1 quality and strength.  
**GERANIUMS**, Mrs. Pollock, Glen Eyre Beauty, and Italia Unita, 2s. per dozen, 16s. per 100.  
 " Bronze, McMahon and Black Douglas, 2s. per dozen, 14s. per 100.  
 " Beauty of Calderdale, 2s. per dozen, 12s. per 100.  
 " Crystal Palace Gem, 1s. 6d. per dozen, 10s. per 100.  
 " Creed's Seedling, 1s. 6d. per dozen, 10s. per 100.  
 " Silver Bijou and Miss Kingsbury, 1s. 6d. p. doz., 10s. p. 100.  
 " Doubles, in variety, 1s. 6d. per dozen, 10s. per 100.  
 " Vesuvius and variety, 1s. 6d. per dozen, 8s. per 100.  
 " Happy Thought, 1s. 6d. per dozen, 10s. per 100.  
**LOBELIA**, Brighton Gem, the best, 9d. per dozen, 4s. per 100, 30s. per 1000.  
 " Blue Stone and compacta multiflora, 6d. per dozen, 7s. 6d. per 100, 20s. per 1000.  
**GOLDEN FEATHER**, 6d. per dozen, 2s. 6d. per 100, 20s. per 1000.  
**COLEUS**, Verschaffelt, 1s. per dozen, 6s. per 100, 50s. p. 1000.  
**HELIOTROPE**, light and dark, 1s. per dozen, 6s. per 100, 50s. per 1000.  
**AGERATUM**, Cannell's dwarf, 1s. per dozen, 5s. per 100, 40s. per 1000.  
**CALCEOLARIAS**, Golden Gem and dark, 1s. per dozen, 5s. per 100, 40s. per 1000.  
**IRELINE**, Linden and Herbstii, 1s. per dozen, 6s. per 100, 50s. per 1000.  
**CERASTIUM TOMENTOSUM**, 1s. per dozen, 6s. per 100, 50s. per 1000.  
**MENTHA GIBALTARICA**, 1s. per dozen, 6s. per 100, 50s. per 1000.  
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GARDEN NETTING, 2 yards wide, 1 1/2d. or per 100 yards, 10s.; ditto, 4 yards wide, 3d., or per 100 yards, 20s. SCRIM CANVAS, 1 yard wide, 3d.; 1 1/2 yard, 4 1/2d.; and 2 yards 6d. per yard.

TIFFANY, 38 inches wide, in 20 yard pieces, 3s. 6d. per piece. SHADING BLINDS made up any size. RICK CLOTHS, TARPULINS, Corn and Potato SACKS, FLAGS, TENTS, &c., for Sale or Hire. From H.V. VAN CO. (the oldest London House in the Trade, established 1782), 17, Tooley Street, London Bridge S.E.

## FOR THE FARM.

RICK CLOTHS.  
8 yards square, to cover 18 loads, No. 1 quality .. £6 0 0  
8 ditto .. " " 2 .. 5 4 0  
8 ditto .. " " 3 .. 2 10 0  
9 ditto .. " 24 .. 1 .. 8 8 0  
9 ditto .. " " 2 .. 6 7 0  
9 ditto .. " " 3 .. 3 0 0  
10 ditto .. " 30 .. 3 .. 9 7 6  
10 ditto .. " " 2 .. 8 2 6  
10 ditto .. " " 3 .. 3 10 0  
11 ditto .. " 40 .. 1 .. 11 0 0  
11 ditto .. " " 2 .. 9 12 0  
11 ditto .. " " 3 .. 4 5 0  
12 ditto .. " 50 .. 1 .. 13 10 0  
12 ditto .. " " 2 .. 11 14 0  
12 ditto .. " " 3 .. 4 15 0  
ROPES and BLOCKS, 8 and 9 yards, cloth—each .. 2 10 0  
Ditto ditto 10 .. " .. 3 15 0  
Ditto ditto 11 .. " .. 1 14 6  
Ditto .. " 8 .. " .. 2 7 6  
Ditto .. " 11 and 12 .. " .. 3 15 0

H. VAN AND CO., 17, Tooley Street, London, S.E.

## NETTING FOR FRUIT TREES, Seed Beds, Ripe Strawberries, &amp;c.

TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 2d. per yard, or 100 yards, 15s.; 4 yards wide, 4d. per yard, or 50 yards, 15s. EATON AND DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

TIFFANY and SCRIM, for Protecting Fruit Trees and Greenhouse Shading, from 2d. per yard. TANNED NETTING, in all widths, at wholesale prices. RUSSIAN MATS of every description. RAFFIA for tying. TOBACCO PAPER and CLOTH, and all Horticultural Sundries. Price LIST on application. J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

EXTRA STOUT STONG TANNED NET, 2 yards wide, 1 1/2d. per yard; 4 yards wide, 3d. per yard; or 2 yards wide 100 per 100; 4 yards wide, 20s. per 100 yards. NEW TWINE NETTING, 1 yard wide, 2d. per yard; 2 yards wide, 4d. per yard; 4 yards wide, 8d. per yard; 12 yards wide, 2s. per yard. COTTON NET, nine meshes to square inch, 1 1/2 yards wide, 7d. per yard run. W. CULLINGFORD, Forest Gate, S.E.

JOHN SHAW AND CO., 31, Oxford Street, MANCHESTER, Manufacturers of TIFFANY and NETTING of every Description. Circular and Prices on application.

## GARDEN NETTING.

## S. A. SANDS

(Successor to J. W. Haythorn).

## MANUFACTURER OF HEXAGON AND CHISWICK GARDEN NETS.

Warranted to Protect Bloom from Frost, Winds, Hail, and Fruit from Birds, Wasps, &c. Pattern and Prices Free per Post.

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20, CLUMBER STREET, NOTTINGHAM.

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1 yard wide .. 3/4d. per yard | 3 yards wide .. 2 1/4d. per yard.  
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500 yards and upwards delivered free to any part.

## GREENHOUSE SHADINGS.

SCRIM, TIFFANY and COTTON NETTING. A set of samples, with prices, post-free.

RUSSIA MATS, RAFFIA, TOBACCO PAPER, PEAT, SILVER SAND, COCOA FIBRE REFUSE, GARDEN TOOLS, &c., at the lowest possible prices.

Descriptive CATALOGUE post-free on application.

JAMES T. ANDERSON,

149, Commercial Street, Shoreditch, London, E.

**SHANKS'S PATENT**  
**Lawn Mower**  
THE ONLY LAWN MOWER FITTED WITH  
**DOUBLE EDGED SOLE PLATE**  
ENABLING THE CUTTING PARTS  
TO LAST TWICE THOSE OF  
OTHER  
MACHINES  
**HAND MACHINE**  
Easily Worked  
Making the Lawn like Velvet  
Does not get out of order

**PRICES.**  
To cut 10 inches wide, £3 10 0 To cut 19 inches wide, £8 0 0  
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**HORSE AND PONY MACHINES**  
ILLUSTRATED LISTS OF  
THESE UNRIVALLED MACHINES POST FREE

**GARDEN ROLLERS**  
OF ALL SIZES

**ALEX. SHANKS & SONS**  
DENS IRON WORKS ARBROAT  
& 27 LEADENHALL STREET, LONDON, E.

A large Stock of Machines of all sizes always  
— AT 27 LEADENHALL STREET —  
— WHERE REPAIRS CAN ALSO BE EXECUTED —  
**SMALL LAWN MOWERS**  
8 INCH 20/- 7 INCH 15/- 6 INCH 12/-



**FRIDAY NEXT.**

ONCIDIUM JONESIANUM, gathered in flower, and guaranteed true.  
ONCIDIUM MARSHALLIANUM, the largest pieces ever imported.  
LÆLIA ELEGANS, grand pieces and well-leaved.

*And other New and Rare PLANTS, all in superb condition.*

**M**ESSRS. PROTHEROE AND MORRIS are favoured with instructions from Messrs. FRED. HORSMAN & CO. to SELL the above valuable importations by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, June 5, at half-past 12 o'clock precisely. For full particulars, see Catalogue.

*On view morning of Sale, and Catalogues had.*

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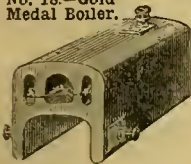
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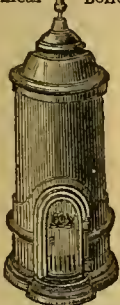
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MANUFACTURERS OF HOT-WATER APPARATUS.

*To Builders, Hot-water Engineers, &c.*

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Owing to the expiration of our Lease, and our removal to New Premises,

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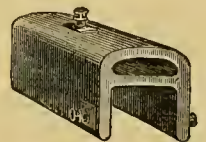
opposite *The Times* Office, Queen Victoria Street, to save cartage of our large and varied stock of **WROUGHT, WELDED, and CAST BOILERS, and HOT-WATER WORK GENERALLY,** we propose offering it for disposal at most advantageous terms. Buyers will find this an exceptional opportunity for laying in a stock for the coming season.

**Special Quotations on application.**

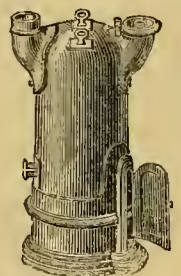
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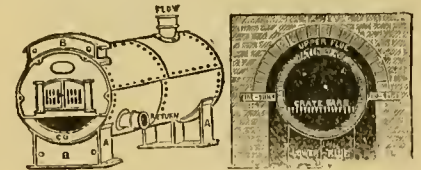


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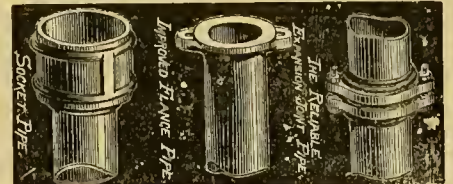


The Original and only Genuine  
**Trentham Riveted Boiler.**

Recently Improved and Reduced in Price.  
Also Makers of all other kinds of Boilers for Heating.



**HOT-WATER PIPES AND FITTINGS**  
of every description for Heating Apparatus.  
THE LARGEST STOCK IN THE KINGDOM.



HIGH and LOW PRESSURE and HOT-AIR HEATING APPARATUS ERECTED and GUARANTEED.

**FRED. SILVESTER, Castle Hill Foundry, Newcastle, Staffordshire.**

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



The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.  
*The Gardener's Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."  
Samples and Price Lists free.

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

**GARDEN REQUISITES.**—Sticks, Labels, Virgin Cork, Kaffia Mats, Bamboo Canes, Rustic Work, Manures, &c. Cheapest Prices of  
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**HER MAJESTY the QUEEN. H.R.H. the PRINCE of WALES. H.R.H. the DUKE of EDINBURGH.**  
The British Government. The Indian Government. The Colonial Governments. 15,000 of the Nobility, Gentry, and Clergy.

IS EXTENSIVELY USED FOR ALL KINDS OF

**OUTDOOR WORK.**

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**WOOD, IRON, BRICK, STONE, and COMPO, CONSERVATORIES, GREENHOUSES, FRAMES, &c.**  
*SOLD IN ALL COLOURS. PRICES, PATTERNS of BOTH PAINTS, and TESTIMONIALS FREE.*

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LA BELLE SAUVAGE YARD, LUDGATE HILL, LONDON, E.C., and BACHELORS' WALK, DUBLIN

1 Cwt. and Oil Mixture  
Carriage Free.  
Discount for Cash.

NON-POISONOUS PAINTS  
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## THE COLONIAL MANURE.

*Unequalled for Excellence of Quality  
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Supplied in Tins .. ..	at	1 0	each.
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" " " " " "	"	5 0	"
Or in Bags, Quarter Cwt. ..	at	12 0	bag.
" " Half Cwt. ..	"	20 0	"
" " One Cwt. ..	"	37 6	"

*Special Price to the Trade on application.*

The COLONIAL MANURE being powerful and lasting in its effects, very little need be used, consequently it will be found more economical than any other Chemical Manure.

The COLONIAL MANURE is to be obtained from "ALL" Nurserymen and Seedsmen throughout the United Kingdom and the Colonies.

*Sole Proprietors and Manufacturers,*

### HAYMAN & BENJAMIN,

3, 4, 5, and 6,

Camomile Street, London, E.C.,

Who only supply the Wholesale Trade and Export Merchants.

## BEESON'S MANURE

Is the best for all Horticultural Purposes.

Sold in Tins at 1s., 2s. 6d., and 10s. 6d. each; also in Sealed Air-tight Bags, containing 1 cwt., 13s.

The 10s. 6d. Tins serve as a strong substantial receptacle to refill from the 1 cwt. bags.

Supplies can be obtained through all respectable Nurserymen, Seedsmen, and Florists in the Kingdom; or, in districts where no Agents reside—Carriage Paid for Cash with Order—direct from the MANUFACTURER,

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Testimonials from the Rev. Canon Hole, and most of the leading Gardeners, free on application.

Pure Crushed Unboiled BONES, any size, for Vine Borders, &c. WHOLESALE AGENTS IN LONDON,

CORRY, SOPER, FOWLER & CO. (Limited).

## NORWEGIAN FISH-POTASH GUANOS.

*Composed of Pure Flesh and Bone of Cod and Herring and Refined Potash.*

A Perfect Fertiliser for Garden and Greenhouse, Lawns and Tennis Courts, Vegetables, Flowers, Exotics and Fruit Trees.

Prices, carriage paid, on receipt of Post-office Order:  
26 lb., 6s. 6d.; 56 lb., 10s. 6d.; 1½ cwt., 20s.; 2 cwt., 30s.; 5 cwt., 60s. Bags free.

Larger Quantities at Special Prices, for which, and for Analysis, &c., apply to

J. JENSEN & CO.,

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Manufactory—

BRETESNÆS, LOFFOTEN ISLANDS, NORWAY.

Weeds, How to Destroy them.—Use

SMITH'S Celebrated WEED KILLER, the cheapest and most effectual preparation ever invented. For testimonials and prices address MARK SMITH, Manufacturing Chemist, Louth, Lincolnshire.

Appointed by Royal Warrant Makers to  
Her Majesty the Queen and His Royal Highness the  
Prince of Wales.

## GREEN'S PATENT "Silens Messor" and "Multum in Parvo" LAWN MOWERS

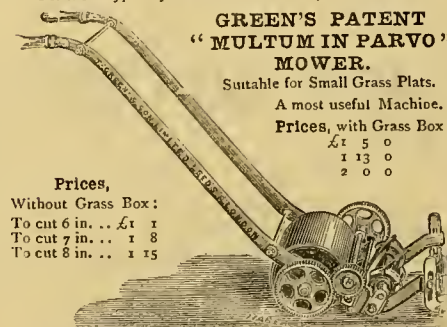
Have been proved to be the best, and they have carried off every Prize in all cases of competition.  
Every Lawn Mower is guaranteed to give entire satisfaction, otherwise they may be returned AT ONCE, free of cost to the Purchaser.



HAND MACHINES,  
"Silens Messor" Patent.

To cut 8 in. wide .. £2 10 0	To cut 16 in. wide .. £6 10 0
To cut 10 in. wide .. 3 10 0	To cut 18 in. wide .. 7 10 0
To cut 12 in. wide .. 4 10 0	To cut 20 in. wide .. 8 0 0
To cut 14 in. wide .. 5 10 0	To cut 22 in. wide .. 8 10 0
To cut 24 in. wide .. £9 0 0	

For Donkey, Pony and Horse Machines, see Price List.



GREEN'S PATENT  
"MULTUM IN PARVO"  
MOWER.

Suitable for Small Grass Plots.

A most useful Machine.

Prices, with Grass Box:

£1 5 0
1 13 0
2 0 0

Prices,  
Without Grass Box:  
To cut 6 in. .. £1 1  
To cut 7 in. .. 1 8  
To cut 8 in. .. 1 15

It is simple in construction, easily adjusted, is well adapted for mowing small plots, cutting borders, verges, round flower beds, the edges of walks, &c. It is a most handy, serviceable machine, and very easy to work.



GREEN'S PATENT  
GRASS EDGE CLIPPER.

With Chain and Wheel Motion.

A most useful Machine.

Price, £1 16s.

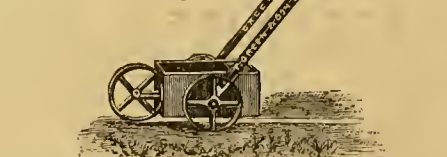
Packing Case, 2s.

SIZE,  
8 inches wide by  
7 inches diameter.

## GREEN'S PATENT (No. 2412) LAWN TENNIS COURT MARKER.

Price 20s.

Small Bag of Marking Composition, Mat, and Packing, 1s. 6d.



Price List free on application.

The above Machines can be had of all respectable Ironmongers and Seedsmen in the United Kingdom, or direct from the Manufacturers,

THOMAS GREEN & SON  
(LIMITED),

SMITHFIELD IRONWORKS, LEEDS; and  
SURREY WORKS, BLACKFRIARS ROAD, LONDON, S.E.

Carriage paid to all the Principal Railway Stations in the United Kingdom.

ROYAL HORTICULTURAL SOCIETY.

## ORCHID CONFERENCE

AT SOUTH KENSINGTON, MAY 12-13.

## TWO SPECIAL NUMBERS

OF THE

GARDENERS' CHRONICLE.

THE

## GARDENERS' CHRONICLE

for MAY 9 contains a

## SPECIAL 8-PAGE SUPPLEMENT,

CONTAINING AN ALPHABETICAL

LIST of all the GENERA of ORCHIDS,

TOGETHER WITH A

## MAP

(2 feet 3 inches by 1 foot 7 inches),

Showing their Geographical Distribution according to

CLIMATE, RAINFALL, &c.;

PORTRAIT of Sir TREVOR LAWRENCE, Bart., M.P.,

President of the Royal Horticultural Society and  
of the Conference,  
&c., &c.

Both Numbers contain a variety of Illustrated Articles relating to

## DOUBLE-FLOWERED ORCHIDS,

to the Structure, Conformation, and

## MODE OF CULTIVATION

of these Plants,

and to the Insects and Parasites that attack them, together with  
much information of interest to

AMATEURS AND PROFESSIONAL CULTIVATORS.

THE

## GARDENERS' CHRONICLE

for MAY 16 contains a

DOUBLE-PAGE ENGRAVING REPRESENTING A

## GROUP OF ORCHIDS,

A PORTRAIT OF

PROFESSOR REICHENBACH,

the Historian of the Orchid Family; and a

## FULL REPORT

OF THE

## ORCHID EXHIBITION

AND CONFERENCE,

&c., &c.

Either of the above Numbers will be sent, post-free,  
for 5½d. stamps, or both for 11d. stamps.

As only a very few of these Numbers are left in stock, Subscribers wishing Duplicate Copies are recommended to order them at once.

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





# B. S. WILLIAMS'

PRIZE STRAINS OF

# PRIMULAS,

POST-FREE.

Sold only in Sealed Packets bearing my Trade Mark. The quality of all is alike; the difference in price applies to the quantity of seed put into the packets.



Primula sinensis fimbriata, Chiswick Red, 1s. 6d., 2s. 6d., 3s. 6d., and	5 0
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Primula sinensis fimbriata, Rose Queen .. ..	5 0
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## SPECIAL NOTICE.

# GRAND EXHIBITION

OF

# ORCHIDS,

Stove and Greenhouse Flowering and Foliage Plants.

Open to the Public during May and June, from 9 a.m. till dusk daily (Sundays excepted).

ADMISSION FREE to those who have received Invitations, OR UPON PRESENTATION OF CARD.

A large Show House, 100 feet long by 22 feet wide, and an Odontoglossum House, 80 feet long, is especially devoted to the Orchid Exhibition, and visitors may rely upon seeing these beautiful plants with the greatest degree of comfort, the ventilation and means of ingress and egress, as well as the great width of the paths, being all that can be desired. The other Show Houses are gay with our large collection of Stove and Greenhouse Flowering and Foliage Plants, which have figured at the leading Shows, both at home and abroad, for many years, with uninterrupted success. In addition, the large Winter Garden, 100 feet long by 40 feet wide, being filled with a fine show of Foliage and Flowering Plants, will form an agreeable lounge to those wishing to avail themselves of this cool retreat.

VICTORIA & PARADISE  
UPPER HOLLOWAY, LONDON, N.  
NURSERIES.

# NEW ROSES.



# WM. PAUL & SON,

Rose Growers by Appointment to Her Majesty the Queen,

WALTHAM CROSS, HERTS,

respectfully invite attention to the following New Roses:—

## The "WALTHAM CLIMBING" ROSES, Nos. 1, 2, and 3.

Crimson Roses, of different shapes, and distinct shades of colour; No. 1 being the lightest, and No. 3 the darkest. They are seedlings from Gloire de Dijon, possessing all the good qualities of that well-known variety, and are recommended as supplying a long-felt want in the garden, namely, good hardy crimson autumn-flowering Climbing Roses, with fine foliage.

Plants ready the end of May, 10s. 6d. each, or 21s. the set of 3 varieties.

## W. F. BENNETT (Hybrid Tea-scented).

This Rose is recommended by the raiser (Mr. H. Bennett), as the finest red Rose yet introduced for winter blooming and cut blooms at all seasons. The flowers sent to Covent Garden have always realised higher prices than other red Roses in the market at the time. It is of the same colour as Général Jacqueminot, and from its size and the freedom with which the blooms are produced, it has been likened to a crimson "Niphetos."

WM. PAUL & SON have been appointed Sole Agents for the sale of this Rose in Europe. Plants will be ready about June 1. The following prices are for nett cash, and include packing:—  
Single Plants, 15s.; 5 Plants, £3 15s.; 10 Plants, £5 17s.  
Special Prices for larger quantities.

## WM. PAUL & SON'S

# NEW ROSES OF 1884.

CHARLES LAMB (H.P.) Clear bright red.	} Garden Roses.
GARDEN FAVOURITE (B.P.) Fresh pink.	
ELLA GORDON (H.P.) Bright cherry colour.	} Show Roses.
LADY OF THE LAKE (H.P.) Peach colour.	
EMPEROR (H.P.) Very dark, almost black.	} Buttonhole Roses.
EMPRESS (H.P.) White with pink centres.	

Strong Plants, Price 3s. 6d. each.

## SUNSET (Tea-scented).

A sport from Perle des Jardins, with deep Apricot flowers, beautiful in bud; fine for forcing and cutting. First-class Certificate to WM. PAUL & SON.

Price 2s. 6d. to 3s. 6d. each.

## GLOIRE LYONNAISE (H.P.).

A yellow Hybrid Perpetual, partaking of some of the characteristics of the Tea Roses; flowers chrome-yellow, large and full.

Price 3s. 6d. each, 36s. per dozen.

## QUEEN OF QUEENS (H.P.)

(Wm. Paul & Son).

Pink with blush edges, perfect in form, every shoot crowned with a flower-bud. First-class Certificate. Equally good as a garden and exhibition Rose, and decidedly the finest Rose of its colour.

Price 2s. 6d. to 3s. 6d. each.

All other New Roses, both English and Foreign, in strong plants at moderate prices.

Also a large stock of the older varieties, in pots, for spring and summer planting, pot culture, climbing, &c.

Priced descriptive Catalogue, post-free, on application.

See House of Roses, &c., at the Inventions Exhibition, South Kensington, S.W. (near the Concert Room).

PAUL'S NURSERIES,  
WALTHAM CROSS,  
HERTS.



THE

# Gardeners' Chronicle.

SATURDAY, MAY 30, 1885.

## GILSLAND.

"And minstrels as they marched in order,  
Play'd 'Noble Lord Dacre, he dwells on the border.'"

THE Spa at Gilsland is a spot now fairly famous among the health and pleasure seekers of the North. It is situated among the moors that lie between Newcastle and the coast of Cumberland, a country famed in the narrative of English history, and since the publication of *Guy Mannering*, rich in that kind of romance which Sir Walter Scott best mastered, and which reproduced in vivid portraiture the people and the habits of past times.

A famous son of the Duke of Norfolk, who at nine years old beheld his father's execution at Tower Hill, Lord William Howard, known afterwards as "Belted Will," became Lord of Gilsland by marriage with the heiress of the Dacres.

The family of Dacre dwelt at Naworth Castle near Gilsland, during 260 years, and their motto, "*Fort en loialtie*," and the three scallop shells of their shield, still remain over the entrance gate. After the death of Mary, Queen of Scots, whom his father had served too well, Lord William Howard, of Naworth, was appointed Lord of the Marches, and in that capacity he prosecuted sixty-eight felons and hanged some of them.

A tree on which delinquents were suspended is still standing at Naworth. "Belted Will" was a student and accomplished man of letters, as well as a man of action, though the two characters are rarely combined, and one day, being in his library bending his ardent spirit to intellectual inquiries, an attendant who had captured a Moss-trooper burst into the apartment. "Oh, hang the man!" cried Belted Will, much vexed at the interruption; and the wretched Moss-trooper was hanged immediately. An hour afterwards the lord of Gilsland, who was punctilious in the performance of his official duties, ordered the captive into his presence. It was too late—the prisoner was swinging in the wind from a bough of the tree outside. No other Oak in England, probably, has borne so many such acorns.

In spite of the catastrophe which left Lord William a penniless orphan in his childhood, partly, perhaps, in consequence of the trials and troubles which awakened the natural energy of his character, he became one of the most illustrious members of the house of Howard, and the founder of its northern branches; his eldest son was the grandfather of the first Earl of Carlisle, his second son was the ancestor of the Howards of Corby Castle.

In the course of this short recital a few facts may be borrowed from the fiction of *Guy Mannering*, for Dandie Dinmont and Meg Merri-les are characters true to the life, and this part of the country and its customs have never been so well described as by Sir Walter in that delightful novel. Less than a hundred years ago, lonely Gilsland, situated on the edge of the great stretch of moorland on its northern



boundary, was held in very bad repute. The judges on their way from Newcastle to Carlisle were escorted through this dangerous district by dragoons, and the mails were conveyed by a circuitous route. They now come by rail to Gilsland station, and all visitors come that way too; and if you alight and proceed towards the Shaw's Hotel, a mile distant, where 200 guests can be "accommodated," on the banks of the river Irthing, in a spacious building perched on the high cliff of the river, you will presently reach a burn which flows into the Irthing, and is called the Poltress, and which divides just here the counties of Northumberland and Cumberland, the Irthing below forming their division for a distance of 18 miles further. Immediately over the bridge on the right, on the Cumberland side, amid the cluster of houses which mainly form the village, is Mumps' Ha', or Beggars' Hotel, the inn where Dandie Dinmont met Meg Merrilees and told her of the death of Ellangowan. Two of the landladies of this ill-famed inn, a mother and daughter, were as desperately bad as any of the gang of moorland robbers who infested Gilsland and frequented Mumps' Ha' in their time. Scott perhaps founded his character of Meg Merrilees on these two wild women, and if you visit their place of burial in the churchyard of Upper Denton you may still read the inscriptions on their headstones. Both the mother and her heiress are described in the brief inscriptions to their memory on the enduring whinstone as of "Mumps' Hall." The dates of their death are 1717 and 1777, and the ages of the two females, each renowned in her day, were ninety-eight and one hundred years. Some verses to the memory of Meg, the younger, run as follows:—

"What I was once some may relate,  
What I am now is each one's fate;  
What I shall be none can explain,  
Till He that called call again."

Quitting the little village by the bridge over the Irthing we reach the hotel, taste the Gilsland water at the "Holy Well," then take the path on the banks of the stream, and proceed up the glen of the river to a spot which derives its interest from an incident in the life of Sir Walter Scott. On his way to the English Lakes, he paused at Gilsland, where he met Miss Carpenter, his future wife, at the Spa. He accordingly changed his mind as to the Lakes, and remained some time on the banks of the Irthing.

A large grey block of stone near the bed of the river, and a Hawthorn bush on the strip of turf on its margin, a short distance from the hotel, are known in the homely language of Northern folk as the "Popping Stone" and the "Kissing Bush."

Shut in from the outer world the Irthing runs here through a ravine with high precipitous cliffs. The fame of Scott, and the convenience of the hotel, bring many tourists to this spot, and I soon met a party of young people returning from a visit to the "lions" of the place. "Which is the famous stone?" I asked. "Yon's it," replied one of the ladies. "And which is the 'milk-white Thorn'?" They seemed puzzled for a moment, so I declaimed the well-known verses of Burns, and the whole party brightened up at once and pointed to the object of my little pilgrimage close to the very tree where the "modest pair"—afterwards Sir Walter and Lady Scott—breathed out "the tender tale." Some middle-aged people were staring about. Was this the bush? They thought so, but "didn't know much about it," they said—nor did they seem to care.

I afterwards visited the house where Miss Carpenter resided with her guardians at the time of her meeting the great and good man, whose happiness she shared till she predeceased him by a few years. A steep slope

with a path through its woodland leads from the ravine, and in climbing it I sat down by the side of a stout and middle-aged visitor at the Spa. "Steep is it not?" I observed. "Yes," was the reply, "too steep for my aspirations! so I've set myself down to rest a bit." The house proved to be a small mansion, now used as a farmhouse, where visitors may find apartments; and I should say in conclusion, that all the old romance in Gilsland has grown mouldy, and that any visitor who would deal in that commodity must bring it with him. *H. E.*



## New Garden Plants.

WARREA CYANEA (Lindl.) ALBA, *n. var.*

MESSRS. J. VEITCH & SONS have just sent me a fine variety of this well-known species, with a pure white lip, in lieu of the sky-blue one. The peduncle is light reddish. *H. G. Rehb. f.*

CÆLOGYNE LACTEA, *n. sp.\**

This is an awkward plant. I have had it before—perhaps thirty years ago, but avoided its disagreeable publication. I have now to thank, for a fresh knowledge, Mr. J. Day, who most kindly sent me, both in 1884 and 1885, bulbs and racemes. Mr. Day well recognised its difference from *Cœlogyne*, in bulb and leaves, but the flowers come near those of *Cœlogyne flaccida*, though the raceme appears never to reach the same length and hanging direction. It has not those long dark bulbs and long petioled, narrow, nearly plaited, leaves, but a short, shining, thick, fusiform pseudobulb, with few blunt ribs (six) and short petioled broad leaves of parchment texture. The flowers are very much like those of the old *Cœlogyne flaccida*, Lindl., milk-white with brown veins on the lip, brown lines on the column, and some yellow spots on the disc. *H. G. Rehb. f.*

CATTLEYA RESPLENDENS, *n. hybr. nat.?*

Take a *Cattleya granulosa* and give it flowers of *Cattleya Schilleriana*, the long sepals being placed as in the first, and the very narrow long petals much undulated, then you have this plant. The dull olive-brown sepals and petals have thinly scattered purple spots, and remind one of *Cattleya guttata* Leopoldi. The lip is fine white, with warm amethyst keels and small warts of the same colour. The cuneate bilobed stalked mid-lacinia of the lip has numerous rough warts in the middle and many keels on the lateral parts, which, of course, are externally toothletted. The side-laciniae are much developed and very acuminate.

There is scarcely a year in which Mr. S. Low has not puzzled us with the *Cattleya* intricata, and now comes again such an individual which, finding no place anywhere under the known species, must get a proper name. Mr. S. Low and his staff think it a mule between *Cattleya granulosa* and *Cattleya Schilleriana*, and they may most probably be right. *H. G. Rehb. f.*

RODRIGUEZIA LEEANA (*Rehb. f.*) VAR. PICTA, *nov. var.*

The original type, dedicated to excellent Mr. Lee, had only mauve-purple on the ovary and column. A fine variety before me is quite covered with numerous mauve-purple lines and spots, which are almost circular on the fine lip. I had this neat novelty from my eldest English correspondent, Mr. S. Low, in firm Messrs. H. Low & Co. I must, however, confess I had the variety, though far inferior, as the spots were much less numerous, and not so dark before. My sketch, accidentally, has no remark about the source—no doubt an English stove. I well remember I then thought the individual not distinct enough to deserve a proper variety name—there are so many, many. *H. G. Rehb. f.*

\* *Cœlogyne lactea*, *n. sp.*—Pseudobulbo abbreviato crasso fusiformi paucicostato vemicio; foliis petiolatis cuneato oblongis acutis pergameneis; racemo porrecto paniculato; sepalis oblongis obtuse acutis; tepalibus linearibus; labello trifido angulatis late obtusatis; lacinia mediana porrecta; carinis crenulatis tenuis a basi in basin laciniae antice; androclinio trilobo; lobo mediano retuso. *H. G. Rehb. f.*

DENDROBIUM NOBILE COOKSONIANUM, *Rehb. f.*

A glorious variety. It is an improved *Tollianum*, having the median area of the petals covered by a very deep purple blotch, and the top of the petals with a purple border. The base of petals is hastate, thickened in the middle, and then with some velvet. I learn this curious plant appeared some years ago, that it has flowered each year constantly, and that similar plants have been propagated from it. It was kindly sent by Mr. Norman C. Cookson, Oakwood, Wylam-on-Tyne, whose name it justly bears. *H. G. Rehb. f.*

[This is the flower referred to by Professor Reichenbach in the *Gardeners' Chronicle*, May 19, 1883, and was taken from the plant exhibited at the Royal Horticultural Society's meeting on March 10, 1885, under the name of *Dendrobium nobilissimum*.]

SACCOLABIUM CELESTE, *n. sp.\**

One of the finest surprises I ever enjoyed. Take a short inflorescence of a white flowered *Saccolabium guttatum* (3 to 4 inches long), and imagine the dilated rhombic anterior part of the lip to be of the finest Italian sky-blue, 'as also to the tips of petals and sepals, a blue tint on both sides of the centre of the recurved spur, and then add brown anthers with a flush of mauve, and you will be able to form an idea of the lovely thing. It has also a botanic merit of its own. Inside the compressed, blunt, slightly recurved spur rise from the apex of the under-side two falcate subulate bodies against the mouth of the spur. I received this from Sir Trevor Lawrence, who kindly forwarded two fine inflorescences, informing me that the habit of the plant is that of *Saccolabium curvifolium*, Lindl. It is, to my taste at least, a lovely and most desirable thing. *H. G. Rehb. f.*

## DOUBLE DAFFODILS.

AMONGST the many points of interest discussed in the instructive article on p. 563, there are two or three to which I have paid particular attention, and I have made experiments about them. I will speak first of the condition of polyphyly, mentioned on p. 564 (column 3). That this is a mere accidental deformity, and not constant or extending beyond the individual flower in which it takes place, may easily be proved by any one who takes the trouble to mark a bulb producing it. It is easy in any large bed of wild Daffodils to find flowers with five, seven, or eight segments of the perianth, but the same bulb often produces one deformed flower, and two or three others normal in form. The flowers with eight segments are often very ornamental, the alternation of the outer and the inner segments, which may be of very different width, presenting a sort of double cross. I have marked these flowers, and found that next season they revert to the normal form.

I must add, however, that in this soil all double flowers show a tendency to undouble. Though I have carefully labelled my Daffodils, and watched them for many years, I have never even suspected one of changing from single to double, but I have seen many changes from double to single, especially the small wild double form of *N. Pseudo-Narcissus*, and both the typical and the Orange-crowned form of *N. incomparabilis*. It is rare to find a whole bunch of them perfectly single, and when I have selected perfectly single flowers, and tried to perpetuate them, they have, when transplanted, reverted to a form more or less double, showing that they continue to be "potentially" double. I have particularly noticed this because a question has been raised whether a Daffodil sold as *Mary Anderson* is the true single of the Orange-crowned *N. incomparabilis*, of which the double is sold as "*Orange Phoenix*." I have for three or four years looked out for and found perfectly single flowers amongst clumps of *Orange Phoenix*, and dug them up when in flower, but I have never succeeded in keeping a stock of perfectly single *Orange Phoenix*. I send specimens of *N. incomparabilis* which have undoubtedly reverted from double, and still retain slight traces of doubling.

Another interesting question is raised as to whether a series of links can be found connecting the small wild form of double *N. Pseudo-Narcissus* with the largest size of double *Telamonius*. In answer to this I say the

\* *Saccolabium celeste*, *n. sp.*—Racemo densifloro breviusculo sepalis tepalisque cuneato-oblongis obtusiusculis, labelli auriculæ sub columna angulatis micantissimis, lamina cum columnæ ascendenti subparallelæ unguiculatæ acutæ rhombico-obtusangulæ, calcaris compresso-obtusulo curvulo, aristis geminis, inclusis ab apice inferiore antrosoris Rhynchostylis celestibus. *H. G. Rehb. f.*



as far as a collection of the flower goes, undoubtedly it can. I have had hundreds of double flowers reputed to be "truly wild" sent to me from all parts of the kingdom, some of which I sent to Mr. Barr, and he confessed that he was quite unable to determine to which of the two varieties they belonged. But if asked to give an opinion, formed from my own observation and experience, I should certainly say that the two double Daffodils, *N. Pseudo-Narcissus* and *N. Telamonius*, however the latter may originate, are, when once made, quite distinct from one another. For several years I have received every season from different parts of the country both flowers and bulbs of single and double Daffodils found growing together in the same field. These are sent as an alleged proof of the conversion of the single into double. I have cultivated all the bulbs sent. Sometimes the doubles have proved to be the true wild Daffodil, but far more frequently the bulbs which have produced small and doubtful double flowers in their wild state have, after cultivation for one or two seasons, become precisely similar in the size and form of their flowers to the ordinary *Telamonius* of gardens. The only way to prove these bulbs is to grow them all for two or three years in the same soil and situation, and then their true nature is brought out. I find, in fact, that in 95 per cent. of the instances in which typical single *Pseudo-Narcissus* is found in fields mixed with double Daffodils, the double proves to be *N. Telamonius*. Whether it has been converted to double from the small single form is another question which it is impossible to answer, unless its past history is accurately known. I have planted single wild Daffodils and double garden Daffodils together in some of my fields, and both keep their characters distinct; and other gardeners a century or two ago may have been equally enterprising. In fact, it is difficult to prove that any spot in the kingdom where garden flowers may be found has ever been cultivated or inhibited. I have more than once been startled in the middle of a moor in the wildest parts of the Scotch Highlands by seeing a distinct ridge and furrow mark amongst the Heather.

Those who have read my notes in the *Gardeners' Chronicle* upon the metamorphosis from single wild Daffodil to double *Telamonius* may be surprised at my now arguing against myself; but I have always said that my own experience is quite at variance with that of others on this point, and I only have asked that the very full and detailed evidence of others should be fairly examined and tested, and not rejected at once on the ground of antecedent improbability. The soil of my garden, as I have said, is the opposite of doubling—chiefly, I believe, because it is cold. As the land here lies on a slope, in which beds of clay and sand alternate, the water with which the sandy strata are filled is forced upwards through thin parts of the clay in which it becomes spread, and though it cannot get through to the surface it keeps the subsoil so cold that the sun warmth penetrates to a very small depth. I find I can keep flowers double on raised beds under a south wall; but planted on north borders, however rich the soil, the same flowers soon turn single. I believe that doubling depends as much on such accidents as the power of soil for retaining warmth, as upon its chemical properties. According to accounts I receive doubles of Daffodils are produced more readily in the South of France, in Italy, and in Portugal, than in England; but about this I am trying to collect more certain information. *C. Wolley Dod, Edge Hall, Malpas, May 2.*

## DISEASES OF ORCHIDS AS CAUSED BY FUNGI.

THERE is probably no natural order of plants more free from the attacks of parasitic fungi than the Orchidaceæ, and the reason for this is fairly obvious. Parasitic fungi grow to the best advantage on plants having a soft and spongy texture, and which bear leaves which have a thin epidermis, slight development of cuticle, and large stomata, or organs for the transpiration of fine watery vapour. Many Orchids have very hard leaves, furnished with a very compact epidermis, an extraordinary development of thick cuticle, and very small stomata. The germinating spores of fungi cannot pierce the thick cuticle, or find sufficiently large openings for themselves in the very small stomata. The foliage of many Orchids is armour-plated and spore-proof.

The fungi of Orchids chiefly attack seedlings, very

young plants, or those species which have thin soft herb-like and tender leaves.

In imperfectly ventilated Orchid-houses a very minute white mildew often spreads from the sphagnum and compost on to the pseudobulbs, especially of very young examples of Orchids. In bad cases—which are far from uncommon—this fungus will sometimes in one night completely cover young plants, and cause their death. It is especially fatal to very small and very young and tender plants. I have many times grown this mould, but it seldom bears spores. With me it has always produced some common species of *Acremonium*, a genus of fungi peculiar to decaying leaves, twigs, and wood. The same fungus is very common in Fern-houses, it especially attacks the tender ends of the fronds of Ferns, especially *Todeas*. Bad ventilation and damp stagnant air are requirements this fungus most needs for its extension. A free current of air, without watery vapour, will cause the fungus to disappear. It never grows in well ventilated houses.

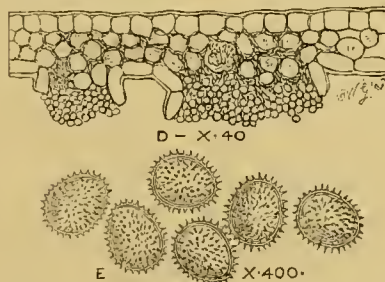
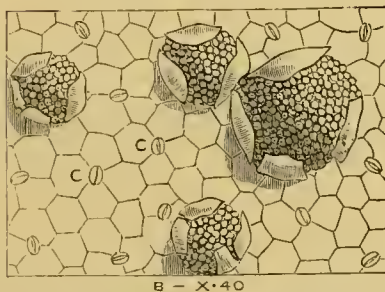


FIG. 154.—FUNGUS WHICH CAUSES DISEASE IN ORCHIDS (TRICHOBASIS LYNCHII)

A, Portion of leaf real size; B, Portion of under-surface, magnified; C, Stomata; D, Section through leaf; E, Spores.

A very serious plague of Orchids is the disease known as "black spot." There are two varieties of spot, one black and dry, the other less dark in tint, and moist; both are at times fatal to Orchids. I have seen examples of this disease so bad that every leaf in a house of certain genera, as of *Masdevallia*, has been spotted with black, like the leaves of *Orchis maculata*. In the damper spots a fungus is sometimes detected which the Rev. M. J. Berkeley has named *Protomyces concomitans* (see *Gard. Chron.*, 1882, p. 397, fig. 63). The mycelium of this fungus grows in necklace-like threads, which bear globular pale brown spores. There is no difficulty in finding the fungus when spots in the proper condition of moisture are lighted upon, but to me it has always appeared doubtful whether the fungus really causes the spot: it may, however, do so. All sorts of waifs and strays amongst fungi find themselves located under *Protomyces*, and many of the species are badly defined and very imperfectly understood. *Protomyces* is a sort of "cold-harbour," a refuge for destitute fungi, with poor accommodation. Some

forms are probably mere conditions of very diverse fungi. When "black spot" occurs in Orchid-houses the only plan for its extirpation is the removal and burning of the spotted leaves. Whether the *Protomyces* causes the disfigurement or not, this is the best and only plan for its destruction.

Messrs. Berkeley and Curtis have recorded a third fungus, named *Gloeosporium cinctum*, as growing upon Orchids in the Orchid-houses of Massachusetts. This fungus is a close ally of a species which causes disease in Cucumbers in this country, named *G. laticolor*. The Orchid fungus forms little scattered patches, on which small pustules are seated surrounded by the blackened cuticle.

British Orchids are sometimes invaded by an orange-rust fungus, named *Uredo orchidis*; till recent times this orange fungus was considered to be a variety of *U. confluens*, a parasite of *Mercurialis perennis* and *M. annua*. A variety of *U. confluens* was also said to grow on *Euonymus europæus*—this was called var. *euonymi*. The *Uredo* of Orchids is now generally believed to be a distinct species. The point is worthy of special note, for if *U. orchidis* is really distinct no fear need be entertained of an invasion from diseased plant of *Mercurialis* and *Euonymus*. British Orchids are also attacked by a yellowish Cluster-cup fungus, named *Æcidium orchidearum*. There is, of course, a possibility of this plant and *Uredo orchidis* invading certain genera of Orchids in Orchid-houses, but as far as my experience goes both are at present uncommon—may they always keep so.

It will be noted that a *Uredo*, an *Æcidium*, and, as I shall immediately show, a *Trichobasis*, all grow on Orchids. The gentlemen who believe that the *Æcidium* of Barberry bushes causes *Puccinia* (mildew) of corn, tell us that the *Æcidium* of Orchids is not genetically connected with the *Uredo* on its own leaves, but that the *Æcidium* is one form of a *Puccinia* found on a grass common in wet places, and named *Molinia cærulea*. What the ultimate condition of the *Uredo* of Orchids may be, or on what plant it flies to, to perfect itself, they say is "at present doubtful." The *Trichobasis* mentioned below is also probably "doubtful."—I have seen no reference to any of its supposed relations. The varieties or species of *Uredo*, named *U. confluens* and *U. euonymi*, are also both placed in the "doubtful" class; and all three species (including *U. orchidis*), are now called *Cocoma* by some botanists. The old name "*confluens*" has also been obliterated in favour of "*Mercurialis perennis*." If these particulars were not given, it would be simply impossible for any student to find the species here referred to in the more modern books on fungi.

One of the most interesting of Orchid fungi, allied to the orange-rust *Uredo* just mentioned, is a fungus detected at Kew by Mr. R. Irwin Lynch, of Cambridge, growing upon a species of *Spiranthes* from Trinidad. Mr. Berkeley has named this species *Trichobasis Lynchii*, and as I believe it has not hitherto been illustrated an engraving of it is given herewith (fig. 154). The example from which the illustration was made was obligingly lent by Dr. M. C. Cooke. A represents the end of a leaf of *Spiranthes* dotted over with the small, sometimes confluent, ochreous disease pustules; B shows a fragment of the lower surface of the leaf enlarged forty diameters: this shows the spore-masses of the fungus bursting through the ruptured epidermis; stomata are shown at C C. At D a section of the extremely thin leaf is given with the *Trichobasis* bursting through the lower and softer surface. The extraordinary thinness and looseness of the leaf will be remarked as compared with the very much thicker and more compact leaves of the different Orchids illustrated in former numbers. The fungus has clearly invaded a leaf exactly suited to its requirements. At E the yellow spores or reproductive bodies of this fungus are shown. The spores are interesting objects under the microscope, beautifully spinulose, and very large in comparison with the smaller and perfectly plain spores of *Uredo orchidis* and *U. confluens*. Wherever this fungus is seen it should be at once burnt, notwithstanding its beauty—"Beauty is as beauty does."

No doubt other fungi attack Orchids, but the species above mentioned are the only ones that have been specially noted by me. *W. G. Smith.*

POISONING BY SNOWBERRIES.—Mr. Amyot, of Diss, records in the *British Medical Journal* a case of poisoning by the berries of the Snowberry (*Symphoricarpos racemosus*). Four children suffered from acrid-narcotic poisoning in consequence of having eaten largely of these berries. No other cause could be assigned. This is the first time we ever heard of ill-effects from these fruits.



## MARKET GARDENING.

(Continued from p. 308).

It is not only spring-sown seeds and plants of the Brassica tribe market garden farmers consider and treat as being much harder than do professional gardeners. They adopt the same practice prominently with the culture of summer or autumn sown and planted Cabbages also. Within the area of enclosed and protected gardens, Cabbage seeds are generally only sown late in July. The young seedling plants which result from such a sowing are transplanted into a permanent bed late in the autumn; the invariable rule being, that the plants are small and not too leafy, else it is imagined they will not contend with such frosts as occur. Hence it is that "white hearts" are so late in the spring, indeed it is a fact that long before any signs of hearted Cabbages exist in gardens proper, they are being hurried into market by the waggonloads—and waggonloads are no small matter—from open and wholly exposed fields.

How is this great difference to be accounted for? The market gardener sows his seeds a month or earlier than the private grower. His seedling plants are double, or triple the size, and he does not hesitate to transplant such large plants, finally, into extensive fields, any time between the months of September and January. So large are these young Cabbage plants when transplanted, that they all but cover the fields with a mantle of green when first planted out. This is the usual practice around Rainham, the locality so celebrated in the metropolitan markets for early and fine Cabbages.

Such a practice and such results would seem more in keeping with sheltered and enclosed gardens than with extensive fields, but it is known such rules and results do not generally exist. Obviously, the supposed tenderness of these hardy plants has done much to deter from a practice which shows all gain in its favour.

It will serve no good purpose for me to give any but facts, regarding an important fallacy in the system of final transplanting this crop, as followed by professional gardeners, by contrast with the market gardener—a fallacy which, consists in considering the plants to be comparatively tender, owing to the fact that they occasionally rot at the collar or the base of the lower leaves. The latter drawback, when it does occur, is really attributable, oftener than not, to too deep planting—by which means the collar of each plant is brought in immediate contact with the soil with the adverse result as already given. The field grower is particular not to place more stalk, or stem, into the soil than such as is possessed of roots; such roots being made very firm in the ground. The professional gardener's plan of burying the whole stalk of each plant below ground destroys the chance of making the real roots quite firm. The evil of loose planting—it might not inaptly be called "hanging"—the plant is increased by the facts already referred to, of recent deep digging and the inherent looseness of the whole bed.

When it is known that a cabbage will grow from a wall equally well with a Wallflower, it will readily be seen that deep planting in loose soil is not exactly suited for it.

Many years ago I recommended in these pages the planting of autumn Cabbage plants upon old Onion-beds without digging them up; others have recommended the practice since, and the above facts show why crops succeed so much better upon such firm ground than upon loosely worked soil and with imperfect dibbling out of the plants.

## HARDY GREENS.

The field grower, again, produces fine hard-headed, white-hearted, winter Cabbages in abundance. These he names "hardy greens." They are the stay of markets during the long winter months. Kales, &c., upon which professional gardeners rely for their winter supply, being but secondary to these in a marketable and money point of view. Yet "hardy greens" are too generally absent from private gardens. To those who do not know them, it may be said they are very hardy counterparts of the late summer Coleworts, of the rosette type, and our markets are fully supplied with them from the month of September or October throughout the winter onward until Early York, Rainham, or Enfield Market summer Cabbages come in. On May 1 acres of seed-beds of such were to be seen in market garden farms, the seeds having

been sown, as before intimated, during the latter part of the month of February or early in the month of March.

Seedling plants in such seed-beds are often subject during dry springs to the ravages of Turnip-fly; growers, therefore, resort to the simple plan of sowing spent Hops thickly over the beds, which often prove a great deterrent to such attacks. Though these seed-beds are sown thus early, the tender young plants make good way against even cold frosty nights in April, and are often large enough for hoeing about the beginning of May.

The style of hoeing in market gardens is an admirable one also. Short-handled hoes are used, the workman bending down to his work, and by the dexterous use of the hoe he cuts out, right and left, with great rapidity, all seedling weeds, so that in a fortnight or so after the hoeing process the seed-bed presents one unbroken surface of young plants, densely packed together, of great uniformity and, I may add, beauty. The price paid per acre for such hoeing work is extremely low. Fields of Onions, both autumn-sown Lisbons and spring-sown Spanish, are rapidly and cheaply cleaned in the same way, women as well as men being engaged in the operation. Probably one of the finest sights in culture I have ever witnessed was the immense fields of pickling Onions upon certain farms in Essex, in company with Mr. Whitehead, of Maidstone, when I had the honour to judge them for the Royal Agricultural Society's prizes a few years ago. The fields, up hill and down, were more like one continuous fresh mown lawn than anything else I can liken them to.

The early and successional transplanting of hardy Greens, &c., I must defer for a future communication. William Earley.

(To be continued.)



## ZAMIA TONKINENSIS.

THERE are few families of which I suppose our collections have been, proportionately to their size, so enriched by nurserymen as the Cycadeæ. On the other hand there can be scarcely any of which the synonyms have been more cruelly confused at the same hands. *Zamia tonkinensis* is an extraordinary example. At first sight it will occur to any one interested in the family that, the geographical distribution of the genera being so closely circumscribed and so well ascertained, the occurrence of a true *Zamia* in the Old World is in the last degree improbable. I awaited therefore the appearance of the plate promised in the *Revue Horticole* of this species (t. 547) with no small interest. If I was not exactly surprised, I could hardly avoid a little feeling of wonder to find that it was no *Zamia* at all, but an undoubted *Cycas*. The presence of an obvious midrib in the pinnae makes the true attribution, as it were, "jump to the eyes." That the plant is one of considerable interest must however be freely admitted.

At first blush it recalls the *Cycas undulata* of Williams' catalogue of new plants for 1881, p. 24. That species is figured with unarméd petioles. But a friend obligingly communicated to me by Mr. Williams in 1882, shows that the figure is not quite correct in that respect. It may, however, be that in older plants the spines become somewhat evanescent, and that would confirm the opinion which I have formed that Mr. Williams' plant is nearly related to the *Cycas* of Fiji, C. Seemannii, in which the petioles tend undoubtedly to become spineless. But I am inclined to think that the so-called *Zamia tonkinensis* is to be identified with a *Cycas* which occurs in South China, but of which, at present, I have insufficient material to form a definite conclusion about. I have fronds most obligingly obtained for me by Mr. George Phillips, formerly H.M. Consul at Swatow. In this plant the pinnules have a coriaceous texture with highly polished upper surface and undulate margins, the totality of which points indicate a certain stiffness of habit different to what we see in *Cycas Rumphii*, or any of the Eastern types of the genus. But fairly agreeing with the plate in the *Illustration Horticole*.

Though I am obliged, therefore, to protest against the latter being called a *Zamia*, I am quite pre-

pared to see in it a distinct species when we get materials for studying its reproductive organs. W. T. Thielson Dyer.

## OPEN-AIR CULTURE OF ORCHIDS.

THE experiments that have been carried out by Mr. Smee and his intelligent gardener (Mr. Cummins) in his garden at Wallington have been repeatedly noticed in the gardening journals, the successful results following the adoption of the practice in regard to numerous genera and species finding, amongst amateur growers of Orchids many defenders and advocates.

Unfortunately few gardens possess the requisite conditions of sheltered position and numerous shady watercourses by which the culture of the plants is made possible. Mr. Smee's territory comprises almost as much water as dry land, so that the amount of dew deposited during the night-time, and the invisible mass of moisture present during the daytime in the months of July, August, and September, is much in excess of what is to be found in the generality of gardens.

But the easy and successful culture of many Orchids in the open deserves a fair trial where the conditions are at all favourable for it. Insect pests become much reduced, some dying out entirely on being brought into the open air—notably yellow thrips. The condensation of dew renders syringing in the morning needless; and although the foliage of some plants has not the grassy-green look of those grown under glass and artificial shading, but is bronzy, leathery, and stout, according to species, yet the flower development and strength of bulb which always accompany this are especially noticeable.

*Cypripedium insigne* has been left out for many years under a sheet of glass covering a small box, that is elevated above a ditch a few inches. This plant has not grown much, but it is fairly healthy, and its hardiness must be regarded as settled. *Dendrobium* are the plants which those gardens possessing a water-basin or small pool might manage very well, for they are found to delight in an open sunny a situation—with, of course, water beneath them—as the *Cactus* or the plants of New Holland. A *D. devonianum* has at this time (April 29) made just 6 feet of growth, half of which was made in the open, and the remainder since it was housed on October 1, 1884. *Masdevallias* are found to do as well in a thatched shed with wooden sides, light being admitted only by the glass door, as they did formerly in a well lighted house of the usual pattern. Seemingly the treatment that would be accorded a *Todea* or a *Killarney Fern* is just that which many *Masdevallias* require during the time preceding the blooming period.

Not all kinds of Orchids will endure open-air cultivation, but for the use of future experimentalists in this field we append a list of those found to do best, with short remarks on the behaviour of each. At the time of our last visit there were many plants in bloom which had passed four months outside in 1884, amongst them being *Odontoglossum Rossi*, *O. membranaceum*, many pieces of *O. crispum*, *O. Halli*, *O. sceptrum*, *Masdevallia Lirideni*, *M. Veitchii*, *M. Shuttleworthi*, *Ceoloyne ocellata*, *Dendrobium infundibulum*, *Ada aurantiaca*, *Oncidium concolor*.

Mr. Cummins has another aid to Orchid growing in Mushroom-beds, which he makes in his houses, the ammoniacal fumes from which exercise a beneficial influence on the growth of the plants subjected to them.

The following list, extracted from the *Journal of Horticulture*, will show what plants have been tried, and with what results:—

## Bloomed in Open Air.

<i>Acropera Loddigesii</i>	<i>Odontoglossum Alexandrie</i>
<i>Dendrobium chrysanthum</i>	cordatum
Wardiaoum	Lindleyanum
<i>Lycaste Sneeana</i>	Rossi varieties
<i>Masdevallia maculata</i>	<i>Oncidium dasylepis</i>
<i>Maxillaria grandiflora</i>	<i>Pleione lagoonaria</i>

## Showing Bloom when Taken In.

<i>Ceoloyne ocellata</i>	<i>Odontoglossum membranaceum</i>
<i>Cypripedium insigne</i>	" <i>Pescatorei</i>
<i>Dendrobium crassinode</i>	" <i>Alexandrie</i>
" <i>heterocarpum</i>	<i>Oncidium crispum</i>
" <i>nobile</i>	" <i>Forbesii</i>
Wardiaoum	" <i>macranthum</i>
<i>Epidendrum evectum</i>	" <i>seriatum</i>
<i>Lælia alba</i>	" <i>verrucozum</i>
" <i>autumnalis</i>	<i>Pleione maculata</i>
<i>Lycaste Skinneri</i>	<i>Trichostema suavis</i>
Deppai	<i>Vanda cœrulea</i>
<i>Odontoglossum bicornense</i>	



Tabulated Record of Experiments.

Date of Putting out.	Name of Plants.	Date of Housing.	Remarks.
July 12	Acropera Loddigesii	Oct. 6	Very strong, producing many flowers.
"	Vanda aurantiaca	" 3	Dark green foliage.
Aug. 4	Vandæum falcatum	" 4	Rooted freely.
July 5	Vanda Skinneri	" 3	Sickly when placed out, but made a quantity of fleshy roots in the open air.
" 3	" spectabilis	" 3	Ditto.
" 3	Brassia verrucosa	" 3	Made large pseudobulbs.
" 5	Cattleya Acklandiae	" 3	Remained at rest.
" 5	" citrina	" 3	Making strong growth.
" 5	Walkeriana	" 3	Ditto.
Aug. 11	Chysis aurea	" 6	Equal to those in houses.
July 18	Cœlogyne cristata	" 6	Larger growth than last year.
" 5	" ocellata	" 6	Ditto.
" 5	Cypripedium insigne	" 6	Good growth; made several leaves.
Aug. 11	Cyrtopodium Andersonii	" 1	Placed in full sun and rested well.
" 11	" punctatum	" 1	Ditto.
" 11	Dendrobium aggregatum majus	Sept. 27	At rest all the time.
" 11	" bigibulum	" 27	Completed good growth.
" 13	Boxalli	" 27	Ripened well in full sun.
" 13	calceolus	Oct. 1	Ditto.
" 16	Cambridgeanum	Sept. 27	Ditto.
" 16	" chrysanthum	" 27	Commenced growth after flowering.
" 16	" chrysotoxum	" 27	Well ripened.
" 11	" clavatum	Oct. 1	Ditto.
" 11	" crassicoele	" 1	Showing flower.
" 1	" crystallinum	" 1	Ditto.
" 11	Dalhouseanum	Sept. 27	Growing strongly.
" 11	" densiflorum	" 27	Fine growths, well ripened.
June 18	" Devonianum	Oct. 1	Very long pseudobulbs, well ripened.
Aug. 11	" fimbriatum	" 1	Strong.
" 11	" Findleyanum	Sept. 27	Strong and well ripened.
" 11	" formosum	" 27	Making strong growth.
" 1	" Freemannii	Oct. 1	Growing strongly.
July 18	" luteolum	Sept. 27	Rested.
" 18	" Jamesianum	Oct. 1	Enjoys cool night temperature.
Aug. 11	" macrophyllum	Spt. 27	Growing well.
" 13	" moschatum	Oct. 1	Ditto.
June 18	" nobile	" 1	Thick pseudobulbs, showing bloom.
Aug. 11	" " cœrulescens	" 1	Ditto.
" 13	" Paxtoni	" 1	Well ripened.
" 13	" Pierardi	" 1	Ditto.
June 18	" primulinum	" 1	Extra strong, lost nearly all leaves.
Aug. 13	" Schroederi	" 1	Well ripened.
June 18	" suavissimum	" 1	Ditto.
Aug. 13	" thysiflorum	Sept. 27	Ditto.
" 13	" transparens	" 27	Ditto.
June 11	" Wardianum	" 27	Very strong and blooming.
July 5	Disa grandiflora	Oct. 4	Made a flower-spike (damped off).
Aug. 11	Epidendrum evectum	Sept. 30	Making spikes and strong growth.
July 5	Lælia albida	" 3	Ditto.
" 5	" autumnalis	" 3	Ditto.
" 5	" majalis	" 3	Large pseudobulbs.
Aug. 14	" purpurata	" 30	Resting all the time.
July 5	Lycaste aromatica	Oct. 4	Growing freely.
" 5	" Deppei	" 4	Made good growth and showing bloom.
" 5	" Skinneri	" 4	Ditto.
" 5	" Smeekana	" 4	Large bulbs and bloomed in open.
" 5	Masdevallia coriacea	" 1	Made a number of leaves.
" 5	" ignea	" 1	Ditto.
" 5	" maculata	" 1	Ditto.
" 5	Maxillaria grandiflora	" 4	Large bulbs and leaves; bloomed.
" 5	Mesospidium sanguineum	" 4	Made satisfactory growth.
" 5	" vulcanicum	" 4	Ditto.
July 18	Odontoglossum Alex. andræ	" 6	Best varieties were potted and placed out last; made root and large broad leaves.
Aug. 13	" bictoniense	" 4	Good growth; showing flower.
July 5	" Cervantesi	" 4	The largest bulbs they have yet made.
" 5	" cirrosium	" 4	Growing well.

Tabulated Record of Experiments—(Continued).

Date of Putting out.	Name of Plants.	Date of Housing.	Remarks.
July 5	Odontoglossum cordatum	Oct. 4	Growing well and flowering.
" 5	" coronarium	" 4	Produced immense pseudobulbs.
" 5	" Ehrenbergi	" 4	Quite at home.
" 5	" gloriosum	" 4	Ditto.
" 5	" Hallii	" 4	Ditto.
" 5	" hystrix	" 4	Ditto.
" 5	" Lindleyanum	" 4	Ditto.
" 5	" membranaceum	" 4	Large pseudobulbs.
" 5	" nebulosum	" 4	Ditto.
" 5	" Pescatorei	" 4	Ditto.
" 5	" Erstedii	" 4	Growing very freely.
" 5	" ramosissimum	" 4	Ditto.
" 5	" roseum	" 4	Ditto.
" 5	" Rossi majis	" 4	Ditto.
" 5	" sceptrum	" 4	Ditto.
" 5	" triumphans	" 4	Ditto.
" 5	" Incidium Barkeri	" 4	Ditto.
" 5	" concinnum	" 4	Ditto.
" 5	" crispum	" 4	Made very large pseudobulbs; blooming.
" 5	" curtum	" 4	At home.
" 5	" dasystyle	" 4	Ditto.
" 5	" Forbesii	" 4	Similar growth to O. crispum.
" 5	" macranthum	" 4	Made good growth and long spike.
" 5	" Marshallianum	" 4	Growing well.
Aug. 10	" serratum	" 4	Equal to O. macranthum.
July 5	" stelligerum	" 4	Growing freely.
" 5	" verrucosum	" 4	Made good growth and branching spikes.
" 5	" Pilumna fragrans	" 4	Made good growth; showing flower.
Aug. 4	" Pleione lagenaria	" 4	Ripened well and bloomed.
" 4	" maculata	" 4	Ripened well; showing flower.
" 4	" Reichenbachiana	" 4	Ripened well.
July 5	" Soehroniis grandiflora	" 4	Plenty of fine growth.
Aug. 4	" Stanhopea tigrina	" 4	Commenced growing.
July 3	" Thunia alba	" 4	Well ripened in full sun.
" 3	" Marshalli	" 4	Ditto.
" 18	" Frichopilia suavis	" 4	Broad leaves and very healthy.
" 18	" Frichosma suavis	" 4	Good growth; showing well for flower.
Aug. 4	" Vanda cœrulea	" 4	Made leaves and flower-spike.
" 4	" cœrulescens	" 4	Healthy roots; foliage good colour.
" 4	" Denisoniana	" 4	Ditto.
" 4	" Roxburghii	" 4	Ditto.
" 4	" Zygopetalum Mackayi	" 4	Made a quantity of small growths.

## Dendrobiums that have Ripened Best in the Open Air.

Dendrobium densiflorum	Dendrobium nobile cœrulescens
" Devonianum	" Pierardi
" Cambridgeanum	" primulinum
" chrysanthum	" Schroederi
" crassicoele	" suavissimum
" Findleyanum	" thysiflorum
" heterocarpum	" Wardianum
" latiflorum	" Wallichianum
" nobile	" sanguinolentum

## Orchid Notes and Cleanings.

## ORCHIDS ROUND MANCHESTER.

*Smallwood, Fallowfield, Manchester.*—At this place, the residence of S. S. Whalley, Esq., a very nice collection of Orchids is being formed, and at the present time some really beautiful specimens are in flower. The first to attract attention is a nice plant of *Zygopetalum rostratum* growing in a basket; this is always hung up on the sunny side of the house, just above the Cattleyas, and would appear to like its position. The lip, which is the most prominent part of the flower, is broad, pure white striped with pink or rosy-purple, according to the variety—for like most species this varies very much in depth of colour. *Dendrobium Pierardi*, var. *latifolia*, is represented by a fine plant in a basket with bulbs 4 feet long, full of flower. *D. Paxtoni* is just coming nicely on with

fifty spikes of its rich golden-coloured flowers. Of *D. thysiflorum* a number of plants are flowering with from six to eighteen spikes; but perhaps among the *Dendrobiums* the most noticeable are some grand plants of *Dayanum*. These are in baskets, but the bulbs are now tied up, and the growths, which are 2 to 3 feet long, and have flowered about two-thirds of their length, present a most beautiful appearance. There are numerous flowering bulbs on each plant; the flowers, which are of a rich rosy-lilac with a fringed lip, are very compact in form, in this respect comparing very favourably with *D. macrophyllum*, which is much larger and more shaggy in appearance, though in other respects very similar. *Saccolabium premorsum* with six spikes is good; *Vandas* and *Aërides* are coming well on; of the latter some *Fieldingii* with branching spikes will be very good. *Cœlogyne pandurata* does very well here, and will in a very short time be opening its quaint flowers of black and green. Mr. G. Jackson has been successful with this species for several years past, never failing to flower it. *Cattleyas* and *Lælias* are just opening well, and soon will add considerably to the display.

*Wood Lawn, Didsbury.*—*Vanda teres* is again flowering freely with J. Broome, Esq., Wood Lawn, Didsbury. On the large plant already described in this paper we counted fifty spikes, which are producing four and five flowers each; two other plants are also showing, one with twelve spikes, the other four; if these should all open at one time there will be such a display of this magnificent Orchid as is very seldom seen. If *V. Hookeri* could be grown and flowered as freely as these plants, we should have a sight that would indeed be gorgeous. Amongst other *Vandas* are several specimens of *suavis*, variety *Gotteschalkii*. This form is stronger and stouter, the number of flowers on the spikes is more numerous than is usually met with, whilst the blooms are larger and very densely spotted. A grand plant of *D. devonianum* in a basket with twenty-five flowering bulbs, some 4 feet long, will shortly be a grand sight, and probably will be heard of again. *D. pulchellum* is well grown here—masses in baskets are covered with their snowy blossoms. Mr. A. Cole, who has recently taken entire charge of the glass erections here, is managing stove plants in a thoroughly practical manner, and the Orchids would appear to respond to the care and attention bestowed upon them.

## J. SOUTHGATE, ESQ., SELBORNE, STREATHAM.

This collection is well known amongst Orchid exhibitors; many are the fine examples it contains, and of course every year they are getting more numerous; all, however, whether specimens or not, display health and vigour in a manner plainly indicating that their requirements are well understood and supplied by Mr. Salter, the able gardener here. There is now a very good display of *Cattleya Skinneri* and *C. Skioneri alba*, *C. Mossii*, *C. Mendelii*, *C. Mendelii Selbornensis* (a fine variety), *C. Wagneri*, some fine types of *Lælia purpurata*, *Dendrobium Jamesianum*, *D. devonianum*, *D. crepidatum*, *D. Brymerianum*, *D. Parishii*, and *D. Falconeri*. *Masdevallias* are evidently "at home" here; a young plant of *Masdevallia Veitchii grandiflora* (carrying twelve spikes), *M. Chelsoni*, *M. Lindenii*, *M. chimera*, *M. ignea*, *M. Harryana*, *M. Shuttleworthii*, and *M. Reichenbachiana*—a good variety. In the *Masdevallia* house a nice piece of the curiously coloured *Restrepia antennifera* was in full bloom. A large selection of *Odontoglossums* are out just now, including *O. nebulosum*, *O. constrictum*, *O. Ruckerianum*, *O. sceptrum* and *O. sceptrum triumphans*, *O. Hallii*, *O. polyanthum*, *O. Erstedii*, *O. Cervantesi*, *O. Roezlii* and *Roezlii alba*, *O. triumphans*, *O. Rossi majis*, and *O. Andersonianum*. *Ada aurantiaca* was conspicuous amongst its less brilliant companions, which were contrasted also with various *Oncidium*s, such as the curious *O. cucullatum*, *O. macrothum*, *O. superbiens*, and *O. ampliatum*, *Pescatorea Lehmanni*, *Cœlogyne elata*, a fine large plant; *Huntleya velata*, *Lycaste Skinneri*, *Cymbidium Lowii*, a fine variety, with a grand labellum; *Maxillaria Farmeri* and *M. Harrisoni*, a grand variety of *Saccolabium ampullaceum*, *Phalænopsis Luddemanniana*, *Vanda suavis*, *V. Veitchii*, and *V. Patersoni*, *Epidendrum Wallisii*; a grand lot of *Cypripedium*s, consisting of *C. Schlimii*, *C. europæicum*, *C. Lindenii*, *C. selligerum*, *C. Roezlii*, *C. Harrisonianum*, *C. Haynaldianum*, *C. Druryi*, *C. Dominicanum*, *C. virens*, *C. niveum*, *C. Balleni*, and *C. lævigatum*; a fine plant of *Burlingtonia fragrans*,



with its delicate flowers and Hawthorn blossom scent was very sweet.

F. A. PHILLBRICK, ESQ., OLDFIELD, BICKLEY.

This is a beautiful little spot, and has about as choice a collection of Orchids as will be found round London. Each variety almost is worthy of description, but they are so numerous that it would be rather a lengthy process, and then would fall a long way short of conveying an adequate idea of the excellence of this valuable collection. *Phalaenopsis* grow well here. *P. grandiflora*, *P. rosea*, *P. Luddemaniaana*, and *P. Sanderiana* are in bloom. *Odontoglossums* are largely grown, and were represented in bloom by *O. Roetzlii* and *O. Roetzlii alba*, *O. vexillarium*, *O. Erstedi*, *O. Cervantesi*, *O. Rossi majus*, *O. Alexandræ*, *O. Ruckeriaeanum*, a fine variety of *O. nebulosum pardinum*, *O. Pescatorei*, *O. Wilckeanum*, *O. pulchellum majus*, a large piece of *O. citrosimum*, several bright varieties of *O. roseum*, and a large piece of *O. Reichenheimii*, a distinct angular-looking variety, much marked with dark brown, and a blush-violet lip; *Dendrobium thyrsiflorum*, a very deep-coloured *D. fimbriatum oculatum*, *D. Falconeri*, and a fine dwarf variety of *D. Jamesianum* were flowering well. The large genus of *Masdevallias* were represented by *M. Shuttleworthii*, *M. radiosa*, *M. Harryana*, *M. Harryana violacea*, *M. Harryana coerulescens*, *M. lilacina*, *M. conchiflora*, a superb variety of *M. Veitchii*, even better than the certificated *grandiflora*, being quite as long, and of much more breadth and substance of petal; and *M. ignea*. The following representatives of the genus *Cypripedium* occur:—*C. barbatum*, *C. barbatum grandiflorum*, *C. barbatum nigrum*, *C. Lowianum*, *C. mormophyllum*, *C. Warneri*, *C. selligerum*, *C. lævigatum*, *C. Pollettianum*, *C. biflorum*, *C. caudatum*, *C. villosum*, *C. hirsutissimum*, and *C. Boxalli*. *Epidendrum vitellinum*, *E. crassifolium*, *E. Wallacei*; *Oncidium cucullatum*, *O. ampliatum majus*; *Lycaste Skinneri*, and the lovely white variety *virginialis*; a fine form of *Saccolabium ampullaceum*, a fine plant of *Cymbidium Lowianum*, were all in flower. *Vanda tricolor*, *V. insignis*, *V. Veitchii*, *V. suavis*, and *V. Patersoni*, showed that *Vandas* are not neglected. *Cattleyas* are well represented by fine forms of *C. Mossiæ*, *C. Warneri*, *C. Mendelii*, *C. Skinneri*, *C. citrina*, a splendid *C. Skinneri oculata*, and *C. Mardelii*, one of *Veitch's* seedlings. *Lælia purpurata* is here represented by as fine a variety as one could wish for. Overhead, *Trichopilia crispata* and *T. crispata marginata* are flowering well.

### SISYRINCHIUM FILIFOLIUM.

THIS plant is known in the Falkland Islands as the "Pale Maiden," and has lately flowered with us for the first time. Our plants were brought home by Mrs. Brandon about a year ago, and seedlings sown at the same time are showing flower. The plant is of Rush-like habit, 6–8 inches high, and the bell-shaped flowers are erect, white, like porcelain, and each petal is delicately lined with pale purplish-red. Our sketch (fig. 155) shows the flowers natural size. Our plants have been grown in a cold frame, but no doubt it is perfectly hardy in mild localities. It is quite a dainty little beauty, well worth a place amongst rarities. It grows well in a mixture of peat and loam, and our strongest plant came over wedged tightly in a sod of *Lomaria alpina*. F. W. B.

### GARDEN WALKS.

IN starting to make garden walks, or in breaking up and reforming old ones, they should be dug out 6 inches deep, and when this is done, let a drain be made with strong tiles or pipes laid along in the middle or down one side, leading to a gradual fall where the water can be carried away into sewers, or got rid of by means of dead wells. Instead of laying drains, and having proper gratings leading to them, some make the great mistake of thinking that all they need do is to have plenty of rough material as a foundation to their walks, but there never was a greater fallacy, for though the rough material is necessary, it should never be in a loose state to draw off and hold water, but should be rammed down close and firm, for if not in this state the gravel above will always be shifting, and there will be a continuous hollow sound when walking over the surface, that will feel uncomfortable underfoot, and be unpleasant to the ear.

The best material for forming foundations is slag

or clinkers from ironworks or furnaces, which when broken up, are rough and rugged in outline, and bind well into the gravel, which soon becomes a solid mass, as if the two were welded together. If slag or clinkers cannot be obtained, broken stones and brickbats are a good substitute, but whichever is used it is advisable to throw over and amongst them some fine chalk, as that will help in holding them together, and keep down worms, which, without the chalk, often give a deal of trouble by throwing up casts and making the gravel look dirty. With 3 or 4 inches of foundation in and the brick and iron cesspools and gratings complete at regular intervals along the sides and at the right height the next thing is to give a layer of coarse gravel, and then finish off with another of finer stuff over the top. This, as previously remarked, should consist of about three parts of very fine stone, which,

the plant and moss shrivel up at once and leave their hold, and are swept away by the aid of a light twiggy broom. The only objection to the use of salt for garden walks is that it is dangerous for the edgings, but if these are of turf there is little or no risk if the salt is not placed too near to the sides, as the strength of it soaks down below the roots of the grass. Dilute vitriolic acid will also kill weeds on gravel, and is much used by some, but that, too, requires care in pouring it on, and is more expensive and dangerous than salt. J. S.

## The Rosery.

### POT CULTURE OF THE ROSE.

HEALTHY well grown Rose trees are greatly esteemed in season and out of season, that is if such a thing as being out of season could be thought of in relation to the blooming period of the Rose. Roses are ever seasonable and always welcome. Perhaps at no time are they more greatly esteemed than during the months of March, April, and May. I have given in previous numbers, and in considerable detail, the best method of pot culture for the entire season's growth, and would now urge the importance of carefully tending the plants after the flowering period is over. I am well aware that in most gardens it is very difficult indeed to find suitable accommodation for plants during the spring and early summer months, and nearly all plants, Roses included, that are grown to be forced are very much in the way when the flowering period is over, but it is very certain that unless the Roses are well cared for after the flowers are removed they will not flower so as to give satisfaction the following season. The plants have a sorry time of it at the best; wakened out of their winter's sleep at the dreariest season of the year, the young growths have to be made under conditions not akin to their nature, and it is the habit of plant life to resent this treatment. Roses do so more than most plants; they show by the thin texture and paler colour of their leaves that light and air has not been sufficient; and if the leaves show that they lack these essential elements so also will the flowers. The plants also suffer from the changes of temperature in transferring them from the forcing-house to the greenhouse or conservatory; but in this necessary state of transition the careful amateur will see that it is made as easy as possible. I may mention the way we successfully forced our own Roses for many years, as it may likewise be adopted by many gardeners. The early vinery was started about the last week in November, and to obtain a moist genial atmosphere a bed of some fermenting material was made up in the house. Over this the pots of Roses were placed, they were not plunged in it at first, as the heat would be excessive; subsequently, when it had cooled down somewhat, the Roses would have their pots plunged in it. Of course the usual treatment given to an early vinery is that best adapted to the Rose, and they used to grow, considering the circumstances, very vigorously; but before the flower-buds were sufficiently developed the Vine leaves crowded the space between the Roses and the glass, and they could not be expected to progress favourably—nor did they; we were enabled to take them out of this house and place them in the next vinery, which was started later. The temperature being much lower, and the leaves not having grown to obscure the light, the flowers made very satisfactory progress, and after remaining in this lower temperature for a week or two they will be ready to take their place in the greenhouse or conservatory. It is quite likely that the plants will be attacked by greenfly, mildew, or perhaps by both; but the remedy is easy and effectual if taken in time. Fumigate with tobacco smoke to destroy the greenfly, and dust with flowers of sulphur for the mildew. During the whole period of growth keep the plants quite as close to the glass as circumstances will permit, light and air being all important. When the plants have passed through the flowering period they must still be well cared for; place them in a light airy house if such is available preparatory to turning them out-of-doors. This refers principally to hybrid perpetuals and other hardy kinds. If possible such tender Roses as the *Teas* ought to be grown always under glass, with light and air freely admitted. Greenfly and mildew will appear on the plants under the best cultural conditions; but they are not so



FIG. 155.—SISYRINCHIUM FILIFOLIUM.

after being levelled with a rake, will be ready for rolling down, and this for the first time or two ought to be done when dry, but afterwards it is better to go over it immediately after rain, provided it does not lie up or become sloppy, as in a wet state it goes together and binds quickly after.

Old walks, though in fair condition as regards soundness, are often in an unsatisfactory state through moss and weeds on the surface, and many, to remedy these defects, make them look brighter, break them up, which, though it may destroy the weeds and give a fresher look, spoils the paths by mixing up the material they are constructed with, and making them loose and rough on the top. Instead of hoeing and stirring it is far better to apply salt, which, if used in the summer, when the weather is hot, will kill any weeds, and make the walks appear almost as good as if they were new. The way we manage is to sow it on thinly, and sprinkle with water from a fine-rosed pot immediately after, which helps to dissolve it quickly and carry it to the roots, when



liable to be attacked when they are kept in rude health by good treatment. It is during the summer months that Roses are so liable to be neglected out-of-doors in private gardens where they do not receive special treatment. I have seen plants placed in the front of a wall facing south, and there they stood through a long day in summer, no account being taken of the fierce heat reflected from the brick wall. The potting soil being dried up, and the leaves eaten up with red-spider, such plants could not possibly flower well the following season. The plants may well be placed out-of-doors after the middle of May, and they should have an open position exposed to the sun, and during dry, hot weather they ought to be syringed twice daily, in the morning and towards evening. The roots are kept in an equable temperature by the pots being plunged nearly to the rim in cocoa-nut fibre refuse. This treatment, with careful attention to watering, will keep the whole collection in healthy, vigorous growth during the summer. I repot once in a year, preferring to do this in August; at that time the roots take greedily to the new compost, and the plants become well established before their season of rest. They get injury by being exposed to continuous cold, late autumn rains, and it is best to place them in a dry, airy house, and keep moderately dry at the roots, before pruning them about the first week in November for another season's flowering. J. Douglas.

### FRITILLARIA MESSANENSIS.

This is a native of Sicily, and has a globose bulb; stems about 18 inches high, with 8—10 linear leaves. The bell-shaped perianth is nodding, with oblong obtuse segments, the outer ones more sharply pointed, vinous-purple, scarcely chequered, with a prominent green midrib, inner surface green with an ovate pit at the base. For the specimen figured (fig. 156), we are indebted to Messrs. Backhouse, of York.

### WINDOW GARDENING.

(Concluded from p. 692.)

Now as to the watering of your plants it is necessary to be methodical, and a little practice will teach you more than anything I can tell you. The best plan is to look over your plants every morning. As we have said, the soil itself is composed of particles through which air-spaces abound. The water must be just sufficient to keep these particles moist, and the air in the spaces is thus kept in the condition of moist air. The roots traverse these air-spaces, and it is, therefore, moist air which roots want rather than water. If it were water simply which plants wanted, we should cork up the bottom of the hole in the flower-pot, and prevent the water getting away. Instead of this we try to hasten the passing of the water through as much as possible, by not only keeping the hole as clear as possible, but often by putting pieces of broken material over the hole to act as drainage.

That plant will generally be the healthiest, therefore, which wants water most often. This will show that there are plenty of air-spaces, and that the roots are making good use of them. If it does not often want water it is in a bad way, and less water rather than more must be given.

The frequency of watering, then, should be according to the rapidity with which the water passes away. If, when you pour water on earth, it disappears almost instantaneously, it would be safe to water such plants every day. There are several methods adopted by professional gardeners in order to determine when a plant requires water:—

1. By the general appearance of the soil, or feeling it with the finger.

2. Tapping the pot with the knuckles. The pot has a sharp hollow sound or "ring" when the earth it contains is dry, and a dull heavy "thudding" sound when moist. Take a pot of dry soil and one recently soaked with water and try this experiment.

3. By lifting the pots and testing their weight, wet soil being, of course, much heavier than the same quantity when in a dry state.

Fill two pots with soil, water one only, and then lift them both for comparison. A little practical experience will soon enable you to tell when your plants are dry by each or all of the above methods.

Always use soft (*i.e.*, rain or river) water, in preference to that from wells or springs. In towns where water is supplied by the Corporation, expose

it to the sun in a wide tub or other vessel for a day or two before using it for your plants.

Never use cold water. Water for plants should be equal in temperature to the atmosphere of the room, case, or frame in which they are growing.

Never water a plant that is already wet; but when a plant is dry give it sufficient to moisten the ball of earth thoroughly.

Plants require water less frequently during dull damp weather than during the summer, when the sun is powerful and the light intense. Water for syringing or sprinkling should be quite free from mechanical impurities, as chalk or lime. Muddy water leaves spots and patches of dirt on the leaves after it has evaporated, and necessitates their being sponged clean.

If you notice a pot that does not get dry, but that appears to be in a wet and stagnant condition, turn out the sickly plant at once. Examine the crocks or drainage and displace it (without breaking the ball) if it is clogged up with wet soil. Look out for worms. If you see the holes and tracts, but no worms, tap the soil until they appear, and remove them. Now take a perfectly clean and dry pot (of the same size or even less), drain it, end turn your plant into it, pressing and shaking it down by gentle taps on the bench or

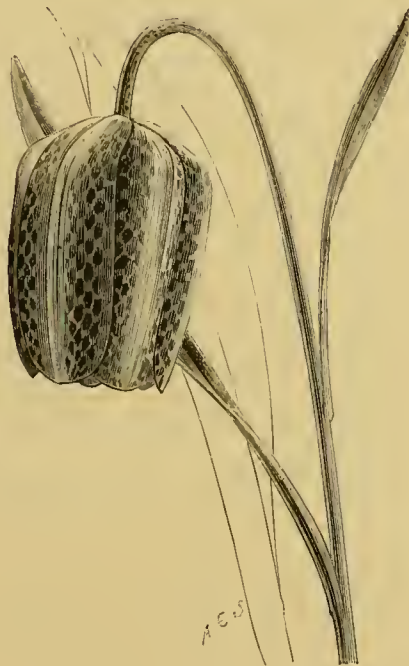


FIG. 156.—FRITILLARIA MESSANENSIS.

table. If the surface of the ball is moss-grown remove it with a blunt stick, and put a little fresh earth around it. Now your plant is in a fair way for recovery, and in nine cases out of ten, if carefully watered, it will recover its freshness and beauty.

Thus you will perceive that the four great essentials of healthy plant life are heat, air, light, and constant moisture. That all plants like heat rather than cold is proved by their rapid growth during the summer, as contrasted with their slow progress or absolute rest during winter. Air and light are as necessary for plants as for ourselves. I might even go a little further and say that when the plants grow up in your windows tall and thin, with wiry stalks and pale yellowish leaves, they indicate by their general appearance an insufficient amount of light and air. When this is the case more air and more light, through clean window-panes, would be beneficial.

We now come to the question of repotting or manuring. If you take a few Turnip or Mangel seeds and plant them in a field or garden they increase in weight and size very rapidly, so that what in the springtime was a pound of seed may, after growth for some months, become changed into several tons weight of produce. This increase of substance and weight is mainly the result of root-action, that is to say, the plants have absorbed all this weight of material from the soil in solution. It naturally

follows that the soil becomes less rich every time a crop is removed, and to supply the deficiency the farmer adds every year or two more plant-food in the shape of manures. Now what is true of the farm is true of the smallest plant in your window, the formation of every leaf and every blossom leaves the earth in your flower-pots poorer than it was before, hence after some months one of two things becomes necessary, you must either place the plant in a larger pot, adding at the same time more fresh earth, or you must add manure or plant food to the pot in which you wish the plant to thrive still longer. Sometimes it is convenient to retain plants in small pots, and then a pinch of guano or of sulphate of ammonia in a quart of water makes a first-rate stimulant, adding new life and vigour to any plants which had begun to show signs of stunted growth owing to their soil having become exhausted. As I said before, rain-water is best. Every gallon of fresh rain-water contains about half a grain of ammonia salts, and Liebig, the great agricultural chemist, calculated that this quantity per gallon is amply sufficient to nourish a forest of Oaks or other trees. Thus rain-water is the best you can use for your pet plants, and in towns it is rendered still more nourishing owing to the soot collected by it as it falls on the roof, ere it finds its way into your water-tub below.

I have alluded to plants as being perfect chemists in their way, selecting from the elements in the soil what they most require for building up their cells and fibres, their leaves and flowers. I have also alluded to some of our native wild flowers, and now I want you to distinctly understand that all the species, or distinct types of plants, even some of the rarest ones of our hothouses, are also wild in the temperate and tropical countries of the world. Again, every known plant has a Latin name given to it by botanists. This name is given along with a description of the plant, and is often accompanied by a plate or drawing; and the reason the name given is a Latin one is because Latin is understood of all scientific men throughout the world. But there is no necessity for you to call your pet plants by their Latin names, although Fuchsia, Geranium, Calceolaria, and many other Latin names are now firmly fixed in our own tongue; but you can follow the example of the poets, and call Campanula "Bell-flower," Primula sinensis simply "Chinese Primrose," and Mimulus moschatus will be none the less fragrant if you call it "Musk Plant," just as Viola odorata is quite as sweet under its more homely name of Violet. Now, if I were to read you a long list of the Latin names of the best window or room plants, some of you would not be quite sure what plants were intended, and so these plants have been brought here so that you may see exactly for yourselves what I mean. There are also some plants here which have actually been grown in windows and rooms, and kindly lent by their owners for this lecture, and these you will have an opportunity of seeing for yourselves. [Plants shown here.]

When we come to consider the plants most useful to window gardeners we find that they may be divided into two groups; first, such shrubs as Virginian and Japan creepers, Ivy, hardy bulbs, annuals, and other plants, which will thrive outside a sunny window; and, secondly, the little Dragon trees, small Palms, Acacias, indiarubber plants, and Begonias, which require more heat and shelter, and so thrive best inside the room.

For the outside, or window-sill, a stout wooden box is by far the best receptacle for plants. It should have a few holes at the bottom, to let out the waste water, and an inch or two of broken crockery or bricks, for drainage. Such a box, 2 to 4 feet long, may be a foot broad and 8 inches deep. Plants in boxes of this kind require far less attention than those in pots, which become parched up in hot or windy weather, besides which boxes of this size and weight are not so easily toppled over and broken by that most energetic of anti-gardeners in town—the domestic cat.

Here and there in town you may now and then see whole windows quite full of healthy plants, but not often, for I notice that in most windows their health and beauty is in inverse proportion to their numbers. My advice is, do not grow too many plants—few and good is the best watchword, especially for a beginner.

One of the best evergreen plants for a room is Aspidistra, green and variegated. This specimen has



been grown in a shady window in the Haddington Road for the last three years, and when first brought into the house it had six small leaves only, and it has never been reported or mentioned during that time. No other plant I know does better, and it is an especial favourite in France and Holland, where fresh and healthy evergreen room plants are highly appreciated. The indiarubber *Ficus* is another good room plant, as also is this graceful *Acacia lophantha*. Several kinds of green leaved *Dracena* are thoroughly reliable, as also are small plants of the Australian Blue Gum or "Fever tree." I have not a specimen of this plant here to-night, but I have seen a fine plant in the window of a drawing-room in Clare Street for the past two or three years. Some small Palms grow well in warm rooms—none better than the *Corypha australis*. Another favourite, especially at this season, is the Arum Lily, while the Scarborough Lily (*Vallota*) is very attractive when it throws up its cluster of scarlet Lily-like flowers in the autumn months, just before the *Chrysanthemum* comes into bloom.

Fortunately there is a good deal of healthy emulation amongst window gardeners, and a little ingenuity will enable any of you who may so desire to become possessed of plants not generally to be met with in rooms or windows. Orange and Lemon trees are very easily reared by sowing the seeds in a pot of earth and watering them now and then with warm water, not hotter than that you drink at your tea. It is most interesting to watch the growth of seeds of all kinds, and I recommend you to sow every seed you can obtain. I once saw a healthy little Date Palm, which its owner, a dock labourer, had reared from a stone. It obtained a prize at a flower show in London, much to the delight of its owner, who had grown it in a dingy little room in East London for nine or ten years. The common Grape Vine may be grown either inside or outside a sunny window, and is easily reared from the seeds you will best obtain from the over-ripe or damaged berries which too often beset the pavement near to shops in town.

An old lady living in an almshouse once asked me to name a plant she had grown for five years in her room, and it was none other than a real Tea tree—*Thea bohea*—the seed ("a little round thing," as she described it) of which she had accidentally found at the bottom of her tea-caddy. A few seeds of Maize, or Indian corn, sown in a large pot, or box, at this season will form a most graceful ornament outside on the sill of a sunny window; and if you want to hide a bit of bare wall, the common Scarlet Runner or Kidney Bean, sown now, and trained up sticks or twine, will do it effectively. The Castor-oil plant makes an interesting specimen, and seeds or beans of it may now be sown in a pot indoors, and when they get 2 or 3 inches high they may be placed on the sill outside. I may be a little too sanguine and enthusiastic on this subject, but my own opinion is that every window of every house ought to have a large window-box for plants and seeds on its outer sill. Moreover, I am glad to see that in some of the best of modern houses now being built in London and elsewhere, this want has been solidly, permanently, and prettily supplied by the architect and builder, rather than temporarily so by the carpenter; and I sincerely hope that those in authority will bear this in mind when the construction of model dwellings for artisans and labourers is being carried on.

It may be said, as has been said very often, that real wants must be first satisfied, and that it is next door to a sin to offer beauty to people who may be wanting bread; but I do not fully agree to this view. One of the greatest privations that could be inflicted on the cultured people of any town would be, not to take away their bread or wine, but to take away the flowers with which they love to surround themselves, and I know the self-same love of real and beautiful flowers exists in the hearts of most of you here to-night, and I am further sure that some of you now present will be among the successful competitors at a flower show which has been, or is about to be organised by the honorary members of this Association.

Last year I was one of those appointed to make the prize awards at a flower show at Lytton Hall, Leeson Park, and the perfection to which *Pelargoniums*, *Fuchsias*, *Petunias*, *Cactus* plants, and annuals had been brought was really surprising, when one remembers the difficulties and makeshift contrivances under which they had been grown. What most surprised me, however, was the little garden belonging to an inmate of the Blind Asylum—a little sunny corner, gay with flowers and creepers. This little plot had been made, planted, and tended by this blind woman—a Mrs. or Miss Morgan, and nothing could well be neater or show more loving care than did her flowers. She knew the position of every plant, and she seemed to see them actually with the tips of her fingers, and could tell me the names and show me each treasure almost as well as if she had had her sight. Now, great as your difficulties may be, you will own that those which this blind gardener surmounted were greater than any you may expect to encounter.

It would not be quite fair to conclude a lecture given under the auspices of this Association without making some reference to the sanitary or health question in relation to window gardening. I am sure I need not tell you that plants in reality belong to Nature's scavengers, and benefit us by eating up decomposing matter which if left unutilised by them would become a source of extreme danger to ourselves. Apart from such direct gifts as corn and wine, or fruit and timber, we must not forget the draining and disinfecting value of vegetation. (From a lecture by Mr. F. W. Burbidge.)

## NATIONAL AND CENTRAL HORTICULTURAL SOCIETY OF FRANCE.

(Concluded from p. 674.)

MAY 19-31.—In continuation of our notes on the more interesting items of this exhibition we may mention the novelties of merit in *Azalea indica* shown by M. Royer fils' successor, of Versailles—Notary Moens, a purplish-rose; Rosa Bonheur, a capital double flower—white; Mechtilda, a white, striped with rose; Frau Oberbürgermeisterin Cassian, a rich double rose-coloured bloom; Professor Frück, rose-pink; President Auguste van Geert, 1884, a scarlet, large, and semi-double; Proserpine, 1882, double rose; Oberst von Kukinski, 1882—a double scarlet; Dorothea, 1879, white and pink; General Hartmann, 1880, purplish-rose; and Herman Weigel, 1879, cerise.

MM. Croux et Fils exhibited *Rhododendrons* of fairly good quality, dwarf and excellently flowered; also *Kalmia myrtifolia*, and some umbrella trained *Clematises*.

### THE ROSES.

These, both standards and dwarfs, were arranged in tents, apart from the glowing colours of *Azaleas* and *Rhododendrons*, so that their effect might not be marred by the comparison. The specimens were as unlike anything we are accustomed to see at our shows as plants could well be, as was necessarily the object aimed at. In France pot Roses are grown for every one's enjoyment, and not merely as show pieces, only brought into notice when the grower is tempted by the chance of honour or profit to do so. There the Roses shown were just such as are to be found at any flower market in Paris or elsewhere during the Rose season; vigorous healthy plants of not more than two years old, and carrying open blooms and buds that would expand in succession. The standard plants are employed to brighten up groups of evergreen plants in conservatories, courts, and may be found of any height from 2½ feet to 7 feet if need be. It could not be said that the Roses looked at their best on the day of the opening of the show, but as they have to remain there ten days, each succeeding day will find an increasing quantity of bloom on the plants.

M. Jules Margottin, of Pierrefitte, near Paris, had a large number, of which were to be noticed one hundred standards of nicely flowered Teas, hybrid perpetuals, &c., good plants in 8-inch pots.

In the same tent a very good lot was brought by M. A. Rothberg, of Genevilliers (Seine), including Roses of all kinds as grown for the market.

In the larger Rose tent, M. Charles Verdier, 2, Rue de Choisy, Ivry, had several large groups, contributed as a fine collection of flowering plants, remarkable for their floriferousness. The best bed was arranged round a piece of bronze statuary, and formed decidedly the best feature in the tent. The Roses, and all others as well, were sunk in the ground to a little below the rims of the pots, so that the effect was that of Roses planted out. This eminent grower showed also in the competition for the best 200 standard Roses in 200 varieties, and in the class for 100 standards in 100 varieties, but differing from those in the larger lot. These were arranged in long rectangular beds, and would be in great beauty a little later.

M. Margottin, sen., had also a group in this tent, comprising 200 standards, fine plants, with plenty of flower present and to come, the bed in which these were being finished off at the sides with dwarf plants, root-grafted, or cuttings.

M. Leveque et Fils, Ivry, competed with 200 standards, and in 100, consisting of Teas, in as many sorts, these last a beautiful assortment. Good blooms were observed of *Niphotos*, Miss Edith Giffard, Reine Marie Henriette, David Pradel, Mrs. Lambert, Madame Docteur Tutte, and Mrs. Backer. The same firm also competed in the class for 100 standards, and in that for dwarfs, 200, in as many varieties. This does not quite exhaust the list of exhibitors, but goes well to prove the extent of the Rose competition, so far as plants are concerned.

### ANNUALS, BIENNIALS.

A class of plants gone out of fashion with us, but not with our neighbours, who seem not to change their love for old-fashioned flowers so readily as they do for their rulers, was well shown by two firms of nurserymen, viz., Messrs. Vilmorin, Andrieux et Cie, 4, Quai de la Mégisserie, Paris; and M. A. Legaron's successor, 20, same locality. These plants were in each case arranged closely together, had been grown all along in pots, and had formed part of a huge collection. The sunless, cold weather has not been favourable for them, and therefore some were rather destitute of fully open bloom. In most cases 8-inch pots were used, and the plants respectively of fair proportions, and for interest and variety would put ordinary bedding plants and the

like quite in the shade. There were *Phloxes* *Haageana* in variety, *Linum grandiflorum*, *Nemophilas* in considerable variety, beautiful *Mimulus*, *Iberis gibraltarica*, very fine; dwarf *Nasturtiums* in many shades of colour, *Pansies*, very large and varied; a dwarf *Ageratum*, named *grandiflorum album*, that is neat and yet elegantly irregular, and which does not form a "cushion"; a *Lobelia speciosa superba*, a blue of surpassing brilliancy; a pale blue variety of *Browallia* 6 inches high, single and double *Petunias*—Gloire de Segrez—after the colour of the old Countess of Ellesmere but larger, would make a good bedding kind; and a white *grandiflora* variety is also good for that purpose; *Verbenas*, *Clarkias*, *Schizanthus*, *Gilia*, *Tagetes pumila*, *Marigolds*, *Stocks*, *Leptosiphon*, *Androsace*, *Myosotis*, *Calichroya platyglossa*, *Acrocliniums*, *Eschscholtzias*, *Collinsias*, *Saponaria calabrica*, *Chrysanthemum tricolor*, and *Oxalis rosea alba*. The above comprise only a sample of those seen, which are one and all to be found during the season at the flower markets, or at the numerous nurseries.

### CALADIUMS.

A beautiful collection of *Caladiums*, which were placed by themselves in one of the exhibited glasshouses, deservedly attracted the greatest attention, the liking for these brilliant summer foliage plants still having a hold on the fancy of the public, whilst it has so waned with us that we rarely find many kinds in collections. The plants were sent by M. Blen, the well known raiser of this genus, and whose name will be familiar to English readers. Amongst the more striking colours may be instanced *Emilie Verdier*, a white ground mottled green, with green nerves and ribs, foliage longer than broad; *Reine de Marie de Portugal*, leaf to inches broad, crimson, margin green, ribs and nerves brilliant scarlet; *Aurora*, crimson, the middle of the leaf red, veins crimson, and the margin grey—large size; *Ludemannii*, large, ground green, blotched white, nerves and ribs crimson—extra; *Pyrrhus*, large, crimson ground and ribs, a 2-inch margin of green; *La Corege*, green and crimson, very fine; *Gluck*, a deep pink ground, a thin green edge, ribs crimson, of a deep tint; *Lepaschinski*, with crimson centre and a blotched cerise and green area around it; *Luteum auratum*, yellowish-green, distinct; *Rubens*, very large, bronzy-green foliage, crimson nerves, the colours running out to a green edge; *Comtesse Maille*, white ground, crimson nerves, green margin; *Charlemagne*, deep cerise, nerves crimson. Seedling No. 12 is a sort quite destitute of chlorophyll excepting at the base of the ribs, and in the flower-stalks and spathe. *Caladiums* were shown likewise by MM. Thibaut et Keteleer, Sceaux. The collection was of no mean merit, M<sup>me</sup>. Margottin, M<sup>me</sup>. Motjana, *Salvator Rosa*, and Princess Alexandra being remarkable in colour.

### MISCELLANEOUS.

M. C. Vuysteke brought a small number of *Odontoglossums*, including a nice piece of *Coradinei grandiflorum*, a sparsely spotted white ground variety; *radiatum maximum* was a very fine variety with sepals of brown and green. It is not so fine in its way as *O. hystrix*. M. A. Dalhère showed *Philodendron imperialis* from the Solomon Isles; the leaves are of a greyish colour, and cordate. *Fritcharia grandis*, a distinct round-leaved Palm of an apparently dwarf habit of growth; it is Bornean.

The collection of Tree *Paeonies* from the garden of M. Paillet, Sceaux, were remarkable for variety, and should have a longer notice if space permitted.

The *Iris susiana* of M. Delahaye were wonderfully large, and very beautiful. This species is getting rarer every year in France, so that a good lot was a matter of remark.

*Echeveria gibbosa* is a curiously variegated plant, with broad bands of brownish-creamy colour in the leaf; it may be of use in carpet-bedding.

M. André, 30, Rue Chapal, Paris, showed some plants, rare, if not beautiful in the garden sense, viz., *Ononis Drakeana*, a blue-flowered Composite from New Grenada, with foliage, as shown, not of a pleasing character; *Ficus Portmani*, with thick green leaves, club-like in shape; and *Epidendrum arachnoglossum* (Rchb.), having pink corymbs of flowers. The *Pansies* were very large and in abundance, and it were invidious to select those of any one exhibitor.

The *Calceolaria hercacea* was exceedingly well done, but the plants were in some parts of the arrangement awarded a place of honour that they scarcely deserved. The strain has a dwarf habit, with rather flatish flowers, and great abundance of them. In the Rose tents MM. E. Fourgeot et Cie, MM. Vilmorin, Andrieux et Cie. showed the best of these, the latter firm contributing an excellent lot of *Cinerarias*, both single and double-flowered. M. Bernard Debrie had a most effective decoration for a doorway leading into the grand saloon. On one side of the steps leading to the door was a rustic wheelbarrow made of closely fitted Bamboo. This was filled with Rose blooms cut with long stalks; opposite was a large handsome basket, 4 feet long and 3 feet high, filled also in the same manner, two shields of black velvet hung right and left of the doorway, one having a great bunch of *Carnations*, and the other one of *Roses* hanging rather negligently, with their flower-heads downwards. The angles at the sides of the portal were filled in with plants of *Cocos Palms*, and slender plants in flower, overhead being a shelf with little pink *Azaleas* and a Palm or two.

A considerable number of fruiting Vines in pots were shown, viz., by M. J. Margottin, who had Foster's Seedling, *Gradiska*, a white oval Grape; *Boudaler*, a black round one; *Gros Colmar*, *Buckland Sweetwater*, and *Chasselas de Fontainebleau*. These plants carried from four to six fair sized bunches, the plants being eighteen months old. M. E. Salmon also exhibited Vines consisting of *Chasselas Napoleon* (*Chasselas*



d'Algiers), Breane Sucrée, a white oval formed berry; and collections of Grapes of last year preserved in bottles of water. They had been plucked in September, and were still quite plump if wanting in flavour. Ripe Cherries were well shown by M. Simon. M. Millet, gr., Bourg la Reine, had capital ripe Grapes in pots, grand Strawberries in pots, any one of which, had they not been bundled up, would have covered a circle 3 feet in diameter, the varieties being both native and foreign, Dr. Moreire seemingly being a kind much preferred, the fruit having size and colour. A few Pine-apples were seen of the kinds Smooth Cayenne and Charlotte de Rothschild.

#### FRUIT AND VEGETABLES.

the produce of French colonies, shown by M. He-diard, comprised many articles novel to Europeans, as red and white Yams, Loquats in quantity, Dioscorea bulbifera roots, Arachis hypogaea and Cajou nuts, seed-pods of Mimosa scandens from Martinique, Ginger. Amongst Apples shown were Belle Duboise Reinette du Canada, Calville Rouge, Calville Blanche, Reinette Brodee, Reinette Brise, Reinette d'Or, and Reinette Grise.

The vegetables were as good as the season and the skill of French gardeners could produce them, and this was especially true of the great varieties of Lettuces, Radishes, Cauliflowers, Cabbages (mainly varieties of the Oxheart), Endive, Potatos, such as Joseph Rigault, Belle de Vincennes, Heinaut, all nice looking kidneys of this season's growth. The Asparagus was enormous, much having been noticed that was 1 inch in diameter 6 inches from the tip. Tomatos were not so plentiful as might have been expected, nor were Kidney Beans of very good quality.

It may be remarked on the method of showing Potatos that the entire produce of a plant is shown, top included, so that all can see the habit and prolificacy of the sort. It does not make a show of tubers often misleading, as we do it, but it has its merits, which arrangers of shows may gather a useful hint from. Boxes full of young seedling plants of Potatos were shown of various ages, from the seedling onwards to full cropping stage.

## TERRESTRIAL ORCHIDS.

(Concluded from p. 663.)

OPHRYS.—We now come to the great genus Ophrys, which, among a large number of European species, includes some of the most perfect gems that can be imagined. The forms and colours of the flowers are very varied, and resemble nothing else in the floral world.

The culture of these plants is not difficult, as has been shown by the great success of Mr. Needle, formerly gardener to the Comte de Paris, who used to exhibit pots of them in great perfection at the spring shows in London, but as most of them are natives of the shore of the Mediterranean, and will not endure our winters without protection, it is useless, with few exceptions, to try to grow them in the open air.

The abundance and variety of Ophrys on limestone soils in some parts of Italy, Turkey, and Asia Minor is quite wonderful. I once collected in Lycia a bushel of tubers in a day, including at least a dozen species, and some of the Olive groves of Italy are carpeted by these lovely plants.

The principal points to be noticed in growing them are to place the tubers, which should be procured as fresh as possible, against the side of the pot in light limestone soil; to keep the pots plunged, but not too damp during winter, in a frame or house where there is plenty of air but no frost; and lastly, to keep down greenfly, which is very partial to these plants, and injures them very much. If these directions are followed they will bloom at various seasons from February to May, and after flowering should be plunged in a frame and kept without water until August or September, when they may be repotted and the new growth encouraged by gentle rains. Among the best sorts are:—

*O. apifera*, the Bee Orchis, and *O. muscifera*, the Fly Orchis, which, being British plants, are quite hardy. *O. lutea*, *O. speculum*, *O. ferrugineum*, *O. bombyliflora*, *O. fusca*, *O. Bertoloni* are all good sorts, which I have grown successfully. *O. ferrum equinum* attains as much as 1½ foot high, but most of them do not exceed 8 or 9 inches.

#### SERAPIAS

is another genus, distinguished by a dull reddish colour, and the large hanging labellum. It has the new tuber at the end of a fleshy root, not close to the old one as in Orchis.

There is a very rare and beautiful plant called *Serapias triloba*, which is believed to be a natural hybrid between *Serapias lingua* and *Orchis papilionacea*, and is figured in *Bot. Mag.*, t. 6255 from a plant grown by me. Though the colour is rather too high in this plate, it certainly represents one of the most beautiful and rarest plants in the whole family.

Then we have some charming, though delicate, plants which grow in the sphagnum bogs of North America—*Calopogon pulchellus*, *Arethusa bulbosa*, and others which may be kept a year or two in pots of iving sphagnum, and the lovely and rare little *Calypto boreale* found in the deep mossy arctic Pine

woods of northern Europe and America, but very hard to get alive in a garden.

In the Cape Colony and Natal are a great variety and abundance of curious and beautiful terrestrial Orchids, the queen of which, *Disa grandiflora*, has become common in collections, and the culture of which is now better understood. *Disa megiceras* is another grand species which I once had in perfection from a tuber sent me by my esteemed friend Max Leichtlin. It is figured in *Bot. Mag.*, t. 6529, but the plate by no means does justice to the plant, which unfortunately died after flowering, and as far as I know it is not now in cultivation. The conditions which suit the Cape Orchids are various, and few of them seem easy to grow; but I have seen some of the fine species of *Satyrion* growing in peaty sand in the nursery of M. de Graaf, of Leyden in Holland, in great strength and luxuriance. He informs me that many of them are not so delicate as supposed, and that he is now devoting increased attention to them; so it is to be hoped that others will follow his example, and bring to light some of these hidden treasures.

*Bonatea speciosa* is one which should be in every collection, as it is most easy to grow, and pretty though not showy in colour. One of the most curious things in Nature is the way in which the large yellow pollen masses of this plant fly from their places of concealment and attach themselves firmly by an adhesive root to the fingernail, or head of an insect, on touching the entrance to the flower. Many similar cases are known in which the fertilisation of Orchids is effected by insect agency; but nothing that I have seen can compare with the magic way in which the two great yellow antenna-like pollen-masses fly from this plant.

There are many fine though little known terrestrial Orchids in the Himalaya and mountains of Southern India. *Habenaria gigantea*, or *Platanthera Susanna*, is one of the most splendid. It grows 3 or 4 feet high, and has a yellow or white labellum, 4 inches broad, fringed with long slender waving tails.

There is another temperate region where, from the accounts of travellers, Orchids are remarkable for their abundance and beauty, namely, the Andes of Southern Chili, the home of the *Araucaria*, the *Lapageria*, and many beautiful shrubs, but hardly visited of late years by botanists or collectors. Here are many species of yellow and purple *Chloreas*, and other Orchids, waiting for some one to introduce them. Now that facilities for obtaining all small objects by parcel post from distant parts of the world are on the point of being given, it is much to be hoped that we shall know more of the Orchids of this country, as no plants are so ill adapted for drying, or lose their beauty so completely in the herbarium; and it cannot be disputed that half-a-dozen species of such plants give more interest and value to a garden than a house full of *Pelargoniums* or *Begonias*, which seem to monopolise the attention of too many of our amateurs. *H. J. Elwes.*

## Plants and their Culture.

### PROPAGATION.

THE clearance of the latest of the plants and cuttings from the propagating-pit for bedding-out purposes will now have been finally effected for this season. No time should therefore be lost in turning attention to the necessary amount of material required for late autumn and winter flowering, cuttings of *Euphorbia jacquiniæflora*, *Poinsettias*, *Begonia insignis*, *B. Knowsleyana* and *B. Moonlight*, *Centropogon Lucianus*, *Eranthemum pulchellum*, *Plumbago rosea*, *Burchellia capensis*, and *Thysacanthus rutilans* should all be got in as soon as possible in order to have good well established plants that may be relied upon to give the best possible return in flower during their season. Later batches of each will of course be useful, but by starting at once the requisite stock of suitable size can be obtained without having to push forward the growth too rapidly to secure stocky dwarf plants. Old plants of *Thysacanthus rutilans* should be retained to provide an extra tall set of plants to be used with excellent effect for training over pathways or up rafters, in either way they produce a beautiful appearance when in flower.

Of other flowering stove plants, the *Ixoras* will now strike freely with a brisk bottom-heat, *Gardenias* of the best kinds (*G. florida intermedia* in particular), *Rondeletias*, *Stephanotis*, *Tabernaemontanas*, *Allamandas*, *Clerodendrons*, *Bougainvilleas*, *Dipladenias*, and *Vincas*, should each receive attention to keep up a healthy stock. Each of these genera it taken

in hand at once will produce capital plants by another spring for growing on. Seedlings of such subjects as *Anthurium Scherzerianum*, *Aphelandra aurantiaca Roelzii*, *Ardisia crenulata*, *Amaryllis* (hybrids), *Impatiens Sultani*, *Streptocarpus biflorus*, *Torenia Fournieri*, and *Gloxinias* should each receive that attention which each requires to raise a healthy lot of plants, bearing in mind two essential points, viz., early pricking off from the seed-pan, and a position near the glass to keep them dwarf.

#### FOLIAGE PLANTS.

The propagation of these should also be carried on to the required extent for producing a succession stock for decorative purposes. Several of the *Crotons* will now have made a good spring growth of characteristic colour; these shoots can be struck as freely as Willows. When established in safety, the tall and scrubby plants can with advantage be dispensed with entirely. Tops of *Dracenas* will at this season of the year strike freely without the tedious process of rooting them off, as is frequently done. At the base of *Pandanus Veitchii* on established plants will be found in many cases small grassy shoots that are, generally speaking, of good variegation; these will make the best of plants for vases and table decoration, partaking of a much more graceful habit than in the case of strong suckers. It will take the best part of a year longer in such cases to produce a plant of proportionate size, but when attained, there is no comparison in the appearance between them and those that are propagated from the stronger suckers. *Sonerila margaritacea superba* should also be struck from cuttings now. Each one if inserted in a thumb-pot will quickly take root, to be shifted later on into 4-inch pots, in which they make capital stock for the autumn, providing us with effective edging plants for the stove, that are handsome both in their foliage and flowers, the latter of which are freely produced. *Fittonia argyrea*, *F. gigantea*, *Tradescantia discolor*, *T. Madame Legueuse*, *Panicum variegatum*, and *Selaginella Kraussiana*, should all be worked up to the desired numbers, where any quantity of vase work or other forms of household decoration is carried out.

#### GREENHOUSE SOFT-WOODED PLANTS, &c.

The *Eupatoriums* will need to be propagated as soon as suitable cuttings can be had. *Azalea indica* will strike freely from the half-hardened wood, and many of the most useful sorts make quite as good plants in this way as when they are worked on to a commoner kind by grafting. A batch of the best kinds of *Salvias* may still be got in; very good plants can yet be secured by the autumn—better, perhaps, in many ways than plants of large dimensions when storing time comes round again. A useful stock of *Pompon Chrysanthemums* can be obtained by placing about three cuttings together in a small pot and shifting on only once afterwards; in this way they will not grow away strongly. A selection ought also to be made of the single *Chrysanthemums* (Paris Daisies) for conservatory work during the latter part of the summer; with these, in conjunction with scarlet and pink zonal *Pelargoniums*, a very good display can be made. For late autumn work the bouquet *Dahlias* of the "White Aster" type make most useful plants to provide cut flowers just prior to the advent of the *Chrysanthemums* in force; spring-struck plants of this kind in particular may be kept in pots during the summer, shifting them on as required. *James Hudson, Gunnersbury House Gardens, Acton, W.*

## PLANT PORTRAITS.

AZALEA M. JACQUET, *Revue Horticole*, May.—An "Indian" variety, with narrow green segments intermixed with its irregular rose-coloured petals.

BARKERIA LINDLEYANA VAR. CENTERE, *Garden*, May 2.

CAMELLIA MADAME P. DE PANNEMAKER, *Illustr. Hort.*, t. 545.—A very regularly imbricated variety, with pink veins on a white ground.

GALEANDRA NIVALIS, *Illustr. Hort.*, t. 545.

LEONOTIS LEONURUS, *Garden*, April 25.

MASDEVALLIA CHIMERA, *Revue de l'Horticulture Belge*, May.

PTERIS JAPONICA, *Revue de l'Horticulture Belge*, May.

SEDUM CORSICUM, *Garden*, April 11.



## APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	June 2	{ Special Sale of Orchids in Flower, at Protheroe & Morris' Rooms.
THURSDAY,	June 4	{ Linnean Society Meeting. Sale of Imported Orchids, from Mr. F. Sander, at Stevens' Rooms.
FRIDAY,	June 5	{ Sale of Imported Orchids, at Protheroe & Morris' Rooms.

THE very limited number of *Eucalypti* capable of cultivation in this country does not convey to the mind any idea of the vast importance of this genus to the great Australian continent, nor of the large number of species which it comprises, although, according to Baron F. VON MUELLER, it is second only to *Acacia* in this respect. The *Eucalyptus* trees, he tells us in his valuable *Eucalyptographia*, "form the principal timber vegetation nearly all over the wide Australian continent, and for all ages the inhabitants of this part of the globe will have to rely largely, if not mainly, on *Eucalyptus* for wood supply." The rapidity of growth of some of the species and their salubrious effect in miasmatic districts have led, in great measure through Baron von MUELLER'S energetic and persevering efforts, to their widespread cultivation in other countries, wherever the climate has been found suitable, so that the leaves and oil obtained from *Eucalyptus globulus* grown at Nice already form articles of export from the South of France.

It is now nearly a century since the first *Eucalyptus* was described by L'HERITIER (A.D. 1788) under the name of *E. obliqua*, and since that date new species have been discovered nearly every year, the number now known being estimated at 140.\* Although the *Eucalypti* are practically confined to Australia and Tasmania, none being known in New Guinea, and only a few extending to New Zealand, Timor, and the Moluccas, many of the species are very locally distributed. From the great similarity of leaf and habit, and the difficulty of procuring flowers and fruits experienced by ordinary travellers, without cutting down a tree for the purpose, there is great difficulty in describing and classifying the species in a truly natural manner. This is, moreover, increased by the fact that the barks, which are very characteristic in most of the species, cannot well be inserted in herbaria. It is not surprising, therefore, that although Baron MUELLER began to collect materials for a monograph of the genus in the year 1847, the publication of it has been delayed until 1879. The first ten decades, containing in all 100 species, are now before the public, and form one of the most valuable contributions to the science of forestry ever published, and may well serve as a model of what such monographs should be.

While fully keeping in view the fact that the chief use of botanical knowledge lies in the possibility of its practical application, everything that might conduce to a thorough scientific knowledge of the life history and development of the species, or which might indicate the most natural method of classification, has been carefully recorded and summarised. The labours of M. NAUDIN at Antibes on the embryonic development of the species of the genus have been laid under contribution, and a table is given illustrating the variation of form of the cotyledonary leaves in different species. The medical journals of all countries have also been searched for information concerning the medicinal uses of the various gums, gum resins, or oils produced by the different kinds of *Eucalyptus*. The result is a mass of information as thoroughly exhaustive as it is possible even for a German to make it, so much so that even the relative size of the pollen grains, the microscopic structure of the different timbers and the comparative number of stomata on the

leaves of different species have been tabulated and recorded. It is only to be regretted that this information is scattered irregularly throughout the work without any indexical guide to its position. Each species is separately treated, the description being accompanied by an illustrative plate; but the interrupted account of the *Eucalyptus* products is apparently given under those species which yield the particular product, or those of which the description is short enough to allow room for additional notes. Under these circumstances it may be of interest to our readers to indicate, so far as our space will allow, the species under which such details may be found, and to point out those of especial horticultural, economic, or forestal interest.

Comparatively few of the species are suitable to the English climate, only *E. coccifera*, *E. Gunnii*, *E. pauciflora*, *E. urnigera*, and *E. vernicosa* being able to brave frosts and snowstorms. Neither of these are remarkable for beauty. *E. globulus* will not bear severe winters, but forms a very effective shrub for planting out in summer, and will withstand mild winters. *E. Gunnii* contains so little volatile oil in the leaves that it is readily browsed upon by sheep and cattle, whereas the dwarf procumbent form of the tree is met with near the coast. The young foliage of *E. pauciflora* must also be possessed of some value as fodder, for opossums are so fond of it that the tree often dies out where these animals are not kept down by the hand of man. The sugary *Eucalypt* (*E. corynocalyx*) appears to be the only other species attractive to cattle, which readily feed on its sweetish leaves. This species, however, is better fitted for arid deserts, being capable of bearing the protracted droughts and extreme heat of such regions. Other species also suitable for such districts on account of their rapid growth are *E. bicolor*, *E. ochrophloia*, *E. polyanthema*, *E. salmonophloia*, *E. terminalis*, and *E. salubris*. The last named is also remarkable for the large quantity of volatile oil contained in the leaves.

The species which possess ornamental value are few in number and are suitable only for cultivation in countries free from frost. These are *E. ficifolia*, *E. megacarpa*, *E. miniata*, *E. phœnicia*, and *E. ptychocarpa*. The first is a most beautiful tree, with shining dark green leaves, like those of the indiarubber plant (*Ficus indica*), and handsome trusses of scarlet flowers. It is said to form a most gorgeous object in the landscape in January and February when covered with blossom. The second is a shrubby plant with large ashy-grey leaves and flowers 2 inches in diameter, with bright orange or scarlet filaments. Its beauty attracted the notice of Miss NORTH when in Australia, and her painting of the flowers may be seen in the collection so generously presented by her to the Royal Garden at Kew. *E. Preissiana* has also a bushy habit, but the flowers have bright yellow stamens. It is suitable for greenhouse culture in a cool climate. Directions for rearing the *Eucalypti*, which are extracted from Mr. J. E. BROWN'S *Practical Treatise on Tree Culture*, will be found under *E. decipiens*.

One of the most important economic products of the *Eucalypts* is the volatile oil obtained from the leaves. This varies very considerably in amount in the different species. Although *E. globulus* is often mentioned as the source of the *Eucalyptus* oil of commerce, this is by no means always the case, and for the simple reason that it does not yield so much oil as other species. A table given under *E. amygdalina* shows that, whereas 1000 lb. of fresh leaves of *E. globulus* yield only 120 ounces of oil, the same quantity of *E. oleosa* gives 200 ounces, and of *E. amygdalina* 500 ounces. The two last-named species have been until lately the principal source of *Eucalyptus* oil, which is

now prepared also from *E. dumosa*. Further details concerning the percentage of oil in other species may be found under *E. oleosa*. *Eucalyptus* oil is stated to be produced in Mr. J. BOSISTO'S factory to the extent of 12,000 lb. annually, and is extensively used as a solvent of various resins, especially of the Kauri resin, asphalt, and some varieties of copal. It also dissolves indiarubber, and is used in antiseptic surgery. The odour of the oil of a few species is remarkably pleasant—*E. citriodora*, which is regarded by Baron MUELLER as a variety of *E. maculata*, possessing that of the Citron in a remarkable degree, and *E. Staigeriana* that of Verbena, so much so, that the oil might easily be mistaken for that of the oil of Verbena of commerce.

The sap of several species contains a considerable amount of astringent matter, consisting of kino-tannic acid, mixed with a variable amount of a resinoid substance, the first constituent preponderating in some species, and the second in others. This gum, as it is called, either exudes from the bark or collects in fissures in the trunk. It is most abundant, according to a table given under *E. leucoxylon* in that species, and *E. macrorhyncha*, the former being said to yield 21.94 per cent., and the latter 13.41 per cent. of kino-tannic acid. Several varieties of this astringent exudation have from time to time been sent over to this country under the name of kino, but have not met with a ready sale, owing to insufficient care having been taken to collect the kind most soluble in cold water; that of *E. obliqua* is, however, stated to dissolve completely in boiling water and to remain clear when cold; that of *E. Planchoniana* is recommended for its great astringency. For tanning purposes it is quite possible that a small percentage of resinous matter might prove advantageous rather than otherwise in enabling the leather to better resist external disintegrating influences.

The species of *Eucalyptus* which are most valuable as sources of timber appear to be those in which resinoid matters are present in larger proportion than the kino-tannic acid. Of these, *E. marginata*, yielding the celebrated Jarrah wood is one of the most important to the colony; white ants will not touch it, it is unsurpassed as regards durability, and is worked with greater ease than most other *Eucalyptus* woods. *E. rostrata* also affords a much prized timber which is capable of bearing an enormous downward pressure, and is only slightly subject to longitudinal shrinking, and is very durable in wet ground and in fresh or salt water, but is harder and more difficult to work than the Jarrah wood. *E. leucoxylon* also yields timber of extraordinary hardness and strength. These three woods are placed in the first class for ship building by the Australian Lloyds, and *E. globulus*, which is valuable chiefly for its extreme rapidity of growth, is placed in the second class; *E. corymbosa*, *E. diversicolor*, and *E. obliqua* come next in value; *E. redunca*, *E. resinifera*, and *E. cornuta* are also mentioned as yielding excellent timber.

A remarkable use is made by the natives of the roots of *E. micranthera*. These are lifted up from the depth of about a foot, and at a distance of about 15 feet from the tree; they are then cut up into pieces, about as thick as a man's wrist and about 18 inches long, and are allowed to drain into a vessel, or blown into by the mouth at one end. In this way a quart of water may be obtained from good samples in about half-an-hour. Roots nearer the stem are less porous, and do not yield water so easily. The water is stated to be beautifully clear, cool, and without any unpleasant taste. The roots of *E. oleosa* and *E. populifolia* are used for the same purpose, but yield water less readily.

In conclusion we may add that those of our readers who are interested in structural details

\* A list of the dates of discovery of the different species is given in the *Eucalyptographia* under *E. hæmastoma*.





FIG. 157.—PALMS IN THE LUCKNOW BOTANIC GARDEN. (SEE P. 702.)



will find information under *E. pachyphylla* and *E. phœnicea*; concerning the comparative number of stomata in the leaves, diagrams of sections of the anthers under *E. populifolia* and *E. tetraptera*; measurements of the pollen grains under *E. erythrocorys*; illustration of the epidermis under *E. microthera*; details of the microscopical structure of the wood under *E. Behriana* and *E. diversicolor*; figures illustrating the varied forms of the fruit under *E. Preissiana*; and a description of the relative size of the seeds under *E. megacarpa*.

— LUCKNOW BOTANIC GARDEN.—The young Palm which forms so conspicuous an object in our illustration (fig. 157) is *Wallichia disticha*, a tall growing Palm, with leaves in two ranks, the base of the stalks covered with a coarse fibrous network, the blades pinnately divided into numerous oblong segments toothed or notched at the end. To the left is seen the clean stem of *Eucalyptus citriodora*, and in front a *Chamærops*. We have already given illustrations from these gardens, and we shall shortly publish an account of their history.

— A PRIMULA CONFERENCE will be held at South Kensington at the end of April, 1886. The first day will be occupied with the business arising directly out of the exhibition, which is likely to be extensive and beautiful. On the second day papers will be read and propositions discussed. The promoters have determined to place the affair on a broad basis by inviting the co-operation of botanists and horticulturists of Europe and America. The National Auricula Exhibition (Southern Section) will form a feature—and a fine one—of the general display of Primulaceous plants.

— LINNEAN SOCIETY OF LONDON.—The following papers will be read at the meeting to be held on Thursday, June 4, at 8 P.M.:—1. "Vernation and Development of Foliage from Buds," by Rev. GEORGE HENSLAW; 2. "Supplementary Notes on *Restiaceæ*," by Dr. MAXWELL T. MASTERS; 3. "Occurrence of *Lycopodites Vauxemi* in Britain, with Remarks on its Affinities," by R. KIDSTON.

— IMPORTATION OF LIVING PLANTS INTO GERMANY.—The present official position of matters with regard to the importation of living plants from Great Britain into Germany does not seem to be understood. The ordinance now in force was signed by the Emperor of GERMANY, July 4, 1883, at Ems. It appeared to the Kew authorities that this ordinance could only be interpreted, as regards the United Kingdom, as totally prohibiting the importation into Germany of living plants. Our Embassy at Berlin did not at first read the ordinance in this light; but on inquiry at the German Foreign Office it was ascertained officially that this was its intention. There appeared to be some ground for believing that the severity of this regulation had been relaxed. The following correspondence, however, dissipates this hope. A living plant of botanical interest can only therefore be transmitted to Germany by first consigning it to some correspondent in a country which has adhered to the Berne Convention.

(Copy.)

"Office of Committee of Privy Council for Trade.  
May 18, 1885.

"Sir,—With reference to your letter of February 23, last, addressed to Mr. BATEMAN of this department, inquiring whether any relaxation has been made in the Phylloxera regulations by the German Government, I am directed by the Board of Trade to forward to you the accompanying copy of a dispatch upon the subject from Her Majesty's Ambassador at Berlin, which they have received through the Secretary of State for Foreign Affairs. It will be observed that His Excellency states that the German Foreign Office are not aware that the restrictions imposed in Germany under the provisions of the Berne Convention have been in any way relaxed.

"I am, &c.,

(Signed)

"R. GIFFEN.

"W. T. THISELTON DYER, Esq., C.M.G.,  
Assistant Director,  
Royal Botanical Gardens, Kew."

(Copy.)

"Berlin, May 9, 1885.

"My Lord,—In reply to your Lordship's despatch (No. 19 of this series) of March 9, I have the honour to state that, in reply to an inquiry addressed by Mr.

SCOTT to Dr. BUSCH, Under-Secretary of State for Foreign Affairs, His Excellency has informed him that he was not aware that the restrictions imposed in Germany under the provisions of the Berne Phylloxera Convention on the introduction of live plants into this country have been to any extent relaxed.—I have, &c.,  
(Signed) "EDWARD B. MALET.

"The Earl GRANVILLE, K.G., &c."

— ONCIDIUM LURIDUM.—Much has been written about Orchids lately, and among other things about doubling. An instance of the latter occurs at Kew, probably not yet recorded in the same species. A fine specimen in a pot exhibits five long branching peduncles. On one peduncle, having about twenty of its flowers expanded, fully a third of them some traces of doubling. A number of them have two lips, differing but slightly from the normal type, except in the smaller or less dilated limb. Two or three of the flowers have developed four sepals, the supernumerary one being exactly in front and beneath the labellum. Three rudimentary lips are produced in another flower, exactly at the base of the column and above the labellum proper, which is slightly deformed and smaller than usual. In one of the flowers having four sepals the column is deformed and petaloid on one side, apparently at the expense of one of the anther cells. In another of the flowers possessing four sepals the column is forked. One fork has two rather deformed anther caps and two petaloid segments, while the other has one anther cap and a petaloid segment. Two lips are present, making in all five extra pieces in one flower besides the forking of the column. The *Oncidium* in question was obtained from Trinidad last year, and it would be interesting to know whether this peculiarity will be perpetuated the next and following years. The species is figured in the *Botanical Register*, 727.

— AT WHITEWAY, CHUDLEIGH, the home of the Dowager Countess MORLEY, among the many grand horticultural subjects to be found there, are two famous Tree *Pæonies* 6 to 7 feet in height. One of them measures quite 16 paces around, and both are covered with their large and gorgeous blossoms. This somewhat scarce plant certainly demands a more extended cultivation, and it is singular that nurserymen neglected their culture, inasmuch as they generally have no plants in stock when asked for. Near by there is also a noble specimen of *Abies Douglasii taxifolia* aspiring to a height of some 70 feet, and sweeping the ground in an almost unbroken circle which is upwards of 48 paces. It is a treat to be escorted over the grounds here by Mr. NANSCAVEN, the chief gardener, who, by the way, is a worthy son of that veteran gardener at Mr. TRELAWNEY'S place at Menheniot.

— SHEPPERTON.—The horticultural show for this place and the adjoining localities will be held on Thursday, July 2, in the pretty grounds of Sunbury Court, Sunbury, by the kind permission of Lieut.-Col. W. H. HARFIELD.

— INDIAN OR CHINESE AZALEAS.—Many of our readers will doubtless be surprised to know that these popular plants are frequently treated as hardy subjects in certain favoured localities of Devonshire and Cornwall. At Mr. HOLE'S park, Bovey Tracey, we lately noticed a splendid bed some 30 paces in circumference devoted entirely to them, mostly the white variety, *Azalea indica alba*. They form a colossal mound of floral wealth, and are now covered with tens of thousands of their beautiful flowers and buds.

— CLIANthus PUNICEUS.—This glorious flowering plant, sometimes known as the Parrot's-bill, is not so frequently cultivated as it should be. Now and again, however, we meet with it, and it was our good fortune to notice a fine example recently at Ideo, Bovey Tracey, the seat of C. A. BENTINCK, Esq. It is flourishing on the back wall of the orchard-house, and covers one corner, where it revels in all its beauty. The gardener, Mr. HAMELY, planted it there when quite a small plant some four years ago, and it now completely clothes a space of about 12 feet by 10 feet. This fine specimen has been in bloom ever since early spring, and at the present time is clustered with its pendulous racemes of brilliant boat-shaped scarlet flowers. We should have expected to have found it infested with red-spider in such a house, but such was not the case,

and the gardener has had no trouble whatever in this respect. There is a larger plant than this one at the nurseries of Messrs. LUCOME, PINCE & Co., at Exeter, and on the open wall there.

— PAXTON'S "FLOWER GARDEN."—We have received the third volume of the reissue of this periodical, published by Messrs. CASSELL, which does not remove the objections we raised when the two first volumes were published. We are glad to get to Mr. BAINES' annotations on the newer plant, and glad to get the plates and figures (embarrassing as they are from the change of numbers), but we protest earnestly against such injustice to the memory of PAXTON and LINDLEY as has been unconsciously and unintentionally, no doubt, but none the less truly, perpetrated. We trust that no more such new editions may be published.

— M. JULES MARGOTTIN.—This well known hybridiser and grower of Roses, formerly of Bourg la Reine, is now removing to Pierrefitte, near Paris. It was in consequence of this disturbance of his business that he was unable to show, to the extent he usually does at Paris shows.

— THE "ORCHID ALBUM."—The May number of this periodical contains the following figures:—

*Batemannia Wallisii major*, t. 185.—A native of Costa Rica, chiefly remarkable for its large flat five-starred flowers; sepals lanceolate, purplish-brown; petals ovate lanceolate, of the same colour, but with purple stripes at the base, surrounded by a white border; lip shorter than the segments, cordate ovate acute, deep purplish-brown.

*Odontoglossum cordatum*, t. 186.—Flower segments lanceolate acuminate, yellow, heavily blotched with cinnamon-brown; lip cordate acuminate, white. Mexico.

*Odontoglossum Josephina*, t. 188.—A supposed natural hybrid, with the habit of *O. crispum*; the segments white, with cinnamon-coloured blotches.

— EXHIBITION OF TULIPS AT HAARLEM.—In the nursery grounds of Messrs. E. H. KRELAGE & SON, of Haarlem, there has been for the last fortnight a splendid show of late Tulips—violets, roses, and bizzarres. The Tulips were ranged, under canvas, in two parade beds, each of one hundred rows, seven plants in a row, the highest in the middle, and gradually lessening to the sides, all different varieties, to the number of 1400. A great number of the much valued varieties of late Tulips might be seen here in very perfect examples. The tent was decorated with ornamental and flowering plants in a large and fine group at the end. In consequence of the large spring show in March it was preferred not to make a show of Hyacinths, but to substitute one of late Tulips. Formerly such shows were very much in fashion in the Haarlem nurseries. Messrs. KRELAGE were the last who had such an exhibition, in 1861, so that after about twenty-five years of rest a similar one, but on a much larger scale than ever before, has been opened. Messrs. KRELAGE intend to repeat the show next year.

— PALMS IN THE OPEN AIR.—The cultivation of these noble plants is fast making way in Southern France and Algeria. Some that are shown at the Exhibition of Paris by M. S. CHEVIER, of the domain Aube, in the Riviera, were grand robust specimens, abundant in foliage, exceedingly handsome, and capable of withstanding much ill-usage, as house decorative plants. In our account of M. S. CHEVIER'S exhibit in the report of the show last week the species cultivated are noted.

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

*Philodendron Glaziovii*, t. 6813.—A climbing Aroid with stalked lanceolate leaves, open yellow spathe with a crimson blotch at the base, and a yellow spadix. It is supposed to be a native of Brazil.

*Streptocarpus caulescens*, t. 6814.—A curiosity with a swollen stem, but of little value as a decorative plant. East Tropical Africa. We are glad to see appended a note as to the singular germination of these plants.

*Macroscelis obovata*, t. 6815.—A singular climbing Asclepiad, more or less covered with rust-coloured hairs, with obovate acuminate leaves and tufts of five-parted brown flowers.

*Eucomis bicolor*, t. 6816.—See BAKER in *Gardeners' Chronicle*, vol. x., 1878, p. 492.

*Dendrobium Phalenopsis*, t. 6817.—See FITZGERALD in *Gardeners' Chronicle*, vol. xiv., July, 1883; see also *Orchid Album*, t. 187—a much finer specimen.

— GARDENING APPOINTMENT.—Mr. F. C. BAILEY has been appointed Head Gardener to J. F. LEESE, Esq., Send Holme, Woking, Surrey.



## GARDEN INSECTS.

(Continued from p. 567.)

In the illustration, fig. 158, is seen another interesting and bright coloured beetle, named *Anchomenus dorsalis*. The head and thorax, or chest, are of a brilliant green colour, and of metallic lustre; the body, or rather elytra, are dull green, with a patch of bright red near the base of each elytra, and long red legs. This pretty insect is exceedingly common under stones and in the crevices in walls, &c., and they frequently are to be found in colonies of fifty or sixty under stones. When such a colony is discovered and the light admitted to their private quarters, the scene is a lively one—they rush about in all directions with such rapidity that in a few moments not one is to be seen. If there are some of them that cannot get entirely out of sight, they jostle their heads in any crevice, or behind any small object at hand, somewhat after the manner of the poor ostrich, which buries its head in the sand when too exhausted to run further.

The minute insect represented in fig. 159 is *Bembidium bipunctatus*, also a pretty and brilliant beetle, the back, or elytra, of which have two conspicuous large depressions, hence the specific name. They are found plentifully in most damp situations. This beetle lives, probably, upon the countless forms of minute life, such as ground mites, which exist in almost all rich and damp soil.

## HOME CORRESPONDENCE.

*Narcissus triandrus*.—Having just come down from the Gerez, perhaps a few notes respecting *Narcissus triandrus* may be acceptable. I find it widely distributed and in full bloom from 2000 feet up to 3500 feet, when *N. nivialis* takes its place, which I found abundant at the top of Borreria, about 4600 feet. My friend M. Henriquez, of Coimbra, assures me it differs from *Bulbocodium*, the white colour of the bulb being one great mark. The triandrus and nivialis are never found growing together, but amongst the latter I found three bulbs of a triandrus with blooms bright yellow (whole coloured), apparently a hybrid. I could only find these three after considerable search, and my friend, Mr. Alfred Tait, of Oporto, says they are unique as far as his observation goes. I found four or five variations in triandrus albus, differing in size of flower, length and breadth of perianth, and especially in the cup. In colour they were all the delicate primrose-white, with an occasional yellowish-green tint. Within a space of 3 feet I gathered four variations, some of the calathinus type, others with the very short cup. To my mind they are so similar in all general characteristics that, as M. Henriquez says, "he could not give them any other designation than triandrus." I am writing this with a number of the flowers before me, and enclose a few to show the variations. One note of warning: A friend here tells me that many bulbs have been collected to be sent over to England, *Bulbocodium* and triandrus mixed, so that very great disappointment may be experienced unless the source can be traced from whence the bulbs are received. From what I have noticed, the increase of triandrus is very slow, as I found very few bulbs with offsets. The smallest bulbs seem all to bloom with one, two, three, or four flowers on each. *Scilla unifolia* and *S. odorata* are also very abundant. *Octavius Corder, Norwich.*

*Agave Ousselghemiana alba picta*.—It may interest horticulturists to know that the above rare and beautiful plant is now showing signs of flowering. I do not think it has before flowered in this country. The one now alluded to has a flower-stem nearly a yard high. Last year it showed signs of flowering by making smaller and narrower leaves, but it appeared suddenly to stop, and one day, to my surprise, it began to show growths by the side of the then visible stem, which in course of time sent up two hearts by the side of the very young stem and grew away in the usual manner, but the flower-stem still being at a standstill; but this year it began to grow away and made the growth as stated. It is the colour of the *A. Ousselghemiana*, with the white stripe in the leaf very clean and nice looking, in fact it always catches the eye of the casual observer. The latter flowered with me three years ago; that I believe was

the first that flowered in England, and after flowering it produced two hearts, and is now a nice healthy plant. Also *Agave Celsiana* (said to be) flowered last year, and that also produced two hearts, but it very frequently happens that the plants die after flowering. The above three plants are about twenty years old. *Agave maculosa* flowered with me on two occasions and died in both instances, but the three others spoken of as flowering were treated in a different way, hence the production of growths instead of dying off. That is my opinion on the matter. Should any one have succeeded in flowering the above-named plant, perhaps they would kindly inform us in the *Gardeners' Chronicle*. There is also a very fine specimen of the *Agave xylinaantha mediopicta* which seems inclined for flowering; it has thirteen or fourteen leaves between 2 and 3 feet long, some of them, and growing fast also; this is, I think, very rare also in collections—at least, I have

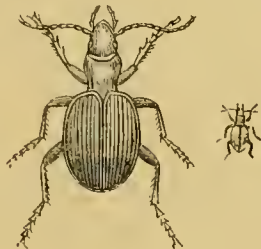


FIG. 158.—ANCHOMENUS DORSALIS.

never seen any but the ones I have in my possession, viz., four plants; one of which, however, died. The large one alluded to is a very beautiful plant, but its growth is very remarkable; the leaves being so much twisted as to make it very noticeable. *Aloe aristata* var. is also showing flower-stems, which is a distinct plant from the one figured in the *Gardeners' Chronicle* which flowered in this collection a few years ago. *J. S. C.*

The "Widow" or "Mourning" Iris.—Is not your correspondent, "W. F. B.," wrong in calling *Iris tuberosa* the "Widow" or "Mourning" Iris?



FIG. 159.—BEMBIDIUM BIPUNCTATUM.

I have hitherto known it as the "Snake's-head," and *Iris Susiana* as the "Mourning" Iris. The sombre colouring and almost weird look of *I. Susiana* is certainly suggestive of mourning, but there is nothing funereal about the cheerful green and velvety-black of *I. tuberosa*. Whilst writing of Irises may I ask how *I. pavonia* may be persuaded to flower freely? I have treated it like *Ixia* in pots in a cold frame, but only once had it in flower. The bulbs break up into a number of small ones. *J. S. W.* [Other correspondents write to the same effect. ED.]

*Agave americana* (American Aloe).—It may be of interest to the horticultural world and the community at large to know that this wonderful plant is now throwing up a magnificent spike of bloom in our large conservatory. The plant itself is a very fine specimen, and it has been here a great number of years, but its exact age we cannot say. The flower-stalk is growing very rapidly. It is now about 12 feet high, and was only observed about three weeks ago;

but the flowers will not, I should imagine, be open until the latter end of July or beginning of August, as August, I believe, is the flowering season. At the present rapid rate of growth it will undoubtedly attain a great height, and when the flowers are fully expanded it will be of very great interest. *James Coombes, The Gardens, Englefield, Reading.*

**Carnations.**—It may perhaps be interesting to know that the blooms of Carnations and Picotees forwarded to you are the production of seedling plants; being side blooms they are smaller and less brilliant than the first flowers. The seed was sown in March of last year, the young plants were planted out during the summer, and lifted into 5-inch pots early in October, and they have been growing in greenhouse temperature since that time. I have also some plants of last year's layers (from selected seedlings of previous years) coming into bloom freely. My beds of seedlings from the same strain are also looking remarkably well. No. 1, bright pink, No. 2, flesh colour, and No. 3, Picotee, all commenced to bloom end of February last; No. 4, Picotee, commenced to bloom early in December; No. 5, bright pink, commenced to bloom early in April. *R. H. Versteeg, Chad Valley Nurseries, Edgbaston.* [Very bright and pretty. ED.]

**Melon Canker.**—In replying to "C. H.'s" remarks on this subject at p. 671, I would ask him in future to be more careful in quoting the opinions of others, as I did not say at p. 578 that deep planting was the only cause of canker appearing in the stems of Melon plants, though I have no hesitation whatever in saying that in nine cases out of ten—all other cultural details being properly attended to—canker in the plants is the direct result of deep planting and its evil consequences. With a view to clearing the mist which would appear to surround this question in some quarters, I will reply to the concluding part of your correspondent's note first, wherein he says, "I beg most emphatically to differ from 'H. W. W.'s' opinion as to the only cause of canker, and believe it is more frequently occasioned by some sudden check, such as watering with cold water, or a sudden fall in the temperature either of the house or bottom-heat." And further down he says, "Too much water will undoubtedly cause the sudden collapse of Melon plants, and this is more likely to take place when growing in large beds of soil." As an emphatic statement, however strong, goes for naught unless it be supported by good sound reasoning, I should therefore like to ask "C. H.," who, in the beginning of his paragraph, "doubts very much whether the deep planting of Melon plants has any tendency to produce canker," to explain how it is, if the temperature of the house has anything to do with the appearance of canker, that the latter always shows itself in that portion of the stem which is buried in the soil in preference to that above it, which is more exposed to atmospheric influences? And, furthermore, if canker is the result of change of temperature at the roots, or of cold water having been applied thereat, will he explain how it is that decay in the buried stem always precedes that of the roots? And again, will he say why it is that the latter remain sound and plump until the final collapse of the plants, when, in consequence of the communication between root and branch being severed, they become soft and decomposition ensues? As your correspondent readily admits that too much water at the roots would cause canker—which means the underground decay of the stem, in consequence of its having been set too deeply in the soil—I need not say any more on this point. "C. H." does not bury the stems of his Melon plants so deeply in the fruiting pot as he at first sight may appear to some to do, for he tells us, at p. 347, that he "sows the seed in 5-inch pots, not quite half full of soil, and that as soon as the seedling plants have attained to 12 or 15 inches high they are shifted into No. 2-sized pots (14 inches deep) two-thirds full of soil." Thus it will be seen that the base of the plants would not be many inches below the rim of the fruiting pot, consequently the stem of the individual plants would not be buried very deeply in the soil. I have myself at one time grown Melons most successfully in a small way on a shelf resting on a flue in the back wall of a Pine stove, in a similar manner to that indicated by your correspondent. Only in my case the plants were raised singly in 3-inch pots three-parts filled with mould, and subsequently—as soon as they had made a few rough leaves—set on hillocks, consisting of rather more than three-parts good turfy loam and a



little lime rubble, raised to within 4 or 5 inches of the rim level of well drained pots, afterwards adding sufficient soil at short intervals to cover the roots as they protruded through the surface of the miniature mounds until the space between the base of the plants as the pots were filled, making the soil firm in doing so. However, I would remind your correspondent—whose experience in Melon culture would appear to be confined chiefly to that of plants in pots—that there is a wide difference in the conditions under which plants are grown in well-drained pots, and those planted out in pits, frames, or dung beds, and even in properly made narrow borders, having hot-water pipes for supplying the bottom-heat. In the case of plants grown in pots there is necessarily a quicker passage of the water applied to the roots when necessary through a small body of soil permeated with hungry roots than would be the case in the best and most carefully made border; and to this fact "C. H." may attribute his immunity from canker, inasmuch as the soil about the collar of plants thus grown never remains moist long enough to affect the stem, as it gets dry once or twice in every twenty-four hours, notwithstanding the fact of the pots being filled brimful every time water is given to the roots. In order to remove the difficulty which would appear to have arisen in the mind of "C. H." regarding the keeping plants elevated on mounds sufficiently and uniformly moist at the roots, I may be allowed to say that the base of the mounds, which are 3 inches higher than the otherwise level surface (when the landing-up process has been completed) of the body of soil in which the roots are growing, is about 6 inches in diameter, and 3 inches less at the top, hence there is no difficulty whatever experienced in keeping the soil about the roots sufficiently moist. Moreover, I beg in conclusion to inform "C. H." that "it is a fact"—as is all matter which I contribute to the horticultural press, as I have no wish to mislead any one, but the reverse, if I can—that during the fourteen years I have been in my present position I have grown Melons largely in pits and frames and in properly constructed Melon-houses, and during the whole of that time, planted as indicated above, I do not remember one instance of losing a plant through canker (which I may state in passing is no disease, but an indication that the conditions under which the plants are grown are not congenial to their requirements), neither do any of my gardening friends who have been in the habit of paying me a visit more or less frequently during the time I have been in charge of these gardens, nor do any of the young men who have lived under me during that time, though I have had several cases of canker brought under my notice elsewhere. Knowing that statements of this kind are not worth much unless the name and address of the writers be given, as they afford no opportunity for verification to those who otherwise would be in a position to see and believe, I therefore give my name and address, as is my wont whenever I make a statement, the correctness of which might otherwise be doubted. *H. W. Ward, Longford Castle Gardens, Salisbury.*

**Gaillardia picta.**—The flower which I send with this is the produce of seed gathered in August, 1883, on the trail from Calgary to a rancho on the foot hills of the Rocky Mountains. I conclude it is one of the dwarf Canadian Sunflowers, but it lacks the deep claret centre which I observed in several of the plants I found there, and from which I endeavoured to choose the seed. I suppose it to be a biennial, for the seed was sown in the spring of 1884, and the plants did not flower last year. They have shown this strange peculiarity—those planted out flourished through the summer and autumn but were killed by the winter: two or three, by accident left in a frame, survived and are now in flower, and yet in their native country they have to bear a winter temperature of 30° or 40° below zero. *H. W. W.* [The flower is that of *Gaillardia picta*. Ed.]

## DOUBLE ALLAMANDA.

SOME flowers double by the replacement of their stamens, or pistils, or both by petals; others, like the Allamanda before us, by a repetition of the corolla, producing a hose-in-hose arrangement. We do not remember to have seen this in Allamanda before, and have considered it of sufficient interest to give an illustration (fig. 160).

## Reports of Societies.

### ROYAL HORTICULTURAL: May 26.

#### Scientific Committee.

A. Grote, Esq., in the chair.

#### LILAC.

Colonel Clarke exhibited a spray from a tree which he had cut deeply back, according to a practice adopted in Paris, so that the autumn shoot produced flowering wood for the next season. Dr. Lindley had thought that it could not be done in this climate. The bunch of flowers was not so large, but apparently of finer colour than ordinarily.

#### LILY OF THE VALLEY DISEASED.

Specimens were received from Mr. G. Lee, of Clevedon, apparently attacked by some fungus. They were referred to Mr. G. Murray for examination and report.

#### ACIDIUM GROSSULARIÆ.

Leaves of Currant and Gooseberry with large patches of this disease were sent by J. Cleland, of Downpatrick.

#### CUCUMBERS DISEASED.

Mr. J. Heptinstall sent some fruit showing gummy exudations. The cause was not apparent, and they were referred to Mr. Murray for examination. No fungus or insect was visible, and it was thought by some to be due to too much manure.

#### LYCOPERDON SP.

A fine young specimen of a Puff ball, about 9 inches in height, was received from Mr. Grant, of Christ Church, Ilants. It was entrusted to Mr. Murray to name.

#### SAPONARIA OCYMOIDES.

Mr. Loder exhibited specimens of varieties of this plant, which appeared to surpass in richness of colour the form known as "splendens;" he proposed to call it *atro-coccinea* or *atro-rubens*—another variety he named *grandiflora*.

#### FASCIATE PEDUNCLES.

A *Narcissus*, with several flowers fused; a *Polyanthus* with a quadrate stem, due to the fusion of four peduncles; and *Primula obtusifolia* were exhibited by Mr. Smee, Col. Beddome, and Mr. Loder respectively.

#### LILIUM LONGIFOLIUM, BULBIFEROUS.

Mr. Wilson exhibited a stem which had borne aerial bulbs instead of flowers, and of which bulbs had grown into shoots a foot or more in length while still upon the parent plant.

#### MORELLO CHERRY, DOUBLE.

Mr. Wilson showed a spray of this variety. Some of the flowers had the two foliaceous carpels similar to the common double Cherry; others had additional flower-buds within the two carpels.

#### DENDROBIUM WARDIANUM, MONSTROUS.

Dr. Masters exhibited blossoms with supernumerary labella, &c., from Mr. Douglas, upon which he will report at a future occasion.

#### HELLEBORES, HYBRIDS.

Rev. G. Henslow exhibited branches from the same plant of *H. albidovirens*, described at the last meeting, and received from Mr. Ellacombe. One bore bright green foliage and pure white flowers, the serratures of the leaves being rather coarse. The other had purple flowers, and foliage of a purplish-green, the serratures being finer than in the other. The specimens indicated a separation of the parental elements on distinct branches of the same plant, somewhat similar to the well-known case of *Cytisus Adami*.

#### INSECTIVOROUS PLANTS IN THE OPEN.

Fine specimens of *Darlingtonia*, *Dionaea*, *Sarracenia purpurea*, and other species, as well as species of *Drosera*, were received from Miss Owen, Knockmullen, Gorey, Ireland, all of which were grown out-of-doors in small "bog beds;" the first three for one year, but the other for several years.

#### STRAWBERRY, QUINQUEFOLIATE LEAVES OF.

The Rev. G. Henslow exhibited specimens received from Mr. Lovell, of Driffield. He also brought specimens of *Fragaria monophylla* (from the garden of the late Mr. Borrer) to show how the five-leaved form was derived from the monophyllous (which is characteristic of seedlings). Two basal lobes become detached from the single blade, and then two more from the basal lobes of the former. A similar process is characteristic of the Blackberry, but in the

Raspberry both pairs of leaflets are successively taken from the terminal one. Mr. Dyer, in a notice of Duchesne's *Histoire Naturelle des Fraisières* (*Nature*, xxix., 215) alludes to the origin of *F. monophylla* and its retaining in the adult state the character of a seedling. He also showed specimens of transition from simple to compound states in the leaves of *Rhus heterophylla*, *Ampelopsis Veitchii*, *Clematis cirrosa*, and *Elm*.

#### MONSTROSITIES.

The Rev. G. Henslow exhibited three blossoms of garden Anemone, in one of which the bracts of the involucre were sub-petaloid, in the other a supernumerary coloured leaf grew from within the involucre; also a Passion-flower received from Mr. Pim with a sub-petaloid stigma, the rest of the flower being normal.

#### CLOVER SICKNESS.

Mr. Plowright sent the following, with illustrations:—"The cause of this affection of Clover is but little understood. Possibly it may be induced by more than one cause, or rather that several diseases which cause injury to the Clover crop have been loosely called Clover sickness. Not the least important of these is due to the presence of a parasitic Peziza, which at one period of its growth develops a sclerotium upon the roots of the Clover. Having been anxious for some time past to meet with this fungus, I have examined several plants from a field of Clover which is sick, near King's Lynn, which were from time to time brought to me by my friend Mr. Thomas Brown. The only abnormality I can discover, however, consists in the presence of those little nodular enlargements upon the roots of the Clover which have been so carefully investigated by Eriksson in his paper, 'Studies öfver Leguminosernas rotknölar.' The specimen sent herewith shows the condition which Eriksson describes. Each knot is about the size of a pin's head, of an oval form, rather soft internally, and attached by one end to one of the smaller roots. Similar bodies may not unfrequently be seen upon roots of the cultivated Pea and Bean. If a section be cut from one of these root-knots from the Clover, and examined under a power of 400 or 500 diameters, it will be seen that the central part of the knot consists of a mass of cells full of granular contents. These granules escape when the cell wall is ruptured, and float about as a cloud of minute specks. The central part of the root-knot is paler in colour and more transparent than the external enveloping tissue. The structure of the internal mass enclosed in the cells reminds one of plasmodiophora. I have been unable to observe the peculiar cruciate bodies which Eriksson figures, t. iii., f. 40 and 41, as 'Corpora vibriorum similia aut ramosa.'"

The Editor of the *Gardeners' Chronicle*, describing these tubercles on the Leguminosæ, alludes to Professor Frank's observations as follows:—"He was always able to distinguish two foreign elements—namely, undoubted slender threads or 'hyphæ' traversing the cell walls and cell cavities, and very small cell-like corpuscles, free from each other, and the protoplasm of the cells of the inner tissue, in which they are at present in extraordinary numbers." (*Gardeners' Chronicle* 1879, vol. ii., pp. 112, 114, and vol. xii., p. 209.)

#### NICOTIANA HYBRID.

Rev. G. Henslow showed drawings of the hybrid raised by Colonel Clarke, and exhibited at the previous meeting. The pollen grains were spindle-shaped, with one to three grooves, colourless, and exhibited little or no change in water; in glycerine a small drop of granular fluid matter exuded. The grains did not give the appearance of health, and had hitherto proved ineffectual in producing good seeds.

#### Floral Committee.

G. F. Wilson, Esq., in the chair. Present: Messrs. Henslow, Kellock, Fraser, Wilks, Child, Bealby, James, Walker, Hudson, George, Noble, Masters, Dominy, Pollett, H. Williams, T. Baines, H. Hill, Turner, Bennett.

At this committee numerous objects were presented. At first, till the committee warmed to their work, they were chary of giving certificates, but by-and-bye Mr. Turner's Carnations—a group of three—waked the latent fire, and all three were duly honoured. Colonel Cox is a rich orange-crimson self, very lustrous; Goliath is worthy of the name, the ground colour is pale pink, striped with red; T. W. Girdlestone has yellowish flowers, striped with red. Having catered for the florists, the "hardy" men were conciliated by an award to *Dodecatheon splendens*, a rich magenta-coloured flower, with a golden eye. The compact-growing, large-flowered *Polemonium Richardsoni* was next honoured. It is a Californian and improved edition of our wild Jacob's Ladder. Messrs. Veitch sent a very interesting lot of things—a grand *Hydrangea*, with enormous trusses of large blue flowers, called *H. nianchurica*, a Japanese species; *Philadelphus microphyllus*, a small bushy plant, with wiry branches, minute ovate leaves, and small flowers. This deserved a Certificate, but did not get it. The very curious



climbing *Hydrangea*, called *Schizophragma hydrangeoides*, was more lucky. It clings to walls by means of roots like Ivy, has glossy Lime-like leaves and trusses of white *Hydrangea*-like flowers. *Olearia Gunnii* also received a Certificate. It is a fine hardy shrub, with small greyish, coarsely toothed leaves, and heads of white Aster-like flowers along the ends of the branches. A Lilac called *Marie Lagrange* created something like a sensation, on account of its fine trusses and large well formed substantial white flowers. *Pride of Primroses*, a Carnation of a clear yellow colour, received an award in proportion to its merits. A *Heliotrope* called *Roi des Noirs*, of dwarf habit, very dark purple flowers, also received recognition. A Russian *Allium*, called *Karataviense*, one of the most remarkable of its class, received a Certificate; it had very broad greyish strap-shaped recurved leaves, and large globose heads of whitish star-like flowers. *Piper ornatum* is a stove climber with peltate cordate ovate-acute leaves of a shiny green, speckled with white; it did not take the fancy of the committee, and indeed there are many better plants of this class. *Phyllanthus Chantrieri*, a stove shrub with spreading pinnate bright green leaves, from the under-surface of which depend minute reddish flowers, was deemed worthy of a Certificate. Two grand *Odontoglossums* from Mr. Pollett followed; one, *O. crispum lilacinum*, had large flowers of a deep lilac, the lip being yellow—and *O. roseum punctatum*, one of the most remarkable varieties we have seen, having numerous minute brown spots on a rosy-lilac ground. *Cattleya*

bushes considering the size of the pots in which they were grown; *Celine Forestier*, a superb pot Rose; *Madame Willermoz*, very fine; *Madame Lacharme*, *Innocenta Pirolo*, &c., were the best. Messrs. Paul & Son, The Old Nurseries, Cheshunt, were a good 2d, their plants being well grown though smaller. *Madame Lacharme* was again fine, and *Violette Bowyer*, a fine white Rose. Mr. W. Rumsey, Waltham Cross, was 3d.

#### ORCHIDS

were well represented from the gardens of De B Crawshay, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), and from H. Little, Esq., Hillingdon Place, Uxbridge (gr., Mr. F. Hill). The centre plant in Mr. Crawshay's collection was the splendid *Vanda suavis* which gained the 1st prize at the Crystal Palace. The other plants with few exceptions, are described in the report of that show.

Mr. James, of Lower Norwood, was the only competitor in the nurserymen's class, and gained the 1st prize with a good group of nine. *Cattleya lobata* had four spikes, with four flowers on each; *Odontoglossum citrosium*, three spikes; *Cattleya Mendellii*, fourteen open flowers; *Odontoglossum Alexandre* and *O. Pescatorei* were in good form.

Mr. Turner was the only exhibitor of AZALEAS, but he obtained the 1st prize, with splendid examples. *Bernhard Andreas alba* is a beautiful double white, very free in flowering; other varieties were the same as shown at the Crystal Palace.

Mrs. F. Bennett, Tulse Hill House (gr., Mr. J. Howes), was a good 2d, the plants not being quite out.

#### CLEMATIS.

Messrs. Jackman again exhibited their splendid collection of Clematis, and were awarded the 1st prize in that class—the varieties being *Fairy Queen*, *Lady Caroline Neville*, *Blue Gem*, *Mrs. Kennett*, *Madame Van Houtte*, white; *Mrs. Hope*, pale blue; *Duchess of Edinburgh*, double white; and *Belle of Woking*, double blue.

Tree Carnations from Mr. Charles Turner formed a most attractive exhibition of themselves; the plants were clean, and the flowers well developed. *Colonel Cox*, fine scarlet; *Mrs. McLaren*, crimson bizarre; *Sir Evelyn Wood*, purple; *Lady Rose Molyneux*, fine white; *Juliette*, deep rose; *The Queen*, white; *Mrs. Llewelyn*, rose; *Andalusia*, fringed yellow; *Goliath*, large, pale red ground, scarlet flakes; and many other fine varieties composed the group.

#### HARDY PLANTS.

Collections of hardy herbaceous plants in the form of cut flowers were exhibited by Messrs. Paul, of Cheshunt, and Mr. Ware, of Tottenham. Messrs. Paul were 1st. Their collection contained no less than sixty-four species and varieties the most conspicuous being *Arnebia echinoides*, *Anemone alpina sulphurea*, *Preonia peregrina*, fine rosy-purple; *Anemone sylvestris*, *Trollius asiaticus*, *Ranunculus acris plenus*, *Cheiranthus alpinus*, *Primula japonica* and *P. Munroi*, and *Ranunculus Gowiana*. In Mr. Ware's collection were fine bunches of *Polemonium Richardsoni*, numerous Irises, and other seasonable flowers.

#### PANSIES.

Collections of sixty Pansy blooms in thirty varieties were exhibited by Mr. H. Hooper, of Bath, Mr. J. Forbes, of Hawick, N.B., and Mr. F. Hooper, of Bath, who took the prizes in the order of their names. The varieties were all of the fancy section, those from Bath being the largest, but Mr. Forbes exhibited his blooms in capital condition, though smaller.

#### MISCELLANEOUS GROUPS

of plants formed as usual a very important feature in the exhibition, and were interesting in their multifarious variety. Messrs. Paul & Son, The Nurseries, Waltham Cross, were awarded the Silver-gilt Medal for a collection of Roses in pots and cut Roses, both being worthy of the name of Paul. The pot-plants were conspicuous for their clean, beautiful foliage and splendid blooms; the best were *Lady Sheffield*, *Queen of Queens*, a full, well-formed beautiful Rose; *Star of Waltham*, crimson; *La France*, superb; *Alfred Colomb*, *St. George*, and *Merveille de Lyon*.

Mr. B. S. Williams obtained a Silver Medal for an extensive and very interesting group of stove and greenhouse plants, comprising some well-grown Orchids—*Cattleya Warneri*, very fine; *C. gigas*, *C. Skinneri*, *C. Mossii*, &c.

Mr. Rumsey was awarded a Bronze Medal for cut Roses and pot plants of the same; amongst them some well-grown standard Tea Roses, *Souvenir d'un Ami*, very fine; *Catherine Mermet*, and *Marie van Houtte* were the best.

Mr. Noble, of Bagshot, also exhibited well-grown Clematis, amongst them Mr. Gladstone, pale blue; Lord Beaconsfield, very fine pale lilac-blue; *Pirate King*, purple; *Countess Gleichen*, pale lilac bluish; *Lady Constance Kennedy*, very fine double white; *Sir Joseph Hooker*, perfectly double flowered purplish-blue variety.

Mr. Ware made a capital exhibition of herbaceous plants in pots, comprising choice hardy Orchids, such as *O. papilionacea*, *O. spectabilis*; fine examples of *Polemonium Richardsoni*, *Dodecatheon splendidum*, very bright; the pretty *Houstonia cerulea alba*, *Tulipa persica*, *Onosma taurica*, *Trollius Loddigesianus*, the best of the globe flowers; *Pinguicula grandiflora*, and last, but certainly not least, *Lachenalia rubida*, a very fine species, with rose-coloured flowers, marked with rosy-red spots.

Messrs. Kelway, of Langport, made a very pretty exhibition of cut flowers, including a good strain of *Amaryllis* single *Pyrethrums*, and a few cut herbaceous flowers.

Mr. W. Stacey, nurseryman, Dunmow, sent very fine cut *Verbenas*—*Lord Brook*, scarlet, white eye; *Lilacina*, bright pale blue; *Striata*, prettily striped variety; *Purity*, large white; *Ophelia*, rose; *Hamlet*, scarlet, distinct, and very good.

A well grown group of *Caladiums* from the Chiswick Gardens of the Society, well arranged, added a distinct and handsome feature to the exhibition.

#### SPECIAL PRIZES

were offered by Messrs. Webber & Co., Covent Garden Market, for a box of Strawberries, to be sent by rail, for the purpose of illustrating the best method of packing. The 1st prize was awarded to Mr. J. Vert, Audley End Gardens, Saffron Walden; the fruit was packed so that it did not move in transmission, the stems of the fruit being uppermost, and each specimen enclosed in a separate leaf: the variety was *President*. The 2d prize was awarded to the Earl of Radnor (gr., Mr. S. Haines), the fruit being well packed as for exhibition: the variety was *Sir J. Paxton*. 3d, Hon. Col. W. R. Talbot (gr., Mr. C. Waite).

#### VEGETABLES AND FRUIT.

Messrs. Sutton & Sons, of Reading, offered prizes for the best brace of Cucumbers, to include Sutton's Cluster or Sutton's Purley Park Hero. All the prizes fell to the variety *Purley Park Hero*. The specimens exhibited were well grown, and the variety is evidently a good exhibition kind. The Earl of Radnor was 1st; 2d, *Sir R.*

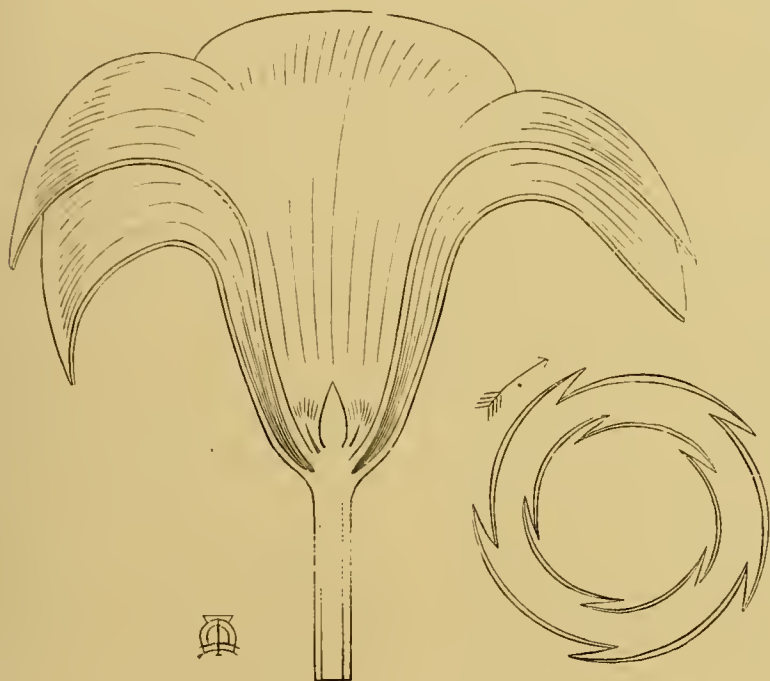


FIG. 160.—DOUBLE ALLAMANDA. (SEE P. 704.)

*Schofieldiana*, a remarkable species with large flowers, the sepals and petals green with numerous red spots, the lip three-lobed, the anterior lobe stalked and semi-orbicular, clothed on the upper surface with small conical purplish processes. *Lobelia superba*, shown by Mr. Weedeo, a variety of dwarf habit, and with very dark blue flowers striped with white, received a First-class Certificate. *Clematis*, *Sir Joseph Hooker*, shown by Mr. Noble, is a double flowered variety, very full, and of a dark lilac colour. C. Lord Beaconsfield, a very large flowered single lilac, obtained no award, probably because it was not considered sufficiently distinct. *Aerides Wilsoniana*, a species in the way of suavisimum, with white flowers and a yellow spur, received a Certificate. *Saxifraga Macnabiana*, a species like *pyramidalis*, but of dwarf habit and with white flowers spotted pink, also obtained an award. A Cultural Commendation was decreed to a well grown plant of *Yucca filamentosa variegata* in flower. *Azalea Miss Buiet*, a dwarf variety, with pure white flowers of moderate size and good substance, received a Vote of Thanks. In sheltered situations in the South this would make an admirable plant for the rockwork.

#### Show of Pot Roses, Azaleas, &c.

The schedule on this occasion was made up of nineteen classes only, but what was lacking in quantity was amply made good in quality, most of the productions exhibited being exceptionally good. Large Roses were not invited, the one class being for eighteen in pots, not exceeding 9 inches in diameter. Mr. Charles Turner, The Royal Nurseries, Slough, was well 1st with really handsome specimens in wonderful health and large

#### AMARYLLIS.

It is almost too late for these, but Mr. Little exhibited a nice collection of twelve, and gained the 1st prize.

Twelve PELARGONIUMS, comprising show and fancy varieties, brought out the largest and best specimens from the Slough collection. *Kingston Beauty*, a fine show variety, could scarcely be surpassed for size of plant and quality of the flowers; *Amethyst*, beautiful colour; *Ritualist*, large flowers, of fine quality; *Claribel*, the finest white; and *Illuminator*. The best fancies were *Princess Teck*, *Lady Carrington*, and *Thomas Ring*. Mr. Turner was also 1st for the eighteen plants in small pots, and Mr. Little 2d. *Madame Marie Knecht*, fine white; *Joe*, *Sister of Mercy*, and *Madame C. Keteleer*, were conspicuous in Mr. Turner's collection.

The exhibition of herbaceous CALCEOLARIAS was remarkable for a splendid collection of fifty plants exhibited in competition by Mr. James, of Farnham Royal, Slough. It may be safely said that no such specimens have ever been exhibited before, taking into account the condition of the plants, the profusion and quality of the blooms. The colours were so brilliant and so varied as almost to defy description. One was noted as of a rich orange-scarlet colour, others crimson, crimson-scarlet, crimson with magenta tints, most of them being also richly spotted. Messrs. Carter, of 237, High Holborn, obtained the 2d prize with an excellent group and a capital strain—the plants being well grown.

The 1st prize in the amateur's class was awarded to J. C. Lanyon, Esq., Birdhurst (gr., Mr. Ford), with a very fine group; his yellow self being very prominent;



F. Sutton, Bart., Benham Park, Newbury (gr., Mr. C. Howe); 3d, The Hon. W. P. Talbot, Glenhurst, Esher. The same firm offered prizes for Melons to include Sutton's Scarlet Inviacible, Sutton's Masterpiece, or Sutton's Hero of Lockinge. The specimens were very handsome in appearance, and considering the season fairly good in quality. Mr. C. Herrin, Chalfont Park Gardens, Gerard's Cross, was 1st; Sir R. F. Sutton, 2d; and the Earl of Radnor, 3d. Mr. Herrin sent Hero of Lockinge, Sir R. F. Sutton sent Inviacible and Masterpiece, the Earl of Radnor Best of All and Hero of Lockinge. From the gardens of N. W. Dick, Esq., Thames Ditton, were sent very good Black Hamburg and Foster's White Seedling Grapes; from Messrs. W. & E. Wells, Croxby House, Hounslow (gr., Mr. G. Thompson) was sent magnificent examples of Sir C. Napier Strawberry plants bearing fruit, in pots, and a basket of gathered specimens. Well kept Lady Downe's Grapes from H. J. Atkinson, Esq., Gunnersbury House, Acton (gr., Mr. Hudson), were also exhibited. There was also a very fine dish of Brown Turkey Figs from Mr. S. Lyon, Sunridge Park, Bromley. Cucumber, Benham Park Hero, from Mr. C. Howe, a cross between Challenger and Telegraph, is a very fine white-spined variety. Four well grown Melons were sent by Mr. Howe, to one of which, a scarlet-flesh Benham Beauty, a First-class Certificate was awarded. Mr. P. Penford, Leigh Park Gardens, Havant, sent a green-flesh Melon, and Mr. Justus Corderoy, Blewbury, Didcot, four dishes of Apples well kept.

#### FIRST-CLASS CERTIFICATES

were awarded as follows:—

- To Mr. C. Turaer, for Carnation (Tree) T. W. Girdlestone.
- To Mr. C. Turner, for Carnation (Tree) Colonel Cox.
- To Mr. C. Turner, for Carnation (Tree) Goliath.
- To Mr. T. S. Ware, for Polemonium Richardsonii.
- To Mr. T. S. Ware, for Dodecatheon splendens.
- To Messrs. J. Veitch & Sons, for Phyllanthus Chantieri.
- To Messrs. J. Veitch & Sons, for Carnation Pride of Penshurst.
- To Messrs. J. Veitch & Sons, for Gloxinia Flambeau.
- To Messrs. J. Veitch & Sons, for Heliotrope Roi des Noirs.
- To Messrs. J. Veitch & Sons, for Allium Karataviense.
- To Messrs. J. Veitch & Sons, for Hydrangea mandschurica.
- To Messrs. J. Veitch & Sons, for Schizophragma hydrangeoides.
- To Messrs. J. Veitch & Sons, for Olearia Gunnii.
- To Messrs. J. Veitch & Sons, for Syringa vulgaris Marie Legrange.
- To H. M. Pollett, Esq., for Odontoglossum crispum var. lilacina.
- To H. M. Pollett, Esq., for Odontoglossum roseum var. punctatissima.
- To Mr. T. W. Bond, for Cattleya Schofieldiana.
- To Mr. G. Weedon, for Lobelia superba.
- To Mr. C. Noble, for Clematis Sir Joseph Hooker.
- To Messrs. F. Sander & Co., for Aferides Wilsonianum.
- To Mr. J. V. Rees, for Saxifraga Macnabiana.

#### CULTURAL COMMENDATION.

- To Mr. H. James, for Yucca filamentosa variegata.

#### VOTES OF THANKS.

- To Messrs. James Carter & Co., for Calceolaria Victor Hugo.
- To Mr. B. S. Williams, for group of plants.
- To Mr. T. J. Seidel, for Rhododendrons.
- To Mr. W. Stacey, for cut Verbenas.
- To Mr. G. W. Cummins, for Cattleya Mossiae Saneana.

#### FRUIT COMMITTEE.

##### FIRST-CLASS CERTIFICATE.

- To Mr. C. Howe, for Melon Benham Beauty.

##### CULTURAL COMMENDATION.

- To Mr. S. Lyon, for Fig Brown Turkey.

#### VOTES OF THANKS.

- To Mr. C. Howe, for Cucumber Benham Park Hero.
- To Mr. W. Fyfe, for Grapes.
- To Mr. J. Hudson, for Grapes.

### MANCHESTER HORTICULTURAL AND BOTANICAL: May 22—29.

MANCHESTER has once more come to the fore in a manner peculiarly its own. During the Whitmas week it held at the Botanical Gardens, Old Trafford, an exhibition at once extensive and high-class, and certainly one of the best that has been held there since they were first established. It is now eighteen years since this series of exhibitions was commenced, and Mr. Bruce Findlay, the then able Curator of the Gardens, and now Secretary to the Society, and those who have so generously supported him, have abundant reason to congratulate themselves upon the success of their bold scheme.

The large show-house was, as usual, full to repletion, and here were Orchids, stove and greenhouse foliage and flowering plants, stately Palms, graceful Ferns, brilliant Anthuriums, and magnificent Ericas; here, too, were some Gleichenias, such as perhaps could not be found outside the Manchester district, the singular Pitcher-plants and Sarracenias, always a leading feature at this great show, and the numerous groups of new and rare plants sent by the London and provincial nurserymen. Here there was something more than a large and varied exhibition in itself.

#### ORCHIDS.

These were very numerous, and they were seen in the finest condition. With those included in the miscellaneous collections, sent by Messrs. F. Sander & Co., and Fisher, Son & Sibray, there were enough to form a fringe—and a particularly effective fringe, too, they made—running almost the length of the plants placed round the house. Mr. Findlay had grouped them so well that they were seen to the best advantage. This show served to bring to the fore one new exhibitor of Orchids—A. Heine, Esq., Fallowfield, Manchester (Mr. J. Cragg, gr.), who proved very successful on this occasion. Mr. Heine was 1st in the leading class for fifteen specimens, having a magnificent Dendrobium Wardianum, D. Dalhousianum, D. thyrsoiflorum, D. nobile, a splendid Cattleya Mossiae with about seventy flowers, C. Mendelii, Lælia purpurata, Oncidium vexillarium, with twenty-four spikes of blossoms; Odontoglossum Alexandre, with eighteen or twenty spikes of bloom expanded and unexpanded; Cyrtopidium Lawrenceanum, Vanda suavis, and V. suavis Pescatorei. 2d, Joseph Broome, Esq., Didsbury (Mr. A. Cole, gr.), who had a fine piece of Vanda teres, V. suavis, Phalenopsis amabilis, Cattleya Mossiae, very fine; 3d, C. Mendelii, Dendrobium Freemanii, D. nobile, D. devonianum, Odontoglossum vexillarium, Lælia purpurata, Epidendrum vitellinum, E. prismatocarpum, Cyrtopidium barbatum, and Aferides Fieldingii. Mr. Heine also had the best nine specimens, staging excellent examples of Cattleya Mossiae, C. Mendelii, Dendrobium devonianum, D. thyrsoiflorum, Lælia purpurata, Odontoglossum cirrosium, O. Alexandre, and Vanda suavis. 2d, S. S. Whalley, Esq., Fallowfield (Mr. G. Jackson, gr.), who had good examples of Dendrobium Paxtonii, D. thyrsoiflorum, Lælia purpurata, Cattleya Mossiae, D. crassinode, D. Bensoniae, Aferides Fieldingii, and Saccobium premorsum.

In the class for six specimens the veteran Dr. Ainsworth was 1st, Mr. Mitchell staging admirably managed specimens of Vanda suavis, with eight spikes of flowers; Phalenopsis amabilis, with fifty spikes at least; P. grandiflora, with twelve spikes; Dendrobium thyrsoiflorum, Aferides Fieldingii, and Cyrtopidium barbatum giganteum. 2d, John Heywood, Esq., The Grange, Stretford (Mr. R. E. Elphinstone, gr.), with Dendrobium thyrsoiflorum, Lælia purpurata, Cyrtopidium barbatum, Cattleya Mossiae, Cyrtopidium caudatum, and Odontoglossum Roezlii.

In the class for ten Orchids, *bona fide* specimens, Mr. A. Heine was again 1st, with a very fine lot, including such a grand piece of Dendrobium Paxtonii as is seldom seen—a specimen fully 3 feet through; D. thyrsoiflorum, D. nobile, Lælia purpurata, Cattleya Mossiae superba, and C. Mossiae aurantiaca, Vanda suavis, V. tricolor formosum, Odontoglossum Hallii, and Calanthe veratrifolia. 2d, Mr. J. Broome, with good samples of Cattleya Mossiae, Dendrobium Wardianum, D. nobile, D. thyrsoiflorum, D. clavatum, D. pulchellum, D. Falconeri, Cyrtopidium Stonei, Aferides Fieldingii, and Lælia purpurata. Mr. Heine had the best six Cattleyas, staging fair sized well flowered examples of Mossiae (3), C. Mossiae superba, and C. Mendelii (2). Mr. Broome came 2d with four well coloured plants of C. Skinneri, and two of C. Mossiae. Mr. Heine also had the best three Vandas, very good indeed, the varieties being V. tricolor insignis, V. t. formosa, and V. suavis Gotschalkii. S. S. Whalley, Esq., was 3d with two plants of V. suavis and one of V. teres, all good examples; and Mr. Broome came 3d with three excellent plants of V. suavis.

In the nurserymen's class for sixteen Orchids the competition was confined to Mr. James Cypher, of Cheltenham, and Mr. J. James, of Lower Norwood, the former taking the 1st prize with a thoroughly good representative collection consisting of Cyrtopidium villosum, C. barbatum biflorum, C. Lawrenceanum, Lælia purpurata, Cattleya Mossiae, C. Mendelii, C. Mossiae aurantiaca, Odontoglossum cirrosium, Oncidium sphecelatum, O. Marshallianum, Dendrobium Jamesianum, D. suavisimum, D. chrysotoxum, D. thyrsoiflorum, and D. nobile. Mr. H. James, who was placed 2d, had Dendrobium thyrsoiflorum, Phalenopsis amabilis, Oncidium Marshallianum, Vanda suavis, V. suaveolens, Cattleya Mossiae, Odontoglossum Alexandre, O. vexillarium, Anguloa Clowesii, Cyrtopidium Lawrenceanum, and Masdevallia Harryana. The same exhibitors were again 1st and 2d in the class for ten specimens: Mr. Cypher had Cattleya Gaskelliana, C. Mendelii, C. Skinneri, Dendrobium thyrsoiflorum, D. nobile, D. chrysotoxum, Cyrtopidium barbatum grandiflorum, C. Lawrenceanum, and Masdevallia Harryana. Mr. James had Vanda suavis, also Rolisson's variety, Cattleya Mendelii, C. Mossiae, Odontoglossum vexillarium, O. Alexandre, O. Pescatorei, Cyrtopidium Lawrenceanum, and Masdevallia Harryana.

#### STOVE AND GREENHOUSE PLANTS.

It was generally admitted that these were very good, especially the ten plants staged by Mr. Cypher. In the amateurs' class for eight specimens, S. Schloss, Esq., Bowdon (Mr. A. Paul, gr.), was 1st, with a very good lot, consisting of Anthurium Scherzerianum with fifty spathes, large and well coloured; Dendrobium fimbriatum occultatum, Clerodendron Balfourianum, a fine piece of Boronia elatior, a fine white Azalea Fielderi, A. Duc de Nassau and one other, and Erica Victorice. 2d, John Rylands, Esq., Stretford, with good plants of Darwinia Fuchsoides, Ixora Williamsii, I. Pilgrimii, Anthurium Scherzerianum, A. Andreanum, Clerodendron Balfourianum, Azalea Roi Leopold, and Erica coccinea minor.

Mr. Cypher's 1st prize collection in the class for ten specimens consisted of a wonderfully fine Erica Cavendishiana, E. depressa, Anthurium Scherzerianum, Hedera tulipifera, Aphelexis macrantha purpurea, Pimelea spectabilis, P. Hendersoni, Clerodendron Balfourianum,

Azalea Stella, and a very fine A. magnifica. Mr. James had Erica Lindleyana, E. ventricosa magnifica, E. coccinea minor, E. depressa, Anthurium Scherzerianum, A. Andreanum, Statiche profusa, Darwinia Hookeriana, and two Azaleas, 3d, Mr. Tudgey, Waltham Cross, whose best plants were Anthurium Scherzerianum, Aphelexis macrantha purpurea, Erica Victorice, and Azalea Criterion.

#### AZALEAS.

The best six came from J. Broome, Esq., well grown, good sized, admirably flowered plants of Criterion, Madame Marie Lefebvre Trotteriana, Stella, Madame Iris Lefebvre, a charming delicate pink variety; and Imperatrice Josephine; 2d, J. Brown, Esq., Heaton Mersey (Mr. Jas. Grier, gr.), with Chamer, very fine; Souvenir de Prince Albert, Chelsoni, Magnet, Lou's Morgottin, and Roi d'Hollande; 3d, Mr. J. Rylands. Singular to state, nothing was furnished to the nurserymen's class of eight varieties.

#### ERICAS.

The best six in the amateur class came from Joseph Broome, Esq., who had nice examples of affine, Victoria, ventricosa coccinea magnifica, ventricosa coccinea minor, ventricosa tricolor, and suaveolens; 2d, S. Baerlin, Didsbury (Mr. G. Williams, gr.), who had Victoria, ventricosa coccinea minor, tricolor dumosa, and two others.

In the nurserymen's class Mr. Cypher had the best six, good specimens of E. Cavendishiana, ventricosa magnifica, coccinea minor, tricolor Wilsoni, impressa, and Lindleyana. 2d, Mr. E. Tudgey, with a fine affine, Cavendishiana, Lindleyana, ventricosa tricolor, and Victoria.

#### MISCELLANEOUS FLOWERING PLANTS.

The only exhibitor of six Sonerilas was Mr. Broome, but none of them were in flower, still they were well grown specimens, and in good character. The forms were argentea, Nelly, Hendersoni, marmorata, Rowly, and amœnea.

Gloxinias were represented by good sized, well grown and flowered examples. The best ten came from Mrs. C. Sergeant, Temple Villa, Sale, the plants having from twenty to thirty flowers each. Mr. Z. A. Ward, Didsbury, was 2d, and Mr. G. B. Blair, Whalley Range, 3d. Mr. W. Hayes, jun., Chorlton House, Sale, had three very fine specimens of Lilium auratum, well grown, dwarf, and bearing thirty to forty flowers each. They well deserved the 1st prize in this class.

Calceolarias were somewhat largely and well shown, foliage and flowers alike good. Mr. S. Baerlin had the best eight; Dr. Adanson, Didsbury, being 2d.

#### ROSES.

On this occasion the large plants occasionally seen from Cheshut and Slough, were wanting, and the amateurs' plants were better than those shown by the trade. Mr. Broome had the best six specimens, staging nice fresh, well grown and flowered plants of La France, Annie Wood, Comtesse de Serenye, Madame Lacharme, Niphetos, and Marquis de Castellane. 2d, Mr. John Heywood, his best examples being Duke of Edinburgh, Charles Lawson, and Anna Alexieff.

In the nurserymen's class for twenty plants in pots, not more than 9 inches across, the 1st prize was withheld, the 2d going to Mr. John Hooley, Stockport—nicely grown specimens, a little overblown, the best varieties being Général Jacqueminot, Marie Guillot, Anna Alexieff, Souvenir d'un Ami, John Hopper, and Paul Néron.

In the class for thirty plants, in any sized pots, the 1st prize was again withheld, the 2d going to Messrs. G. & W. Yates, nurserymen, Stockport, the varieties much as already stated.

#### CLEMATIS.

We were pleased to note an improvement in the culture of these useful decorative plants at Manchester.

In the nurserymen's class for fifteen specimens, Messrs. Richard Smith & Co., of Worcester, had good-sized, admirably grown and flowered examples of Marie Lefebvre, Grand Duchess, Sensation, Countess of Lovelace, Marie van Houtte, purpurea elegans, Lucie Lemoine, Lady Caroline Nevill, J. A. Henry, Duke of Norfolk, Fairy Queen, Gloire de St. Julien, and Princess of Wales. There was no other competitor. In the class for specimens shown by amateurs, T. Dickson, Esq., Broughton (Mr. H. Bennett, gr.), was 1st with Fairy Queen, purpurea elegans, Henry, lanuginosa candida, Lucie Lemoine, and Mauve Queen; 2d, Mr. J. Heywood, whose best varieties were Lady Caroline Nevill, Marie Lefebvre, purpurea elegans, and Sensation.

#### PANSIES AND VIOLAS.

These were largely shown in pots, and they made a very effective display, but there was to be noticed a general uniformity of appearance in the height of the plants, and number of flowers on each, that led the judges to examine them somewhat closely, when it was found that in some cases mere cuttings with flowers on them were stuck into wet soil, which was firmly pressed about them; the plants were, therefore, made up for the occasion. If we are rightly informed, this method has been so generally adopted that the judges thought it best to award the prizes according to the merit of the specimens. The best six show Pansies in 8-inch pots came from the Children's Hospital, Pendlebury (Mr. J. Blower, gr.). Mr. J. Broome being 2d, and Mr. G. Wilkes 3d. Mr. Blower was also 1st with six fancy Pansies, Mr. C. Sergeant being 2d. The best six Violas also came from Mr. Blower, Mr. D. MacLure, Heaton Nursery, being 2d. In the nurserymen's class for twenty Pansies, Mrs. E. Mellor, Chorlton, was 1st, and Mr. J. Hayward, Cheshire, 2d. Mrs. Mellor



was also 1st for twenty fancy Pansies, and Mr. T. Wakenen 2d. The best twenty Violas came from Mr. J. Hayward, Cheadle, Mr. A. J. A. Bruce being 2d. We refrain from giving the names of varieties, because the method of making up specimens gives no reliable information as to their adaptability for culture in pots. Possibly *boni fide* culture will be made an indispensable condition in the next schedule of prizes.

#### PELARGONIUMS.

The only exhibitor of show and fancy Pelargoniums was Mr. C. Ryland, nurseryman, Ormskirk, and he staged eight very nice specimens of each. Of the former he had Queen Bess, Digby Grand, Duchesse de Morny, Claribel, Royal Bride, Venus, Roi Leopold, Gaiety, and Pericles. His fancy varieties were Fanny Gair, Advancer, Barbet, Lucy, Roi des Fantaisies, Evening Star, Mrs. Mendel, and Sarah Turner. Several collection of zonal Pelargoniums, and some excellent Ivy-leaved Pelargoniums were shown in the miscellaneous.

#### GROUPS OF PLANTS ARRANGED FOR EFFECT.

These are always a leading feature at Manchester, and on this occasion they were specially attractive and interesting. They made an effective display in the annex, and the two 1st prize groups especially were greatly admired. In the amateurs' division Mr. John Rylands was 1st, and his clever gardener must be awarded high praise as a floral decorator, for it was universally acknowledged to be "beautiful work." It was arranged in the form of a square, with the sides scalloped out, and there were elevations that were in thorough harmony with the main design. In the foreground was a marvellous plant of *Adiantum speciosum*, then a fine bed of Maidenhair and other small Ferns, rose Crotons and other foliaged plants, *Alcacia Lowii* and *Anthurium crystallinum* being especially noticeable, with sufficient dwarf flowering plants dotted about to make the arrangement piquant and delightful. Mr. S. Schloss came in 2d, with a charming group; Mr. E. C. Glover being 3d, and Mrs. Hodgkinson, Bowden, 4th. In the nurserymen's class Messrs. R. P. Ker & Son, nurserymen, Liverpool, were placed 1st, with something so well carried out as to appear to distance all that this firm had hitherto so well done at Manchester. It was arranged on a slightly sloping bank; there was a dense carpet formed of *Adiantum cuneatum* and *A. Lathomi*; at the back was a large plant of *Kentia Balmoreana*, flanked by *Dracena lineata*, the base of these being clothed by dwarf foliaged and flowering plants, such as Pelargoniums, Azaleas, &c. There were two little groups of *Lilium candidum*, and from the bed of Fern rose richly coloured plants of such Crotons as *Excelsior*, *Saintianus*, *aneitumensis*, *multiformis*, a variety that appears to be made up of pieces of several others; Warreni, and Flambeau. The margin was made up of *Dactylis glomerata variegata* and *Selaginella laevis* alternately, with here and there tiny flowering plants of double Ivy-leaved Pelargoniums; and behind these small specimens of Crotons Hawkeri and Mortii. Messrs. W. & J. Birkenhead were placed 2d, with a fine group, composed wholly of hardy Ferns of a valuable character arranged with considerable skill.

#### FINE-FOLIAGED PLANTS.

Mr. J. Rylands had the best collection of ten, very fine and massive examples of the following being staged:—*Pritchardia pacifica*, *Cibotium regale*, *Lantana borbonica*, *Anthurium crystallinum*, *Gleichenia rupestris*, *Croton Weismanni*, *C. Williamsii*, *Alcacia Lowii*, and *Cycas revoluta*; 2d, Sir Wilfrid Lawson, Bart., M.P., Brayton, Carlisle (Mr. Hammond, gr.), who had *Cycas revoluta*, *Phoenix rupicola*, *Chamerops humilis*, *Macrozamia Fraseri*, *Croton D'Israeli*, *Bonaparteia junceaefolia*, *Dasylium glaucum*, and *Encypharallus villosus*; 3d, Mr. E. C. Glover; 4th, Mr. S. Schloss. In the nurserymen's class for eight plants Mr. J. Cypher was 1st, with large and well developed specimens of *Areca Baueri*, *Lantana borbonica*, *Kentia Fosteriana*, *C. australis*, *Cycas revoluta*, *Dasylium glaucum*, *Encypharallus villosus*, and *Croton Weismanni*; 2d, Mr. H. James, with a good group, conspicuous among which was a huge plant of *Stevensonia grandifolia*. Mr. J. Broome had the best six *Dracenas*, staging good plants of Youngi, Lindeni, *anerleyensis*, *Baptisti*, *Robinsoniana*, and *Weismanni*; 2d, Mr. S. Baerlin, with *Veitchi*, *Youngi*, *amabilis*, *Shepherdii*, *Bausei*, and *indivisa*; 3d, Mr. J. Rylands. Messrs. R. P. Ker & Son were 1st with an admirable group, finely grown and coloured, consisting of *Baptisti*, *Gladstonei*, *Hendersoni*, *amabilis*, *Bausei*, *Lindeni*, *nigrescens*, *recurva*, *Mooreana*, *speciosa*, *Weismanni*, and *Robinsoniana*; 2d, Mr. H. James, with *Baptisti*, *Goldiana*, *Shepherdii*, *amabilis*, *elegantissima*, *Nycteria*, *Mooreana*, *Youngi*, *regina*, *Gladstonei*, *Bausei*, and *Weismanni*. Messrs. R. P. Ker & Son had twelve magnificent Crotons, large, splendidly grown and coloured examples of *Carrierei*, *Courti*, *Evansianus*, *Queen Victoria*, *Mortfontainensis*, *Hawkeri*, *Mortii*, *D'Israeli*, *Pergmanni*, and *Baronne Rothschild*, and had the 1st prize. In the class for six specimens, Sir W. Lawson was 1st with *Williamsi*, *interruptus-auratus*, *Earl of Derby*, *Rex*, and two seedlings; 2d, Mr. J. Broome with *Andreanus*, *D'Israeli*, *Majesticus*, *Evansianus*, *Burtoni*, and *Williamsi*; 3d, Mr. E. C. Glover. Mr. J. Rylands had the best four *Yuccas*, staging three plants of *aloifolia variegata*, and one of *quadricolor*. Mr. Broome was 2d with rather smaller but very neat and bright plants of *aloifolia* and *Stokesi*, two of each. Mr. S. Baerlin had the best four *Palms*, staging *Kentia australis*, *Geonoma Schottiana*, *Areca lutescens*, and *Cocos Weddelliana*; Sir W. Lawson was 2d with *Chamerops humilis*, *Areca Baueri*, *Phoenix rupicola*, and *Acanthorrhiza aculeata*.

#### FERNS.

The group of eight stove and greenhouse Ferns staged

by Mr. Paul for S. Schloss, Esq., was one of the features of the exhibition, the *Gleichenias* being stupendous in size and grandly developed. A plant of *G. spelunce* was fully 9 feet through, and not greatly below these in dimensions were *Mendelii*, *rupestris*, *rupestris glaucescens*, and *flabellata*. *Alsophila Williamsii*, *Dicksonia antarctica*, and *Goniophlebium subauriculatum*; 2d, R. P. Gill, Esq., Woodley Hall, Ashton (Mr. Plant, gr.), with *Dicksonia antarctica*, *Davallia Mooreana*, *Adiantum Williamsi*, *Alsophila excelsa*, &c.; 3d, Mr. E. C. Glover. Mr. Arthur Birley, Woodbank, Pendlebury, was the only exhibitor of twelve hardy Ferns, staging an excellent lot, among them *Athyrium F. f. pluniosus*, *Craigii*, *Fieldii*, and *stipitatum*, *Osmunda cinnamomea*, *O. gracilis*, and *Lastrea phillypteris*. Messrs. W. & J. Birkenhead had the best twelve in the nurserymen's class, all of a handsome character, the leading varieties being *Osmunda gracilis*, *Struthiopteris germanica*, *Adiantum pedatum*, &c.; 2d, Mr. C. Ryland.

#### PITCHER PLANTS.

The best collection of these came from Mr. Joseph Broome, and very interesting they were—the plants well grown, the pitchers abundant, large, and finely coloured. In this group were some of Mr. Wrigley's new hybrid *Sarracenias*, viz., *Swaniana*, *illustrata*, *Maddisoniana*, *Mitchelliana*, and an unnamed hybrid from *purpurata* and *variolaris*, *flava maculata*, *variolaris*, and *purpurata*; and the following *Nepenthes*—*Lawrenceana*, *Morgana*, *Mastersiana*, *Rafflesiana*, *sanguinea*, *Hookeriana*, *anerleyensis*, a variety of *Mastersiana* with brighter red pitchers, and *Cephalotus follicularis*. 2d, J. Fildes, Esq., Chorlton (Mr. J. Morton, gr.), whose leading plants were *Sarracenias Chelsoni*, *atrosanguinea*, *flava maxima*, *Fildesi*, *Stevensi*, *Mitchelliana*, and *Williamsi*; *Nepenthes Dominiana*, *Mastersiana*, *Henryana*, with *Drosera capensis*, and *D. dichotoma*. In the nurserymen's class for ten specimens Mr. A. J. Bruce, nurseryman, Chorlton, was 1st, with small but well done plants of *Nepenthes Chelsoni* and the following *Sarracenias*—*Stevensi*, *Williamsi*, *Fildesi*, *Chelsoni*, *variolaris*, *Maddisoniana*, *formosa*, *Tolliana*, and *purpurea*. 2d, Mr. H. James, with *Nepenthes robusta*, *Mastersiana*, *hybrida*, *Dominiana*, *intermedia*, *Rafflesiana*, *Courtii*, *rubra*, &c.

#### HARDY PLANTS.

These were, as is customary in Manchester, in strong force, well-grown and flowered, varied, and full of interest. Here, again, Mr. Joseph Broome was to the fore, as he had the best thirty hardy herbaceous and bulbous plants, staging *Lilium croceum*, *L. umbellatum*, *L. dalmaticum*, *Thalictrum purpurascens*, *Funkias*, *Geum aurantiacum*, *Caltha palustris*, fl.-pl., *Cardamine pratensis*, fl.-pl., *Narcissus Bulbocodium*, *Polemonium reptans*, *Trillium grandiflorum*, *Spiraea ulmaria*, fl.-pl., *Trollius asiaticus*, &c. This was the only collection.

In the class for thirty alpine plants, Mr. Broome was again 1st, with *Linum alpinum*, *Campanula Portenschlagiana*, *Saxifraga cristata*, *S. muscoides purpurea*, *S. pyramidalis*, *Campanula abietina*, *Bellis rotundifolia* var. *caerulea*, *Scilla*, *Delphinium*, *Scilla campanulata*, *Iberis gibraltarica* *hybrida*, *Auriculas*, *Funkias*, *Lily of the Valley*, &c., many being repeated in duplicate. In the class for sixty hardy herbaceous and bulbous plants, in or out of flower, some of the best subjects were shown, and Mr. Thomas Walkenden, nurseryman, Marsland Road, Sale, was 1st, with *Campanula calycanthema alba*, *Iberis gibraltarica*, *Primula farinosa*, *Aquilegia*, *Doronicum plantagineum excelsum*, *Gladiolus Colvillei alba*, *Gentiana acaulis*, *G. verna*, *Narcissus bulbocodium*, double *Primrose Cloth of Gold*, and a pan of the old double *Crimson Velvet*, *Polyanthus Cheshire Favourite*, *Centaurea montana alba*, *Cypripedium spectabile*, *Trollius europæus*, *Leucium æstivum*, *Dodecatheon elegans*, &c. Messrs. James Dickson & Sons were 2d, their best specimens were *Trillium grandiflorum*, *Spiraea aruncus*, *Gentiana acaulis*, *Lilium auratum*, *Dodecatheon Jeffreyanum*, *Lilium californicum*, *Anthericum liliatum*, *Ornithogalum umbellatum*, *Lilium Harrisii*, *Narcissus* Sir Watkin, *Campanula glomerata*, *Cypripedium calceolus*, *Gladiolus Colvillei albus*, &c.

The best twelve alpine plants, in or out of flower, came from Mr. Joseph Broome; Mr. E. Wright, Northenden, being 2d, and Mr. J. Mellor 3d. The best forty alpine plants, in or out of flower, came from Messrs. F. W. & A. Stansfield, Sale; who had *Primula luteola*, *Cypripedium pubescens*, *Gentiana verna*, *Veronica repens*, *Erysimum pulchellum*, *Antennaria dioica rosea*, and various *Saxifragas*, all in large pans, and very neatly shown; 2d, Messrs. James Dixon & Sons, who had *Trillium grandiflorum*, *Polemonium Richardsoni*, *Campanula muralis*, *Gentiana acaulis*, *Erinus alpinus*, *Armoria maritima*, *Phlox pilosa*, *Linaria pallida*, *Primula Sieboldi*, *Antirrhinum asarina*, *Alpine Auricula George Lightbody*, and *Mercury*, &c. Mr. Walkenden had the best twenty-four *Pyrethrums* in pots, a very good lot, well grown and flowered; the leading varieties were *Niveum plenum*, *Marquis of Bute*, *Rosy Morn*, *J. N. Twedy*, *Progress*, *Amethyst*, *Mont Blanc*, and *Solfaterra*; and was the only exhibitor. The classes for twenty and twelve *Anemones* in pots brought no competition.

#### CUT FLOWERS.

These were invited only in a few classes. The best stand of twelve blooms of Tea-scented Roses came from A. Tate, Esq., Roseleigh, Woolton (Mr. R. G. Waterman, gr.), who had charming blooms of *Madame Willmott*, *Belle Lyonnaise*, *Niphetos*, *Jean Ducher*, *Madame Trifle*, *Ilomère*, and *Comtesse Riza du Parc*—two or so being shown in duplicate. Mr. J. Broome was 2d, with twelve admirable blooms of *Catherine Mermet*. The class for eighteen cut blooms shown by nurserymen brought no competition. Prizes were offered for a stand of twenty-four cut blooms of *Pyrethrums*, and but one appeared, badly set up, and the flowers of a poor character—and to this the judges awarded a prize of £3. The flowers would have been dear at 3s. Messrs. J. & R. Pearson had a stand of cut blooms of zonal Pelargoniums in great variety and beauty.

#### FRUIT.

Mr. G. T. Miles, gr. to Lord Carrington, Wycombe Abbey, was the only exhibitor of eight dishes of fruit, having an excellent lot, consisting of Black Hamburg and Foster's Seedling Grapes, Elton and Black Circassian Cherries, Brown Turkey Figs, Golden Gem and Scarlet Premier Melons, and a fine Queen Pine. Mr. Miles had the best two Pine-apples, staging Queens, averaging 4 lb. each in weight. Mr. Speed, gr. to Lord Penrhyn, Bangor, was 2d. Mr. Miles had the best single fruit, staging a good Queen in this instance. There was a good competition in the classes both for black and white Grapes. The best two bunches of the former came from J. F. Campbell, Esq., Wood-leat, Uttoxeter (Mr. J. Hollingsworth gr.), Thomas Slater, Esq., Stand Hall, Whitfield, being 2d, in each case with Black Hamburgs. Mr. Miles had the best two bunches of white Grapes, staging good examples of Foster's Seedling, Mr. Ackers being 2d with Duke of Buccleuch, and Mr. Campbell 3d with Foster's Seedling. A first-class Certificate of Merit was awarded to Mr. Speed, Bangor Castle, for Penrhyn Seedling Melon, a golden-skinned variety, with a white flesh, and stated to be of the highest quality. The best twelve pots of Strawberries came from the Hon. W. Meynell-Ingram, Temple Newsam, near Leeds; Mr. Upjohn, gr. to the Earl of Ellesmere, being 2d.

#### MISCELLANEOUS COLLECTIONS OF PLANTS

were shown by Mr. B. S. Williams, Victoria Nursery, Holloway; Messrs. R. P. Ker & Son, F. & A. Dickson & Sons, Upton Nurseries, Chester; The Liverpool Horticultural Company, Messrs. Fisher, Son & Sibray, Handsworth Nurseries, Sheffield, included a fine lot of Orchids; by Messrs. F. Sander & Co., St. Albans, a charming lot of Orchids; Messrs. Cutbush & Sons, nurserymen, Highgate; and Messrs. W. & J. Birkenhead. Messrs. G. Legge & Co., Waterloo Nursery, Bury, had a very interesting collection of varieties of *Primula Sieboldi* of their own raising; and Messrs. J. Laing & Co., Stanstead Park Nurseries, Forest Hill, S.E., had an excellent lot of Begonias. To both these special certificates were awarded.

Extra prizes were awarded to Mr. J. Cypher for a group of specimen plants; to Mr. Miles, for some fine Stamliordian Tomatoes; to Mr. C. E. Thornycroft, for a dish of excellent Nectarines; to Mr. G. B. Blair, for three brace of Telegraph, and the same of All the Year Round, Cucumbers; to Mr. Birley, for a good collection of Cinerarias; to Mr. W. Hayes, jun., for zonal Pelargoniums; and to Mr. C. Sergeant for the same.

#### FIRST-CLASS CERTIFICATES OF MERIT

were awarded to Mr. B. S. Williams, for *CATTLEYA GIGAS* var., *HENNEROCALLIS MACROSTEPHANIA*, *CYPRIPEDIUM CILIOLARE*, *C. DRURYI*, *AMARYLLIS* Mrs. B. S. WILLIAMS, and *ODONTOGLOSSUM PRIONOPETALUM*; to Messrs. Fisher, Son & Sibray, for *VANDA TRICOLOR* and *PHALANOPSIS*, both very fine Handsword varieties; to Messrs. R. P. Ker & Son, for *ANTHURUM CARNÆUM*, *ALCASCIA SANDERIANA*, *SPIRÆA ASTILBOIDES*, *AZALEA SOUVENIR DE FRANÇOIS VÉRYANE*, *VRIESIA HIEROGLYPHICA* and *HARDY AZALEA AVALANCHE*; and to E. Loder, Esq., Flore, Weedon (Mr. T. Short, gr.), for *MYOSOTIDUM NOBILE*.

#### CRYSTAL PALACE: May 22 and 23.

THE great flower show of the season was held on the above dates, and as a floral exhibition was a gratifying success. Most of the classes were well filled, and with few exceptions the quality of the productions was fully up to the high standard obtained at these exhibitions. The arrangement of the plants in the exhibition was also very good. In one or two instances the exhibitors of stove and greenhouse plants were placed at a disadvantage, the plants having been trained to face one way, but being placed in the centre of the annex of the building the sides of the plants not furnished with flowers suffered in comparison with those trained in a more natural manner. In these same classes exception might be taken to the way some of the plants were over-trained; even if a plant has been grown into its natural bush form it is not improved in appearance by having the flowers closely tied down to a regular surface by a perfect network of string. It is a great waste of time and force misapplied. Judges would not be slow to recognise a more natural system of training if some good grower would break loose from a bad system.

#### STOVE AND GREENHOUSE FLOWERING PLANTS

were exhibited here as were reported upon at the Royal Botanic last week. Mr. Chapman, gr. to J. Spode, Esq., Hawkesyard Park, Rugeley, was 1st for nine specimens in the open class, and also for six in the



amateurs' class; Mr. H. James, of Castle Nursery, Lower Norwood, being 2d in the former class; and Mr. C. Rann, gr. to J. Warren, Esq., Handcross Park, Sussex, 2d in the latter.

#### GREENHOUSE AZALEAS

were exhibited in the form of large specimens, and in capital condition. The contest for the premier position in the class for nine large specimens was between Mr. G. Roach, gr. to R. Thornton, Esq., The Hoe, Sydenham Hill, and Mr. Turner, of the Royal Nurseries, Slough, the 1st prize being awarded to the amateur. Mr. Roach was the only exhibitor in the amateurs' class for Azaleas, and received the highest award.

Mr. Turner and Mr. Roach also competed in the class for eighteen Azaleas in 9-inch pots, the first-named being easily 1st, with superb specimens, in beautiful variety. The best of them were—Apollo, Baron N. de Rothschild, Comtesse de Flandres, Grandis, Jean Vervaeke, Louise Pynaert, Mlle. Marie Lefebvre, fine white variety; Mlle. Marie van Houtte, Marquis of Lorne, Mrs. Turner, Reine des Pays Bas, Roi de Hollande: these should all be in the most select collection.

#### ORCHIDS.

The competition for these was very spirited, many well grown specimens being exhibited.

In the class for nine distinct Orchids, Mr. J. H. Hill, gr. to H. Little, Esq., Hillingdon, near Uxbridge, obtained the 1st prize. He had two good varieties of Cattleya Mendelii, Dendrobium thysiflorum, many spikes; Cattleya Mossiae, nine fine flowers; C. Leopoldi, a handsome Lycaste Skinneri, Aerides Fieldingii, a large pan of Cypripedium ciliolare, and one of Odontoglossum crispum. Mr. Salter, gr. to J. Southgate, Esq., Selborne, Streatham, was a good 2d; Cymbidium Lowii had two fine spikes, Coelogyne pandurata, with its singular green and black flowers, had two spikes; Dendrobium Falconeri was also fine. Mr. H. James was 3d.

The best specimen Orchid was sent by Mr. S. Cooke, gr. to De B. Crawshaw, Esq., Sevenoaks; it was a well grown specimen of Vanda suavis with four spikes and fifty-five flowers. Mr. Salter was 2d, with a fine Dendrobium Falconeri.

In the amateurs' class for six Orchids, Mr. Cooke was well 1st, with, amongst other fine things, a Cattleya Mossiae, eleven splendid blooms; a Vanda suavis, two spikes; Epidendrum vitellinum majus, &c. Mr. Salter was 2d. Mr. A. Luff, gr. to R. R. Hyatt, Esq., Hithered, Leigham Court Road, was a good 3d; he had a fine Phalaenopsis amabilis, and a good plant in fine bloom of Cattleya gigas.

Collections of not less than forty Orchids "arranged with a few Ferns and Palms for effect," made an interesting exhibition. Mr. Salter easily gained the 1st prize, followed by Mr. H. James and Mr. A. Luff. Odontoglossum polyanthum, Cattleya Mendelii, C. Mossiae (white form), Laelia purpurata, &c., were fine in Mr. Salter's collection. Mr. James showing fine forms of Odontoglossum crispum and O. Pescatorei.

#### FINE-FOLIAGE PLANTS

were very large in size, and most of the specimens were well cultivated. The whole of the 1st prizes were awarded to Mr. Rann, who grows this class of plants to a large size, and maintains them in good condition. His Cycas revoluta was a splendid specimen, so also was C. circinalis and Croton albicans, distinct and good. In the class for six specimens his Bonapartea stricta was very pretty; Gleichenia Mendelii well furnished to the base, and Croton Queen Victoria rich in colour.

Mr. J. W. Penfold, fgr. to the Rev. Canon Bridges, Beddington, also exhibited good foliage plants.

Mr. J. R. Bird, gr. to H. Canston, Esq., Lodgemore, Alleen Park, Dulwich, was awarded both prizes for Crotons; the plants were large in size, though not so well coloured as the smaller specimens from Messrs. Hooper, of Covent Garden, who obtained the 2d prize in the open class; Mr. Wakeham being 2d in that for amateurs.

Messrs. Hooper were 1st in the open class for Dracaenas, and Mr. Bird in that for amateurs. They made a good feature in the show.

Caladiums made a grand display of rich and varied colour. Perhaps no finer specimens were ever exhibited than the nine huge plants which gained the 1st prize for Messrs. Laing, of Stanstead Park, Forest Hill. The most distinct of them were Leopold, Robert, candidum, albo-luteum, Souvenir de Madame Bernard, Mithridate, and Madame Marjolijn Scheffer. Mr. J. Sharpe, gr. to F. Hatchett, Esq., Parkfield, Lee, S.E., was a good 2d.

#### FERNS

were well exhibited by Mr. Penfold; his six specimens comprised Davallia Mooreana, D. polyantha, both of large size; D. filijensis, Adiantum cardiochlena, with large massive fronds: the 1st prize was awarded, Mr. J. Wakeham also exhibited well in the open class for nine specimens, beating Mr. James.

Several miscellaneous collections of plants were exhibited, which added greatly to the interest of the exhibition, particularly the hardy plants from Mr. J. Vander Rees, of Tooting; Messrs. Paul & Sons, of Cheshunt; and Messrs. Carter, of High Holborn. Messrs. W. Paul & Son, of Waltham Cross, and Mr. Runsey exhibited excellent cut Roses; Messrs. Barr plants and cut flowers, Messrs. Hooper a good group of Tree Carnations, and Messrs. Jackman pot Roses.

#### FIRST-CLASS CERTIFICATES

were awarded to Mr. V. Rees for SAXIFRAGA MAC-NABIANA.

Mr. F. Perkins, for VOLONTÉ NATIONALE ALBA PELARGONIUM.

Messrs. Laing, for BEGONIAS FORMOSA, LADY HULSE, SIR PETER LUMSDEN; and also for NEPENTHES MASTERSIANA and N. MASTERSIANA "red variety."

And to Mr. J. Ford, for CALCEOLARIA GOLDEN PLESH, a neat dwarf-growing variety.

## Law Notes.

IS A HOTHOUSE A BUILDING?—The adjourned hearing of the case against Mr. Haynes, nurseryman, of Penge, reported in our issue of May 23, was taken at the Lambeth Police Court, before Mr. Chance, on Thursday week. Mr. E. B. Haynes, nurseryman and florist, of Penge Nursery, Beckenham Road, appeared to answer an adjourned summons taken out at the instance of Mr. G. Elkington, surveyor of Penge, with regard to the non-payment of a fee of £1, alleged to be due in surveying a greenhouse or hothouse upon the defendant's premises, according to the terms of the Act of Parliament dealing with the erection of buildings. Upon the first hearing the defendant declined to admit that the structure in question was a building within the meaning of the Act. The defendant still contended that, according to the meaning of the section of the Act, the erection in question was not a building, and pointed out certain decisions given by magistrates upon the point. Two cases had been so decided in this court. He further contended that as a trade adjunct the structure could not be termed a building according to the terms of the Act.—Mr. Chance said, according to the terms of the section of the Act, it was clear a greenhouse, so far as all sashes, doors, and frames were concerned, would be exempt; but the other part of the section clearly showed, where there was a foundation of brickwork, &c., that it would come under the terms of such Act. The Act distinctly pointed out that greenhouses were exempt under certain circumstances.—The defendant said he had purchased the structures in question for £5, and the surveyor knew nothing about it until it was placed upon the ground, and now he wanted £1 for fees. A discussion then followed as to what fees were allowed under the Act, supposing the structure in question should be considered as a building. Mr. Chance said no doubt there was a great difficulty in deciding what really was a building, but it was to his mind clear that greenhouses would be exempt under certain conditions, but not where brickwork was used in the construction.—The defendant said doubtless that was Mr. Elkington's best point, but five magistrates had decided in favour of the points raised.—Mr. Chance said he had decided against it. He had full respect for the decision of his colleagues, but he certainly could not agree with them entirely. He was against the defendant upon the points raised, and certainly must look upon the structure in question as a building within the meaning of the terms of the Act. Under all the circumstances, he must therefore order the defendant to pay the amount claimed. He made an order upon the defendant to pay the amount claimed, but declined to grant anything beyond the ordinary costs.

## Obituary.

JAMES DREWETT.

ON Wednesday, May 20, was laid in his last resting place, at the Norbiton Cemetery, Kingston-on-Thames, all that remained of one that belonged to the good old English school of gardeners, Mr. James Drewett, late of The Denbies, near Dorking, who died on the 14th inst. at Kingston-on-Thames (where for the last seven years he has lived in retirement with his brother), at the ripe age of eighty-five. He carried his age wonderfully well, and up to a few weeks before his death he took his daily long walks in the neighbourhood, with the firm step of a man much less advanced in years. He retained his faculties to the end, and passed peacefully away, highly honoured.

For twenty-five years the deceased was in charge of the gardens of G. Cubitt, Esq., at the place above-mentioned, retiring from them about eleven years ago, on a comfortable stipend from his late employer. In a series of notices and portraits of British gardeners published in the *Gardeners' Chronicle*, Mr. Drewett's labours were thus referred to:—"The name of Mr. Drewett is well known in the world of horticulture, being very prominently associated with the production of some of the handsomest Muscat Grapes which have perhaps ever graced an exhibition table. Mr. James Drewett was born in the year 1800, in the neighbourhood of Bristol, and entered on his horticultural career in the gardens of Himley Hall, Staffordshire, the seat of the Earl of Dudley and Ward. In 1825 he came to London, and was employed over a period of seven years

in the Royal Forcing Gardens at Kensington and Cumberland Lodge, and in the Royal Botanic Gardens, Kew.

"Mr. Drewett has held three head situations, the first as manager of the estate, gardens, woods, &c., of the late D. Baillie, Esq.; the second as gardener to Sir W. Heathcote, at Hursley Park, near Winchester, Hants; the third with the late Thomas Cubitt, Esq., at The Denbies, near Dorking, Surrey. This latter situation he entered in 1850, and has held it to the present time. During this period very extensive groundwork operations have been carried out under his directions, and much planting has been done, while a new kitchen garden and fruit orchard have been formed. Mr. Drewett designed the range of forcing-houses at this place, and planted the Vines which are assisted by heated chambers under the outside borders. It is these Vines that produced the fine samples of Frontignan, Canon Hall Muscat, Muscat of Alexandria Grapes, which were so much admired at the metropolitan exhibitions in 1857, and in succeeding years, and which were moreover so successful in obtaining first prizes."

MRS. HERBST.

We regret to hear of the sudden death of Mrs. Herbst, at Richmond, on last Saturday, May 23. It appears that during a thunderstorm (of which she always experienced a dread) she was stricken with an attack of apoplexy, from which she never rallied, and died on the same evening. Mr. Herbst was, previous to coming to Richmond, Curator of the Botanic Gardens, Rio de Janeiro, and it was there where Mrs. Herbst, during a violent thunderstorm, experienced a severe shock, which she could never forget. Mrs. Herbst was in her fifty-second year.

MR. GEORGE BAKER.

By the death of Mr. Baker, of Reigate, the National Rose Society has lost a most useful supporter and constant exhibitor, and Reigate will have sustained a great loss, and especially the district Rose Association, which he had assisted in raising to a very high pitch of eminence. His communications to the *Rosarians' Year Book* will have endeared him to a wide circle of readers. In the last issue of the *Year Book* a valuable article on Rose pruning appeared, which ended with a premonition of what has actually happened.

MR. W. J. EPPS.

The death is announced of Mr. W. J. EPPS, of Somerley View, Ringwood, which occurred on the 18th inst., in the sixty-eighth year of his age. Mr. Epps was formerly in business as a nurseryman at Maidstone, and became well known as a cultivator of Cape Heaths; he was also one of the first raisers of seedling Fuchsias.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, MAY 27, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.						Hygrometrical Deductions from Glaisher's Tables 6th Edition		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 30 years.	Highest.	Lowest.	Range.	Mean for Day.	Mean from Average of 30 years.	Dew Point.	Degree of Humidity. Sat. = 100.	Average Direction.		
May	In.	In.	°	°	°	°	°				In.	
21	29.21	-0.53	65.9	39.1	26.8	48.4	-5.5	44.7	87	S.	0.10	
22	29.14	-0.61	56.0	44.0	12.0	47.3	-6.8	46.1	96	E. S.W.	0.37	
23	29.55	-0.20	61.2	42.5	18.7	49.0	-4.4	44.7	84	W. S.W.	0.11	
24	29.80	+0.05	63.0	42.5	20.5	51.0	-3.6	41.8	71	W.N.W.	0.09	
25	29.84	+0.09	62.5	42.0	20.5	48.3	-6.7	47.5	97	S.W.	0.11	
26	29.79	+0.03	66.2	47.0	19.2	54.7	-0.5	51.3	88	S.S.W.	0.00	
27	29.80	+0.03	71.5	49.8	21.7	59.0	+3.6	52.0	73	S.W.	0.00	
Mean	29.59	-0.16	63.0	43.8	19.2	51.2	-3.4	46.9	76	S.W.	0.09	

May 21.—Heavy rain in early morning, dull morning, fine afternoon.

— 22.—Rain nearly all day.

— 23.—Fine bright morning, thunderstorm from 11.55 to 12.30 P.M., fine afternoon.



May 24.—Fine, cloudy at times.  
— 25.—Dull, showers of rain.  
— 26.—Fine day and night.  
— 27.—Fine, bright, hot day and night.

LONDON: *Atmospheric Pressure.*—During the week ending May 23, the reading of the barometer at the level of the sea decreased from 29.81 inches at the beginning of the week to 29.72 inches by 9 A.M. on the 17th, increased to 29.91 inches by 9 A.M. and decreased to 29.89 inches by 1 P.M. on the 18th, increased to 30.03 inches by 9 A.M. on the 19th, decreased to 29.39 inches by 1 P.M. on the 21st, increased to 29.40 inches by 5 A.M. on the 21st, decreased to 29.14 inches by 9 A.M. on the 22d, and was 29.79 inches by the end of the week.

The mean reading of the barometer for the week was 29.65 inches, being 0.30 inch lower than last week, and 0.27 inch below the average of the week.

*Temperature.*—The highest temperature in the shade in the week was 61.2 on the 23d; the highest on the 18th and 22d was 56°. The mean of the seven high day temperatures was 58.1.

The lowest temperature was 39.1 on the 21st; on the 22d the lowest temperature was 44°. The mean of the seven low night temperatures was 41.3.

The greatest range of temperature in one day was 21.8, on the 21st; the smallest was 12°, on the 22d. The mean of the seven daily ranges was 16.7.8.

The mean temperatures were—on the 17th, 47.1; on the 18th, 45.4; on the 19th, 47.3; on the 20th, 57.8; on the 21st, 48.4; on the 22d, 47.3; and on the 23d, 49.9; and these were all below their averages (excepting the 20th, which was 4.1 above), by 5.7, 7.8, 6.3, 5.5, 6.8, and 4.4 respectively.

The mean temperature of the week was 49°, being 2.4 higher than last week, and 4.6 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 117°, on the 21st. The mean of the seven readings was 98.5.

*Rain.*—Rain fell on five days, to the amount of 0.78 inch.

ENGLAND: *Temperature.*—During the week ending May 23, the highest temperatures were 63° at Brighton, 61.8 at Cambridge, 61.2 at Blackheath; the highest at Liverpool and Sunderland was 55°, at Bolton and Bradford 55.1. The general mean was 57°.

The lowest temperatures were 31.1 at Wolverhampton, 33.6 at Bolton, 34° at Hull; the lowest at Brighton was 39.6, at Blackheath 39.1, at Liverpool 38.6. The general mean was 36.6.

The greatest ranges were 27° at Cambridge and Hull, at Wolverhampton 25.3; the smallest ranges were 16.4 at Liverpool, 17.9 at Bradford, 18° at Sunderland. The general mean was 21.2.

The mean of the seven high day temperatures was highest at Brighton, 59.2, at Blackheath, 58.1, at Cambridge 57.1, and was lowest at Sunderland, 50°, at Bolton 51.3, at Newcastle 51.6. The general mean was 54.3.

The mean of the seven low night temperatures was highest at Brighton, 43.2, at Plymouth 43°, at Liverpool 42.7; and was lowest at Wolverhampton and Hull, 38.4, at Bolton 38.5. The general mean was 40.8.

The mean daily range was greatest at Cambridge, 18.1, at Blackheath 16.8, at Brighton 16°; and was least at Sunderland, 9°, at Liverpool 9.9, at Preston 11.3. The general mean was 13.5.

The mean temperature was highest at Brighton, 49.5, at Blackheath 49°, at Plymouth 48.1; and was lowest at Bolton, 43.2, at Sunderland and Newcastle 43.8. The general mean was 45.9.

*Rain.*—The largest falls were 1.97 inch at Plymouth, 1.51 inch at Bristol, 1.44 inch at Brighton; the smallest falls were 0.48 inch at Preston, 0.55 inch at Liverpool, 0.60 inch at Nottingham. The general mean fall was 0.97 inch.

SCOTLAND: *Temperature.*—During the week ending May 23, the highest temperature was 60.7, at Dundee, at Greenock the highest temperature was 54.2. The general mean was 57°.

The lowest temperature in the week was 35°, at Glasgow; at Leith the lowest temperature was 39.1. The general mean was 37.6.

The mean temperature was highest at Glasgow and Paisley, 47.2; and lowest at Greenock, 45.7. The general mean was 46.6.

*Rain.*—The largest fall was 1.28 inch at Perth; the smallest fall was 0.75 inch, at Leith. The general mean fall was 1.03 inch.

JAMES GLAISHER F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, May 25, 1885, issued by the Meteorological Office, 116, Victoria Street, London, S.W.:—The weather has remained in a very unsettled and rainy condition in all parts of the kingdom: thunder and lightning were again experienced in various localities, accompanied in some places by showers of hail.

*Temperature* has continued below the mean, the deficit ranging from 2° in the N. and E. of Scotland, to as much as 5° or 6° in most other districts. The maxima were generally registered on the 24th or 25th, and varied from 55° in "Scotland, N." and 56° in the "Channel Islands" to 62° in "Scotland, E.," "Scotland, W.," and "Ireland, N." The minima, which were recorded at most stations on the 19th, ranged from 43° in the "Channel Islands" and 37° in "Ireland, S.," "England, E.," and "Scotland, E.," to 32° in the East of England, and 31° in the "Midland Counties." Some sharp grass frosts again occurred over the inland districts.

*Rainfall* has been more than the mean in all districts, the excess in most parts of Great Britain and in the "Channel Islands" being considerable. Bright sunshine shows a decided decrease, the percentages of the possible duration ranging from 24 in "England, E." to 33 in "England, S.," and 43 in the "Channel Islands."

*Depressions observed.*—The most important depressions noticed during this period were one which travelled in a north-easterly direction over Ireland and Scotland on the 20th, and subsequently moved away to the north-westward of our islands, at the same time partially filling up; and a subsidiary disturbance which advanced over South England during the night of the 22d, and afterwards moved north-north-eastwards to the south of Norway. With the former the winds were south-westerly to westerly in the southern and south-eastern parts of the kingdom, and south-easterly to easterly in the North; but during the passage of the latter, fresh or strong westerly or west-north-westerly winds were felt on our southern coasts, and light easterly airs over central England. In the rear of this disturbance the westerly wind in the Channel rose to a moderate or fresh gale. At the close of the period another depression was approaching Ireland, and the winds over our islands had returned to the south-westward, southward, or south-eastward.

## Answers to Correspondents.

ALNWICK SEEDLING GRAPE NOT SETTING: F. W. O. It is owing to the flowers not setting perfectly. "not at all an uncommon occurrence with this variety." The flowers should have been impregnated artificially with pollen taken from the Hamburg.

APPLE TREES: *Pomona*. Apply to Mr. Meehan, Germantown, Philadelphia, or Messrs. Elwanger & Barry, Rochester, U.S.A.

BOOKSELLERS AS SEEDSMEN.—Messrs. W. H. Smith & Son write, in allusion to the letter at p. 671, "that they have not, and never had, any bookstall at Praed Street Station," and the correspondent who made the statement writes to regret the error into which he fell.

CALCEOLARIAS: W. K. Very good, but not up to first-class mark as seen at the London shows. The sport of the Pelargonium is curious but not unusual.

DOUBLE CINERARIAS: P. K. Good in form and colour, and worth propagating.

ELÆAGNUS: R. S. H. This plant is polygamous—i.e., sometimes monœcious sometimes diœcious. Your flowers are males. We doubt it being *E. longipes*.

FUNGUS: R. L. The young state of a fungus, which, as it develops, becomes atrociously foetid, *Phallus impudicus*. Pray do not eat it instead of Truffles, unless you prefer to do so.

GARDENERS OUT OF SITUATION: A. B. must excuse us. The advertising columns are open to him, but we cannot undertake to make known his qualifications otherwise.

HEATING APPARATUS AND GREENHOUSES: W. W. The first is a business utensil, and is removable. The removal of a greenhouse will depend on the method of

its fixture, whether standing on brickwork or otherwise. In all such important affairs it is money saved to get legal advice.

MELON CANKER: A. C. B. We do not know the address of the maker of the composition you refer to.

NAMES OF PLANTS: A. N. *Scilla nutans alba*.—*J. W. Moon*. *Blandfordia marginata*, a plant long since introduced, though not often seen in cultivation. Other species are still more handsome.—*C. E. F.* *Luzula silvatica*.—*C. D. & Sons*. *Illicium anisatum*.—*A. P.* *Ranunculus aconitifolius*.—*J. Day*. 1, *Saxifraga granulata*, double flowered variety; 2, *S. hypnoides*; 3, *Gnaphalium dioicum*.—*F. J. O'B.* *Phallus impudicus*. See reply to R. L. above. —*T. Gaskell*. *Cattleya amethystoglossa*.—*W. T.* *Alchemilla arvensis*.—*E. W.* *Spiraea prunifolia*. —*L. P. & C.* *Magnolia acuminata* and *M. purpurea*. —*Colonel Clarke*. *Narcissus gracilis*.

NARCISSUS: S. & M. A case of union of two or more flowers, not in common.

ORCHIDS: *Edipus* will find the plant alluded to had special mention, if not in the place mentioned, yet elsewhere.

PHOTOGRAPHS OF ORCHIDS, &c.: A. W. We do not suppose Mr. Stevens has photographs of these plants, but you could apply to him at his rooms, King Street, Covent Garden, London, W.C.

SCILLAS: C. B. & G. 1 and 2, both forms of the white variety of *Scilla nutans*, sometimes called *S. belgica* in gardens.

TULIPS: J. C. The presence of two or three flowers on one scape is not very unusual.

## CATALOGUES RECEIVED.

B. S. WILLIAMS, Upper Holloway—New and General Plant Catalogue.

KENT & BRYDON, Darlington—Florists' Flowers and Herbaceous Plants.

T. IMRIE & SONS, Ayr—Florists' Flowers and Bedding Plants.

J. C. SCHMIDT, Erfurt, Germany—Plant Stands.

CRANSTON'S NURSERY AND SEED COMPANY, King's Acre, near Hereford—New Roses, Herbaceous and Alpine Plants, &c.

COMMUNICATIONS RECEIVED:—R. Irwin Lyoch.—W. E. D.—T. O'B.—J. G. Baker.—J. Veitch & Sons.—E. Jenkins.—E. Bonavia.—T. B.—J. W.—Hoo. E. V. B.—A. D.—N. B.—J. M. P.—R. I. L. (Arctotis shortly).—Hayman & Benjamin.—F. W.—Captain King.—W. H. K., Brussels.—H. Stevens.—C. G. Möhring.—W. E. G.—W. N.

## Markets.

### COVENT GARDEN, May 28.

THE holidays have seriously depressed our market, clearances only being made by accepting offers. Heavy supplies of Grapes reaching us, as also of Strawberries. Vegetables plentiful. *James Webber, Wholesale Apple Market.*

#### FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve ..	1 6-5 0	Lemons, per case ..	9 7-15 0
— Nova Scotia and		Melons, each ..	2 6-4 0
— Canada, barrel 12 0-21 0		Peaches, per doz. ..	21 0-0 0
Figs, per dozen ..	6 0-10 0	Pine-apples, Eng., lb. 1 0-2 0	
Gooseberries, ½-sieve 4 0-5 0		— St. Michael, each 2 6-8 0	
Grapes, new, per lb. 2 0-5 0		Strawberries, per lb. 2 0-4 0	

#### VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Lettuces, Cab., doz. 1 0-0 0	
per doz. ..	4 0-6 0	— French Cos, each 0 6-0 0	
Asparagus, English,		Mint, green, bunch ..	0 4-0 0
per bundle ..	1 6-6 0	Mushrooms, p. basket 1 0-6 0	
— French, bundle 2 0-6 0		Onions, per bushel 6 0-0 0	
Beans, Eng., per 100 2 0-0 0		— Spring, per bun. 0 6-0 0	
Beet, per doz. ..	1 0-0 0	Parsley, per bunch ..	0 4-0 0
Cabbages, per doz. 1 6-2 0		Peas, per quart ..	2 6-0 0
Carrots, per bun. 0 6-0 0		Potatoes, new, per lb. 0 6-1 0	
Cauliflowers, Eng.,		Radishes, per doz. 2 0-2 0	
dozen ..	2 0-4 0	Rhubarb, bundle ..	0 6-0 0
Celery, per bundle ..	1 6-2 0	Small salad, per	
Cucumbers, each ..	0 6-1 0	punnet ..	0 4-0 0
Endive, per dozen ..	2 0-0 0	Spinach, per bushel 1 6-2 0	
Garlic, per lb. 0 6-0 0		Tomatoes, per lb. 2 0-2 6	
Herbs, per bunch 0 2-0 4		Turnips, new, bunch 1 3-0 0	
Horse radish, bun. 3 0-4 0			

POTATOES.—Magnum Bonums, 50s. to 75s.; Champions, 45s. to 45s. per ton.

#### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz. 6 0-24 0		Ferns, in var., dozen 4 0-18 0	
Arbor-vitæ (golden),		Foliage Plants, vari-	
per dozen ..	6 0-18 0	ous, each ..	2 0-10 0
— (common), dozen 6 0-12 0		Fuchsias, per dozen 6 0-12 0	
Arum Lilies, dozen 9 0-15 0		Genista, 12 pots ..	6 0-9 0
Begonias, per doz. ..	6 0-12 0	Hydrangeas, doz. ..	12 0-18 0
Bouvardia, dozen ..	9 0-18 0	Lilium auratum, per	
Calceolarias, doz. ..	6 0-9 0	dozen ..	30 0-40 0
Cinerarias, per doz. 8 0-12 0		— longiflorum, doz 24 0-60 0	
Cyperus, per dozen 4 0-12 0		Marguerite Daisy,	
Dracæna terminalis,		per dozen ..	8 0-15 0
per dozen ..	30 0-60 0	— Myrtle, per dozen ..	3 0-4 0
— viridis, per doz. 12 0-24 0		Myrtles, per doz. ..	0 0-12 0
Erica, various, doz. 9 0-18 0		Palms in variety,	
— Cavendishii, doz. 30 0-48 0		each ..	2 6-21 0
— veitchiana, doz. 18 0-60 0		Pelargoniums, per	
Eucalyptus, in var., doz. 6 0-18 0		dozen ..	9 0-18 0
Evergreens, in var.,		— scarlet, dozen ..	4 0-9 0
per dozen ..	6 0-24 0	Rhododendron, per doz. 6 0-8 0	
Ficus elastica, each 1 6-7 0		Spiræa, per dozen ..	9 0-18 0



## CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilon, 12 bunches .. 2 6-40	Lilium candidum, 12 .. 1 6-20
Anemone, 12 bunch. .. 3 0-60	Marguerites, 12 bun. 3 0-60
Arum Lilies, 12 blms. 3 0-60	Mignonette, 12 buo. 3 0-90
Azalea, 12 sprays .. 0 6-10	Myosotis, 12 bun. .. 2 0-40
Bluebells, 12 bunch. 1 0-16	Narcissus, various, .. 2 0-60
Bouvardias, per buo. 1 0-16	12 bunches .. 2 0-60
Camellias, per doz. .. 1 0-40	Pelargoniums, per 12 .. 0 9-10
Carnations, 12 blms. 1 0-20	sprays .. 0 9-10
Cinerarias, per bun. 0 6-10	— scarlet, 12 sprays 0 4-09
Cyclamen, 12 blooms .. 2 0-40	Primula, double, buo. 0 9-10
Eucharis, per doz. .. 4 0-60	Rhodanthus, 12 bun. 6 0-90
Euphorbia Jacquinot. .. 3 0-60	Roses (indoor), doz. 1 0-30
flora, 12 spr. .. 3 0-60	— coloured, doz. .. 2 0-40
Gardenias, 12 blms. 1 6-40	— French, per doz. 0 4-06
Heliotropes, 12 spr. .. 0 6-10	Spiraea, 12 bunches.. 6 0-90
Lapageria, white, 12 .. 2 0-30	Stephanotis, 12 spr. 2 6-40
blooms .. 2 0-30	Strophium, 12 bun. 1 0-16
— red, 12 .. 1 0-20	Tulips, 12 bunches.. 2 0-40
blooms .. 1 0-20	White Jasmine, bun. 0 6-10
Lilac, 12 bunches .. 4 0-90	Woodroffe, per 12 .. 3 0-60
Lily of Val., 12 bun. 3 0-90	bunches .. 3 0-60
Lilium longiflorum, .. 6 0-80	
12 blooms .. 6 0-80	

## SEEDS.

LONDON: May 27.—The seed market to-day was of quite a holiday character with scarcely any business doing. Clover seeds of all kinds are now altogether neglected. Some attention is being given to Trifolium, but the prices asked for new French seed for future delivery are above the views of English buyers. Mustard and Rape seed sell freely at the recent advance; the latter article continues in small supply. Feeding Linseed is firm. There is no change to be noted in the trade for bird seeds. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

## CORN.

Monday last, being a Bank Holiday, the market at Mark Lane was closed. On Wednesday the attendance was small, and on the part of buyers there was no apparent disposition to resume business. The absence of transactions in Wheat or flour on the spot left prices undecided, but the tendency was decidedly downwards. Barley, Beans, and Peas were quiet, and nominally unchanged. Maize was dull in all positions. Oats were in good supply, and met a very quiet demand, but sales were not pressed at any decline.

## CATTLE.

At Copenhagen Fields on Monday really prime stall-fed cattle were a reduced quantity, and for these rather better prices were obtained, whilst second and plain qualities were extremely dull of sale, with a tendency in buyers' favour. Imported cattle sold above steady value, but slowly. Sheep and lamb supplies being lighter, prices of the former ruled fully 2d. higher, in some cases even more; and the latter sold much better than on the previous Thursday, but not over the value of Monday se'nnight. The calf trade remained as dull as previously reported, and no change was exhibited in the pig trade. —Thursday's business was dull. Trade in beasts was very flat, and prices weak, the best qualities not making more than 5s. 2d. per 8 lb. As regards sheep, the market was inactive and weak. Lambs, also, were only saleable on lower terms. There was a fair demand for calves at full prices, whilst pigs were dull and weak.

## HAY.

Tuesday's Whitechapel Market report states that the trade was exceedingly dull, with short supplies. Quotations:—Clover, prime, 80s. to 105s.; prime second cut, 85s. to 105s.; inferior, 60s. to 75s.; hay, prime, 70s. to 100s.; inferior, 40s. to 60s.; and straw 26s. to 36s. per load.—On Thursday there was a moderate supply, and trade was dull with a weak tendency. Cumberland Market quotations:—Clover, best, 85s. to 102s. 6d.; other quality, 60s. to 84s.; hay, best, 84s. to 92s. 6d.; other qualities, 45s. to 75s.; and straw, 30s. to 34s. per load.

## POTATOS.

The Borough Market report states that the demand is quiet for all descriptions, at the following prices:—Scotch Regents, 80s. to 95s.; Kent ditto, 70s. to 85s.; Champions, 40s. to 50s.; Magnum Bonums, 50s. to 60s.; and Victorias, 70s. to 90s. per ton.—The imports into London last week consisted of 30 bags from Harlingen, and 3772 packages from Lisbon.

## COALS.

The following are the prices current at market during the week:—Ravensworth West Hartley, 14s. 9d.; Walls End—Tyne (unscreened), 11s. 3d.; Hetton, 16s.; Hetton Lyons, 14s. 6d.; Lambton, 15s. 6d.; Wear, 14s. 6d.; East Hartlepool, 15s. 3d.; South Hartlepool, 14s. 9d.; Tees, 16s.

**Government Stock.**—The Stock Exchange was closed on Monday, and no transactions took place in public securities. Consols closed on Tuesday at 99½ for both delivery and the account. Wednesday's prices were 100 to 100½ for both transactions, and the closing prices of Thursday were 100½ to 100½ for both delivery and the account.

## THE "INVINCIBLE" LAWN MOWER.

SAMUEL EDWARDS' PATENT.

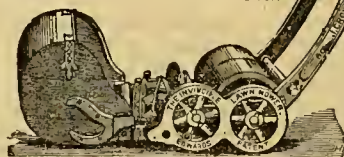
GARDEN ROLLERS.

GOLD MEDAL.

WHEEL BARROWS.

Horse Power Lawn Mowers. Side Delivery.

The Only Lawn Mower in which the wood regulating Rollers can be used either in front or at back of the Mower.



AWARDED the First Prize

at each of the 3 Great Contests, BIRMINGHAM, MANCHESTER and LONDON.

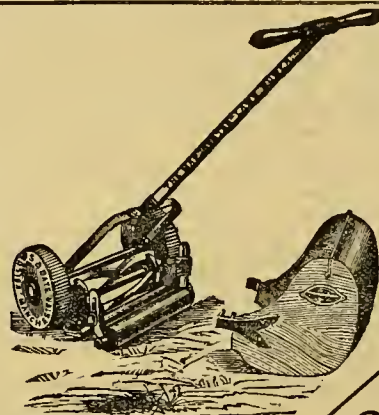
Is the BEST in the Market

VIDE RESULTS OF CONTESTS.

Side Delivery.

6-in.	7-in.	8-in.	9-in.	10-in.	12-in.	14-in.	16-in.	18-in.	20-in.	24-in.	30-in.	36-in.	42-in.
30s.	40s.	50s.	60s.	70s.	90s.	110s.	130s.	150s.	170s.	190s.	£22	£26	£30

Sole Makers: JOHN CROWLEY &amp; CO., Sheffield.



55,000 OF THESE CELEBRATED MACHINES IN USE.

SENT CARRIAGE PAID. NO CHARGE FOR PACKING.

A Month's Trial allowed, and if not approved of can be returned unconditionally.

N.B.—Machines of any make repaired and made equal to new.



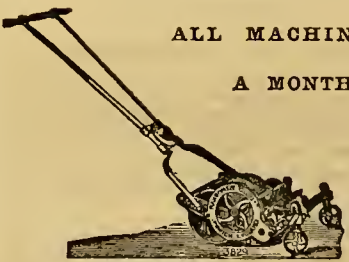
**"MANCHESTER" LAWN MOWERS**  
FOLLOWS & BATE'S PATENT.  
Complete Illustrated Horticultural List now ready—Post-free.  
FOLLOWS & BATE (Limited), Dutton Street Works, Manchester.

PRICES from ONE GUINEA EACH.

Prize Medals awarded as follows:—

Birmingham, 1872—Meeting of the Royal Horticultural Society. Prize awarded to F. & B's Machine in competition with all the principal makers—1st Prize Medal.  
Paris, 1878—International Exhibition—1st Prize Medal.  
Vienna, 1873—International Exhibition—1st Prize Medal.  
Brussels, 1874—International Exhibition—1st Prize Medal.  
Melbourne, 1881—International Exhibition—Diploma of Merit.  
Alexandra Palace, 1872—International Lawn Mower Contest—The 1st Prize.  
Manchester, 1875—Society for the Promotion of Scientific Industry—1st Prize Medal.  
Manchester, 1874—International Show—1st Prize Medal.  
Manchester, 1873—Grand International Horticultural Exhibition—1st Prize Medal.  
Liverpool, 1872—Manchester & Liverpool Agricultural Society—1st Prize Medal.

FOLLOWS AND BATE (Limited), beg to direct attention to the variety of LAWN MOWERS they manufacture, all of which are made of the best materials, and with due regard to those essential points necessary to ensure durability as well as PERFECTION IN WORKING. The large demand that has existed for several years for their Machines (which are sold by all respectable Ironmongers), together with the highest distinctions gained by them in various International Exhibitions and Public Contests—including Paris, Vienna, Brussels, London, Birmingham, Manchester, Liverpool, Wigan, &c.—sufficiently attest their merits.



THE WORLD.



THE AUTOMATON.

## RANSOMES' LAWN MOWERS.

## THE "WORLD" LAWN MOWERS

are the best for cutting long grass, and are constructed on the American system with the special advantages of English materials and workmanship.

They are made in nine sizes, 8 to 24 inches.  
Prices from 45s. to £10.

## THE "REVERSIBLE" LAWN MOWERS

are suitable for small gardens and borders. They roll the grass as well as cut it, and can be used either side upwards.

They are made in three sizes, 6 to 10 inches.  
Prices from 27s. to 45s.

## THE "AUTOMATON" LAWN MOWERS

are the best machines for general purposes and gardeners' use. They leave no ribs in the grass but produce a perfect surface.

They are made in eight sizes, 8 to 22 inches.  
Prices from 55s. to £8 10s.

## THE HORSE-POWER MOWERS

are the best for Large Lawns, Cricket and Lawn Tennis Clubs. They are used on the Cricket Grounds of the Oxford and Edinburgh Universities and numerous Colleges and Public Schools.

They are made in six sizes, 26 to 48 inches.  
Prices from £14 10s. to £32.

Complete Price LISTS may be obtained from any respectable Ironmonger, or  
**RANSOMES, SIMS & JEFFERIES (Ld.), IPSWICH.**



## HENRY ORMSON &amp; CO.,



HORTICULTURAL BUILDERS AND HOT-WATER HEATING ENGINEERS,  
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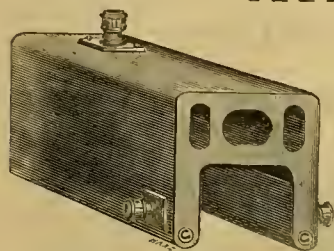
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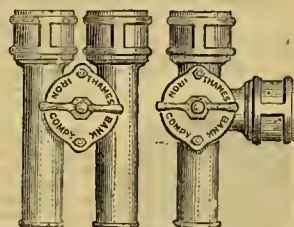
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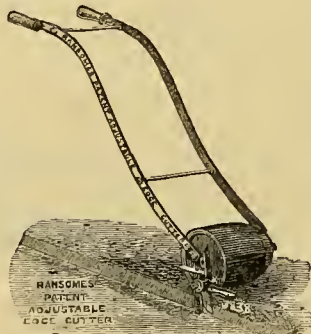
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THIS Machine is a light, simple, strong, and useful substitute for Hand Shears, for trimming the edges of Lawns. It can be guided with the greatest ease either in a straight line or round the edges of flower beds, &c. The depth of cut can be varied to suit the depth of the edge by simply tilting the conical roller more or less. The knives can be adjusted to the fixed blade as they wear, and can be readily removed for sharpening. After a little practice with this Machine, a man can trim the edges as fast as he can walk, thus doing from five to ten times as much work as with the ordinary shears.

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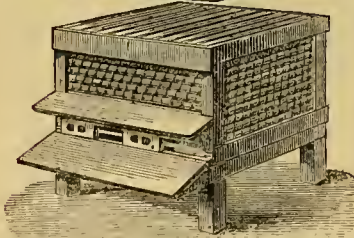
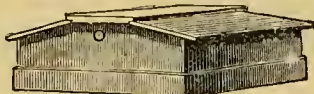
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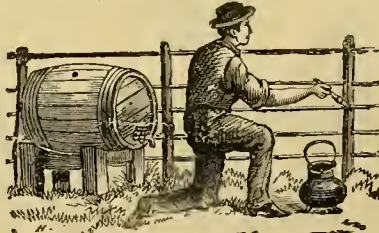
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Tiles for Lining Walls of Conservatories.  
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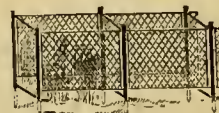
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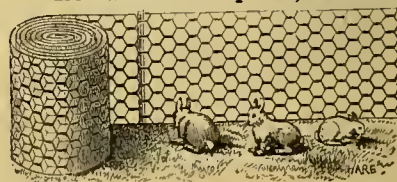
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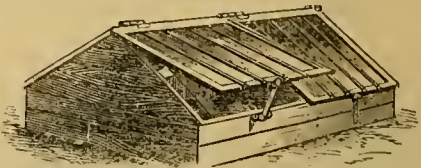
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12 feet long, 4 feet wide, " " " 4 15 0  
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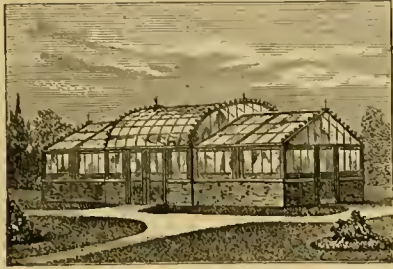
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No. 54.—This is an exceedingly striking and effective design, the centre dome giving the conservatory a very imposing appearance. The price is very moderate, and this design is strongly recommended to those who desire a really handsome structure at a low price.

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60 ft. ....	16 ft. ....	£202	£18 15
70 ft. ....	17 ft. ....	£249	
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90 ft. ....	19 ft. ....	£370	
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PROPORTIONATE PRICES FOR OTHER SIZES, AND ERECTED IN ANY PART OF THE COUNTRY.

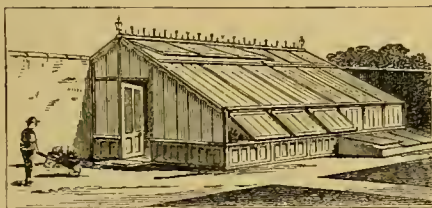
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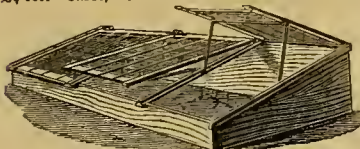
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THREE-QUARTER SPAN-ROOF GREENHOUSES made in lights, glazed with 21-oz. glass, and painted three coats of good oil colour. Tenants' Fixtures. 15 feet by 10 feet, £24 10s.; for Brickwork, £24.



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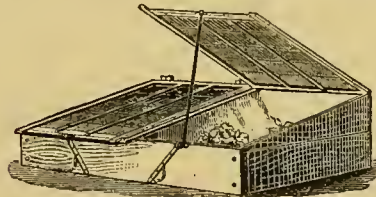
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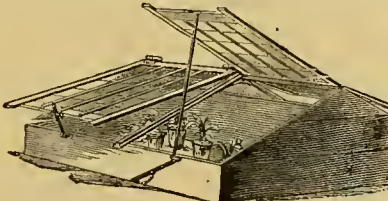
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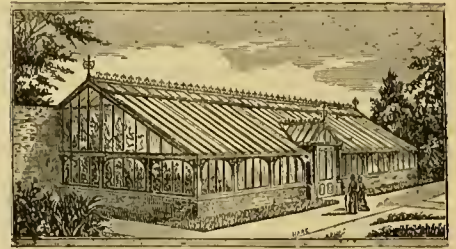
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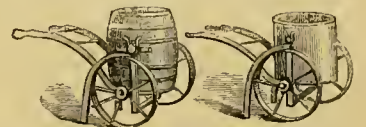
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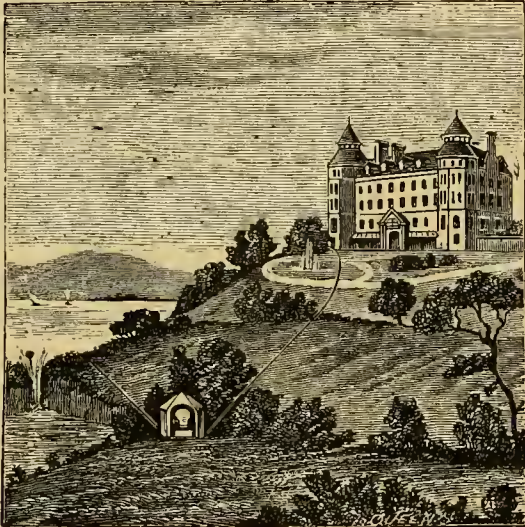
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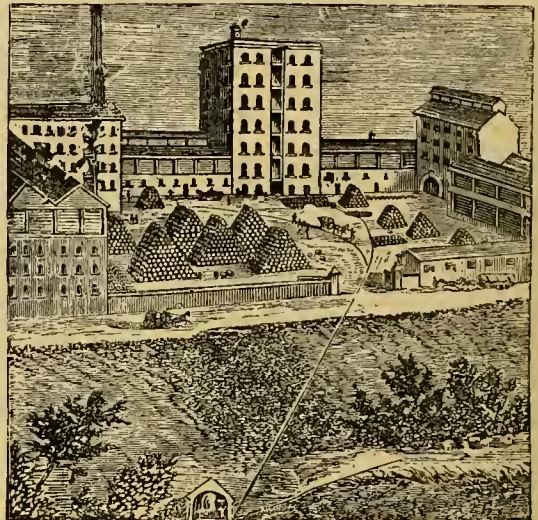
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From Mr. HENRY ROBINSON, *Engineer to the Stockport District Waterworks Company, September 8, 1883.*—"Dear Sir,—I can now report well of the two Hydraulic Rams we have fixed to your instructions for the supply of Disley Village. 40,000 gallons per day was the quantity you promised they would force to a height of 63 feet, but on testing them I am convinced that 50,000 gallons is not the limit of their power, whilst the quantity of waste water used in driving them is not equal to half the capacity of the 6-inch pipe by which they are fed, and I am inclined to the belief that a more simple and efficient pump cannot be found."

From Captain TOWNSEND, *Wincham, February 10, 1877.*—"In answer to your enquiry, I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long at the rate of 80,000 gallons per day, although you only promised 50,000."

From Mr. J. A. RUTHERFORD, *Agent to C. F. H. Bolckow, Esq., Estate Office, Marston Hall, Middlesborough, September 26, 1883.*—"Dear Sir,—I am glad to say that the Rams you put down on the Hambleton Estate, for Mr. C. F. H. Bolckow, are working very well. You undertook, with 16 gallons per minute, to send up 1500 gallons a-day, and with enough water to work the Rams at full power, 2000 gallons a-day. With a supply of 11½ gallons per minute they are lifting 2200 gallons, and when working full power, 3105 gallons per day are sent up to a height of nearly 400 feet. They made a clear start and have gone well since." The Delivery Pipe in the above case is 9000 feet in length.

From J. SPENDER CLAY, Esq., *Ford Manor, Lingfield, Surrey, August 9, 1880.*—"In reply to your letter of inquiry, I am glad to be able to say that the two Hydraulic Rams which you fixed here are working satisfactorily, and that out of 13 gallons 3 quarts per minute, the maximum yield of the spring, they deliver to the top of my house, distant a full mile from the spring, 4 gallons 1 quart per minute, or 6120 gallons per 24 hours, being 120 gallons above the quantity you guaranteed."

From HORATIO R. B. PEILE, Esq., *Commissioner to Sir Michael Shaw Stewart, Bart., Mansion House, Greenock, August 13, 1883.*—"I am glad to say the Ram you fixed at Castle Farm in November last for Sir Michael Robert Shaw Stewart, Bart., continues a great success. The smallness of the driving water—2½ gallons per minute—is not more wonderful than the large proportion of water it sends up—viz., 720 gallons per day—through about 400 yards of delivery pipe, to an elevation of 75 feet."

From Mr. T. BARHAM FOSTER, C.E., 23, *John Dalton Street, Manchester, October 12, 1883.*—"Dear Sir,—I have tested the Ram you contracted to fix on the Hints Estate, Staffordshire, for James Chadwick, Esq., to force 10,000 gallons per day of spring water through 800 yards of delivery pipe, to an elevation of 208 feet, whilst

worked by river water falling 5 feet 9 inches, and am pleased to find that when at full power the Ram sends up 13,500 gallons per day to the height and distance named; and though the Ram is now adjusted to work at only three-fourths its power, the work done represents over 57 per cent. of useful effect."

From Mr. E. W. STREETER, F.R.G.S., *Diamond Merchant, Bond Street, London, and Sackville Park, Sussex, October 1, 1883.*—"Dear Sir,—When you surveyed the site at Sackville Place, Buxted, for the purpose of fixing a Ram with one mile of collecting and distributing mains, I was surprised and pleased when you named the quantity of water you could send up from the resources available. My bailiff prepared the ground to your instructions, and in twelve days from the arrival of your men the Ram was in operation, sending up 20 per cent. more water than you promised to a height of 110 feet, and distributing a supply to a farm and several cottages on the way. I have pleasure in recording my entire approval of the work."

From Mr. WILLIAM LAIT, *Architect and County Surveyor, Compton Verney, Warwick, January 16, 1882.*—"I have much pleasure in stating that the Patent Hydraulic Ram I had from you for the Rev. J. Cardwell Gardner, of the Vicarage, Butlers Marston, and which you fixed there, is, I consider, remarkably successful, as indicated below:—4120 gallons of water per day are passing through the Ram, with a descent of 13 feet 8 inches. Out of this small quantity 1080 gallons are sent up to a height of 41 feet, showing 78 per cent. of useful effect, and the noise of its working is so slight as to be almost inaudible."

From Sir ROBERT MENZIES, Bart., of *Menzies, Rannoch Lodge, Rannoch, August 20, 1880.*—"The Hydraulic Ram which you fixed for me to supply water to Rannoch Lodge and Camesurich, two houses three-quarters of a mile apart, is a complete success. The extreme distance the water is carried is 1½ mile, and it is raised fully 100 feet, and though the elevation of the two houses are different, there is a regular supply of 7 quarts per minute to each house, which has never ceased since the Ram was set going, about three months ago. Your Ram took the place of one previously tried on the same spot, and which did not succeed, and was, in fact, a complete failure."

From FRED. J. TURNER, Esq., *Agent to His Grace the Duke of Portland, Mansfield, Woodhouse, August 30, 1883.*—"Dear Sir,—I have much pleasure in stating that the Hydraulic Rams which you erected last year for His Grace the Duke of Portland, at Lyndhurst, near Mansfield, and at Skeldon, Ayrshire, are working very well, and they are most satisfactory in every way."

From Captain GANDY, *Castle Bank, Appleby, February 11, 1880.*—"The Self-acting Hydraulic Ram you erected for me is an excellent example of strength and good workmanship. Whilst working with 3 feet 4 inches fall, it forces water 73 feet high, and so far gives me every satisfaction. It will do more work in one day than the old Ram of another make could do in a week."

## JOHN BLAKE, ENGINEER, ACCRINGTON, LANCASHIRE.

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# THE GARDENERS' CHRONICLE.

Established 1841.

No. 597.—VOL. XXIII. { NEW SERIES }

SATURDAY, JUNE 6, 1885.

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**ROYAL HORTICULTURAL SOCIETY,**  
South Kensington, S.W.

**NOTICE!—COMMITTEES' MEETINGS,** Fruit and Floral, at 11 A.M., in the Conservatory; Scientific at 1 P.M., in the Library.  
**GENERAL MEETING** for the Election of Fellows, &c., at 3 P.M., on **TUESDAY NEXT, June 9**, in the Conservatory.  
**SHOW OF ORCHIDS** open at 12 o'clock to Fellows, and 1 o'clock to the Public.  
N.B.—Exhibitors' Entrance, east side of Royal Albert Hall.

**ROYAL HORTICULTURAL SOCIETY,**  
South Kensington, S.W.  
**EXHIBITION OF ORCHIDS and other PLANTS,** in the Conservatory, on **TUESDAY, June 9.** Visitors to the International Inventions Exhibition admitted free from 12 o'clock to noon.

**ROYAL BOTANIC SOCIETY,**  
Gardens, Regent's Park, N.W.  
**SECOND SUMMER EXHIBITION OF PLANTS, FLOWERS, and FRUIT, WEDNESDAY, June 17.** Gates open at 2 o'clock. Two Military Bands will play from 2 to 7 o'clock. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society, price 5s. each; on the day of Exhibition, 7s. 6d. each.

**SHROPSHIRE HORTICULTURAL SOCIETY.**  
The **GREAT SUMMER SHOW** will be held at Shrewsbury, **WEDNESDAY and THURSDAY, August 10 and 11.**  
**TWENTY PLANTS,** in variety, £25, £20, £15.  
Schedules free on application to  
**ADNITT and NAUNTON, Hon. Secs., Shrewsbury.**

**HUDDERSFIELD CHRYSANTHEMUM SOCIETY.**  
The **ANNUAL EXHIBITION** will be held in the Town Hall, Huddersfield, on **FRIDAY and SATURDAY, November 13 and 14.** Schedules and Entry Forms are now ready, and may be had on application to  
**Mr. JOHN BELL, Hon. Sec. Marsb, Huddersfield.**

**To Nurserymen, Seedsmen, and Florists.**  
**DUTCH BULBS—Season 1885.**  
**WHY** pay freight from Holland to London on Dutch Bulbs, when you can buy at a cheaper rate the same quality and get them brought over free by ordering from **LEWIS ISAACS, WHOLESALE IMPORTER OF DUTCH BULBS**, at 3, Victoria Warehouse, Mansell Street, Aldgate, E.C.? Established since 1856. Wholesale Catalogue sent post-free on application. An immense stock of all kinds of Bulbs is kept at the above address from August up to the end of Dec. in each year.

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**EIGHTY THOUSAND CLEMATIS** in Pots, of all the finest double and single varieties (some of the flowers of which become 10 inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.  
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**NEW SINGLE FUCHSIA.**—A splendid dark variety, blooms 4 inches in length, borne in large clusters. Strong plants in 5-inch pots, 2s. 6d. each, 24s. per dozen. Also **HAKOV AQUATIC PLANTS.**  
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Basket and packing free for cash with order.  
LIST of Pot Roses, &c., post-free.  
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## SALES BY AUCTION.

Tuesday Next.

CYPRIPEDIUM CILIOLARE  
DENDROBIUM DEAREII.

**MESSRS. PROTHEROE AND MORRIS** will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY, June 9, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., imported plants in quantity, just received in the best possible condition, of CYPRIPEDIUM CILIOLARE and DENDROBIUM DEAREII; also established growing plants of VANDA SANDERIANA and PHALÆNOPSIS SANDERIANA.

On view morning of Sale, and Catalogues had.

Tuesday Next.

**MESSRS. PROTHEROE AND MORRIS** will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, June 9, at half-past 12 o'clock precisely, about 200 lots of CHOICE ESTABLISHED ORCHIDS, in fine condition, from Mr. J. E. Bony, 38, Downs Park Road, Hackney, E., including Oncidium, Odontoglossum, Cypripedium, Dendrobium, Sophronitis, &c.; a consignment of Epidendrum ciliare, Oncidium Lemonianum, and other ORCHIDS, from the West Indies; Barkeria elegans, &c.; together with a large quantity of PALM SEEDS from Brazil.

On view morning of Sale, and Catalogues had.

Tuesday Next.

ARECA LUTESCENS, LATANIA BORBONICA,  
URANIA MADAGASCARENENSIS.

**MESSRS. PROTHEROE AND MORRIS** will include in their SALE by AUCTION, on TUESDAY NEXT, June 9, a large quantity of imported Seeds in best germinating condition of ARECA LUTESCENS, LATANIA BORBONICA, and URANIA MADAGASCARENENSIS.

On view morning of Sale, and Catalogues had.

Wednesday Next.

IMPORTANT SALE OF CARNATIONS and PICOTEES,  
PLANTS in FLOWER, FERNS, &c.

**MESSRS. PROTHEROE AND MORRIS** will SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, June 10, at half-past 12 o'clock precisely, 2400 of the best named CARNATIONS and PICOTEES, including the latest new varieties, and specially lotted to suit the Trade and other large buyers, from the well-known collection of the late Mr. Charles Turner, Slough; English-grown GARDENIAS and TEA ROSES, fine plants; PELARGONIUMS, Maidenhair FERNS, GREENHOUSE PLANTS in flower, PANSIES, DAHLIAS, ERICA VENTRICOSA in flower a consignment of PANCRATIUM CARIBÆUM and ZEPHYRANTHES from the West Indies, and 45 GOLD FISH.

On view morning of Sale, and Catalogues had.

Friday Next.

VERY FINE IMPORTATIONS FROM THE EAST.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. F. Sander, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, London, E.C., on FRIDAY NEXT, June 12, at half-past 12 o'clock precisely, a grand importation of the magnificent DENDROBIUM DEAREII, just received in splendid order. This Dendrobium is one of the finest; its flowers are pure white, produced in abundance and last nearly three months in perfection. Also a superb lot of CYPRIPEDIUM CILIOLARE, PHALÆNOPSIS AMABILIS, P. STUARTIANA, P. SANDERIANA, several grand forms of PHALÆNOPSIS GRANDIFLORA, many splendid VANDA CERULEA, VANDA CATHCARTII, CYMBIDIUM Eburneum, many CATTLEIAS and ODONTOGLOSSUMS, &c., the whole in splendid condition.

On view morning of Sale, and Catalogues had.

Farnborough, Hants.

A few minutes' walk from North Camp Station.

By order of the Trustees of the late Mr. E. Smith, **MESSRS. PROTHEROE AND MORRIS** are instructed to SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY, June 15, at 2 o'clock precisely, a valuable FREEHOLD ESTATE, known as The North Camp Nursery, Farnborough, Hants, containing an area of 17 Acres or thereabouts, with a detached brick-built Residence, containing 4 Bed-rooms, Bath-room, Reception-rooms and Offices, Conservatory, and Cart-shed. The land has for many years been cultivated as a Nursery by the late proprietor, but possesses frontages of over 1000 feet to two roads, which render it eligible for Building. Possession on completion of purchase.

Particulars and Plans had at the Mart; of R. EVE, Esq., Solicitor, Aldershot; and of the Auctioneers and Surveyors, 67 and 68, Cheapside, London, E.C.

Norwich.

**SALE OF WORKS ON HORTICULTURE and BOTANY**, viz.:—"Hooker's British Flora," and others; "Loddiges' Botanical Cabinet," 20 vols., fine coloured illustrations; "Edward's Botanical Register, and Lindley's Work," 32 vols., complete, coloured plates; "Ray Society's Work," 32 vols., complete; "London's Hortus Britannicus," "Brown's Forester," "Maximowicz's Flora Amurensis," "Herbert's Amaryl-lidaceæ," and other works, in excellent condition.

**MESSRS. CLOWES and NASH** are instructed to SELL by AUCTION, on WEDNESDAY NEXT, June 10, at 2 o'clock, at the Corn Exchange, Norwich, the above rare WORKS on HORTICULTURE and BOTANY. Catalogues may be obtained at the Auctioneers' Offices, Bank Chambers, Norwich, or will be posted on application.

Monday Next.—(Sale No. 6921)

NEW and VALUABLE ORCHIDS.

**MR. J. C. STEVENS** has received instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 8, at half-past 12 o'clock precisely, a magnificent COLLECTION of NEW and RARE ORCHIDS, brought home by Mr. Leo Humboldt. Amongst others will be found:

ANGRÆCUM FUSCUM, Rehb. f.  
ANGRÆCUM ROSSELLARIA, new sp.  
ANGRÆCUM LEONI, new sp.  
ANGRÆCUM FLORULENTUM, new sp.  
EULOPHIA MEGISTOPHYLLA, new sp.  
LISSOCHILUS GHYLLITES.  
VANILLA HUMBOLDTII, new sp.  
POGONIA BARKLYANA, &c.

Professor Reichenbach's descriptions of above will appear in Catalogue. The plants are in grand condition.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6923.)

ONCIDIUM JONESIANUM.

**MR. J. C. STEVENS** will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Messrs. F. Horsman & Co., on WEDNESDAY NEXT, June 10, 100 lots of the rare and beautiful ONCIDIUM JONESIANUM.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6923.)

STOVE PLANTS.

**MR. J. C. STEVENS** will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, June 10, 50 lots of Duplicate Plants from the well known collection of STOVE PLANTS formed by William Hinds, Esq., of Byfleet Lodge, Byfleet, Surrey.

On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6923.)

SPECIAL SALE OF ORCHIDS in FLOWER.

**MR. J. C. STEVENS** will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, June 10, at half-past 12 o'clock precisely, a grand collection of ORCHIDS in FLOWER, comprising many fine forms of Masdevallia Harryana, including regalis, conchiflora, sanguinea, cœrulescens, violacea, and Bull's-blood, also M. Veitchii grandiflora, M. rosea, M. Lindenii, and M. ignea; Cattleya Mendelii and C. Mossie, in quantity; many fine varieties of Odontoglossum crispum, O. Pescatorei giganteum, and O. vexillarium; Oncidium macranthum, Epidendrum Ibaguense purpurea, from the Meadowlake collection; Cypripedium caudatum roseum, Aerides Lemnii, with 40 flowers; splendid varieties of Phalæopsis grandiflora, &c.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6924.)

VALUABLE MEXICAN ORCHIDS.

**MR. J. C. STEVENS** will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 11, an importation of the magnificent EPIDENDRUM PARKINSONIANUM, a new ONCIDIUM, CATTLEYA CITRINA, ODONTOGLOSSUM ROSSI MAJUS, and many other MEXICAN ORCHIDS, from Messrs. F. Horsman & Co. and Mr. G. Marriott.

On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6924.)

IMPORTED ORCHIDS.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 11, at half-past 12 o'clock precisely, importations of ODONTOGLOSSUM CRISPUM (best type) and other ODONTOGLOSSUMS of sorts; LÆLIAS, EPIDENDRUMS, MASDEVALLIAS, and other ORCHIDS, from Messrs. Shuttleworth, Carder & Co.; also a consignment from Brazil, including ONCIDIUMS, CATTLEIAS, MILTONIAS, SOPHRONETES, BURLINGTONIAS, IONOPSIS, STANHOPEAS, &c.

On view morning of Sale, and Catalogues had.

Grand Importation of Orchids from Mexico, &amp;c.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 15, at half-past 12 o'clock precisely, a grand importation of ORCHIDS from Mexico, including Lælia anceps, Chysis of sorts, Oncidiums, Lycaste, Cattleya curira, Epidendrum, Mormodes, Tichepilias, Odontoglossum Rossi majus, O. maculatum, &c.; a few good ESTABLISHED ORCHIDS from a well known private collection; a consignment of Ferns and other FERNS from New Zealand; 24 ZAMIA VILLOSA from the Cape, &c.

On view morning of Sale, and Catalogues had.

The Finest Cattleyas ever Seen.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 17, CATTLEYA MOSSIE, white varieties; C. MOSSIE, collected in flower; C. TRIANÆ, collected in flower at Ibagu; two magnificent C. REINECKIANA, flowers 7½ inches across, petals 2½ inches broad, lip 2 inches across, of a fine rich colour; two specimens plants of C. WAGNERI, with flowers equally large and grand varieties; two enormous masses of EPIDENDRUM HUMBOLDTII, with other New and Rare PLANTS.

N.B.—All these plants having been collected by Mr. Edward Wallace, and brought home by him, are true to description, and can be thoroughly relied upon.

Stoke Park, near Slough, Bucks.

The VALUABLE COLLECTION of PALMS, CAMELLIAS, LAURELS, &c., formed by E. J. Coleman, Esq.

**MESSRS. NORMAN and SON** are directed to SELL, after the disposal of the contents of the mansion, on WEDNESDAY, June 10, the above COLLECTION of PALMS, including Conynpha australis, Scaevola elegans, Latania borbonica, Chamaecyparis humilis, Phlox reclinata, &c.; valuable CAMELLIAS and other PLANTS more particularly described in the Catalogue.

On view, with orders, to be obtained only from the Auctioneers, Uxbridge, Middlesex.

Important Sale of Valuable, Rare, and Choice

Established SPECIMEN ORCHIDS, comprising over 2000 plants, and including the whole of the fine Collection purchased from Oskar Schneider, Esq., previous to his departure from England, amongst which may be named Cattleyas Dowiana, exoniensis, Mossii, Mendelii, Sanderiana, Trianae, and Wallisii; Dendrobiums Ainsworthii, densiflorum album, crassinode, Findleyanum, Falconeri, thyriflorum, and nobile intermedium; Cypripedium caudatum, Dominianum, Sedeni, Swainianum, Spicerianum, and Veitchii; Cymbidiums eburneum and Lowianum; Colognes cristata, Chatsworthii, Lemoniana, and Trentham varieties; Lælia anceps Dawsoni; Phalaenopsis Schilleriana; Odontoglossum Alexanderi, Hallii, xanthoplossum, Pescatorei, and vexillarium; Vanda suavis, Gottschalkii, and others.

**MESSRS. ARTINGSTALL and HIND** beg to announce that they are favoured with the receipt of instructions from Mr. Benjamin Artimate, of Stoke Park, Pendleton, near Manchester, to SELL by AUCTION, on WEDNESDAY and THURSDAY, June 17 and 18, commencing at 12 o'clock each day, at their spacious Central Sale Rooms, 45, Princess Street, Manchester, a large and valuable COLLECTION of ESTABLISHED ORCHIDACEOUS PLANTS.

May be inspected on the day prior to Sale, when Catalogues may then be had, or earlier on application to the Auctioneers, 45, Princess Street, Manchester.

ESTATE BADHOEVE in HAARLEMMEERMEER,  
HOLLAND.

**FOR SALE, on WEDNESDAY, July 15, at 10 A.M.**, in the riding-house on the said estate, and in the presence of the Notary Mr. J. L. VAN DER MOER. This Estate is to be Publicly Sold. It consists of Residence, carefully and comfortably constructed and strongly stone-built, large Coach-house, Riding-school, Ice-house, several Lodges and Houses for keepers and workmen, Dairy, Forge, Carpenters' and Painters' Workshops, Baking-shop, Stores, Warehouses, Stables for Horses and Horned Cattle, Sheep-folds, Barns, Granaries, Hay-ricks, further Structures and Buildings, Yards, Grounds, Walking Grounds, Kitchen Gardens, Orchards planted with fine Shrubs and other Plants and Fruit Trees, Roads, Alleys, Canals, Woodland and Moor Grounds, fertile and well drained Meadows and arable Lands, altogether situated side by side and near one another, in the community and polder of Haarlemmeer section Rijk, and limited by the north-east side partly by the land-road, partly by the Ringdijk of the Ringvaart, opposite the village of Sloten, near Amsterdam, by the south-west side by the Spaarwoudweg, at the north-west side by the Slotweg, and at the south-east side by the Doorweg. This Estate, measuring about

TWO HUNDRED HECTARES,

is to be sold in Sixteen Lots, and in several combinations of these lots, and in mass.

The situation and extension of these lots has been described in printed notices about the sale. These notices, containing the principal conditions of sale and a chart of the whole estate, are to be had, price 6d. each, at Messrs. J. H. and G. VAN HETEREN, Booksellers, 21, Hartenstraat, Amsterdam.

The lots may be seen from June 15 every week-day between 10 A.M. and 4 P.M., upon application at the Surveyor's house on the Estate.

FOR SALE, a MARKET NURSERY,

Lease nineteen years, 13 miles west of London, containing 2 Acres with 245 feet of Glass, also 200 feet of Pits and Lights, 6 feet by 4 feet, good Dwelling-house, Potting Shed, Stable, Cart, and other Offices. Must be sold. No reasonable offer refused. Particulars,

H. J. Mr. Chapman, Newsagent, Kingston-on-Thames.

FOR SALE, a NURSERY, 5 miles from

City. Rent £50. Lease 20 years unexpired. Five Houses well stocked with Choice Plants. Can be taken at valuation. Or a Partner with £300 or £400.

Address N. S., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

TO BE LET or SOLD, The UPTON

NURSERY, Back Lane, Upton, Essex. 13 years unexpired Lease, low Rent; thriving neighbourhood. Genuine lot. Capital chance for a persevering young man.

Apply C. W. BILLING, Poplar Nursery, Lower North Street, Poplar, E.

Warminster.—(Fo. 6137.)

TO BE LET or SOLD, with Possession,

The HOME NURSERY, late in the occupation of Mr. George Wheeler, comprising about 2½ Acres, walled in, with Detached Residence, Seed Shop, Coach-houses, Stabling, Sheds, 11 Greenhouses, Ranges of Pits, &c.

Particulars had of PROTHEROE and MORRIS, 67 and 68, Cheapside, London, E.C.

PROTHEROE and MORRIS HORTICUL-

TURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

Fifty Nurseries, Market Gardens, Florist and Seed

BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE and MORRIS'

HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained, gratis, at 67 and 68, Cheapside, London, E.C.

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SUNDRIES, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

To Landed Proprietors, &amp;c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS. Plans prepared. 115, Lisiria Park, Stamford Hill, N.

T. HARPHAM, PRACTICAL ROCK BUILDER,

and GENERAL HORTICULTURAL DECORATOR for Caves, Waterfalls, Fountains, &c., 107, Church Street, Edgware Road, London, W.

Dissolution of Partnership.

NOTICE IS HEREBY GIVEN, that the

Partnership which has for some years past existed between the undersigned, James Robertson Garaway, and William Alexander Garaway, in the Trade or Business of Nurserymen, Seedsmen, and Florists, carried on by them at Durham Down Nurseries, Bristol, at Longreach, near Keynsham, in the county of Somerset, and at Downend in the county of Gloucester, under the style or Firm of JAMES GARAWAY & CO., was this day dissolved by mutual consent.

The Business carried on by the late Partnership will in future be carried on by the said W. A. GARAWAY alone, on the same Premises, and under the same style or Firm as before; and he is entitled to the assets, and will discharge the liabilities of the late firm.

As witness our hands this 1st day of June, 1885—

JAMES ROBERTSON GARAWAY—

WILLIAM ALEXANDER GARAWAY.

Witness to both signatures—

EDWARD THOMAS, Solicitor, Bristol.

EUCALYPTI, twelve most beautiful varieties

established in pots, viz.: twelve smaller plants, by post, 6s. Also CLIANthus PUNICEUS and DAPHNE IN-DICA, both in 5-inch pots, clean and healthy, 18s. per dozen. H. ELLIOTT, Springfield Nursery, St. Heliers, Jersey.

HERBACEOUS and ALPINE PLANTS.—

A splendid collection, from 25s. per 100, 45s. per dozen, and upwards. Priced and fully descriptive CATALOGUE (No. 206), gratis and post-free on application.

JAMES DICKSON and SONS, "Newton" Nurseries Chester.



## To the Trade.

SWEDS and other TURNIP SEEDS.  
H. and F. SHARPE invite the attention of the Trade to their fine selected Stocks of home-grown SWEDS and other TURNIP SEEDS of 1884 growth, and raised from transplanted Bulbs. Prices and further particulars may be had on application.

Seed Growing Establishment, Wisbech.

## BEDDING PLANTS,

of A 1 quality and strength.  
GERANIUMS, Mrs. Pollock, Glen Eyre Beauty, and Italia Unita, 2s. per dozen, 16s. per 100.

„ Bronze, McMahon and Black Douglas, 2s. per dozen, 14s. per 100.

„ Beauty of Calderdale, 2s. per dozen, 12s. per 100.

„ Crystal Palace Gem, 1s. 6d. per dozen, 10s. per 100.

„ Creed's Seedling, 1s. 6d. per dozen, 10s. per 100.

„ Silver Bijou and Miss Kingsbury, 1s. 6d. p. doz., 10s. p. 100.

„ Doubles, in variety, 1s. 6d. per dozen, 10s. per 100.

„ Vesuvius and variety, 1s. 6d. per dozen, 8s. per 100.

„ Happy Thought, 1s. 6d. per dozen, 10s. per 100.

LOBELIA, Brighton Gem, the best, 9d. per dozen, 4s. per 100, 30s. per 1000.

„ Blue Stoe and compacta multiflora, 6d. per dozen, 5s. 6d. per 100, 20s. per 1000.

GOLDEN FEATHER, 6d. per dozen, 5s. 6d. per 100, 20s. per 1000.

COLEUS, Verschaffelt, 1s. per dozen, 6s. per 100, 50s. per 1000.

HELIOTROPE, light and dark, 1s. per dozen, 6s. per 100, 50s. per 1000.

AGERATUM, Cannell's dwarf, 1s. per dozen, 5s. per 100, 40s. per 1000.

CALCEOLARIAS, Golden Gem and dark, 1s. per dozen, 5s. per 100, 40s. per 1000.

IRENE, Lindeni and Herbstii, 1s. per dozen, 6s. per 100, 50s. per 1000.

CERASTIUM TOMENTOSUM, 1s. per dozen, 6s. per 100, 50s. per 1000.

MENTHA GIBBALTARICA, 1s. per dozen, 6s. per 100, 50s. per 1000.

ALTERNANTHERA, amana, spectabilis, spathulata, paronychioides, major, do. aurea, versicolor grandis, amabilis, and magnifica, 1s. per dozen, 6s. per 100, 50s. per 1000.

DAHLIA, Single, Pompon, and Show and Fancy, 2s. 6d. per dozen, 15s. per 100.

VIOLAS, in variety, 1s. 6d. per dozen, 10s. per 100.

PANSIES, Show and Fancy, 2s. 6d. per dozen, 18s. per 100.

CHRYSANTHEMUMS, superior varieties, 1s. 6d. per dozen, 10s. per 100.

PYRETHRUMS, in variety, 4s. per dozen, 25s. per 100.

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The above Plants are not only of A 1 quality, but being nearly all from single pots, have good roots and ready for immediate effect. Package free. Cash with order.

Messrs. FLETCHER, SON, AND CO., Florists, &c., Chesterfield.

## Cheap Plants.—Special Offer.

WILLIAM BADMAN offers as under from store pots, all healthy, well-rooted, and fit for present potting:—

TRICOLORS—Mrs. Pollock, one of the best, 2s. per dozen, 15s. per 100; Lady Cullum, S. Dumaresque, Sir R. Napier, 2s. 6d. per dozen, 18s. per 100. Twelve choice varieties Tricolors, for 5s.

SILVER—May Queen (Turner's), Flower of Spring, Prince Silverwings, Little Trot and Bijou, 2s. per doz., 10s. per 100.

GOLD LEAF—Crystal Palace Gem, 2s. per dozen, 10s. per 100; Happy Thought, 2s. 6d. per dozen.

BRONZE—McMahon, Black Douglas, Czar (best bedders), 2s. per dozen, 15s. per 100.

SCARLET—Vesuvius, Jean Sisley, Col. Seely, 1s. 6d. per dozen, 8s. per 100.

PINK—Master Christie, Mrs. Levers (fice), 1s. 6d. per dozen, 10s. per 100.

WHITE—Madame Vaucher and Virgo Marie, 1s. 6d. per dozen, 10s. per 100.

CRIMSON—Henry Jacoby, 2s. per dozen, 15s. per 100; Waltham Seedling, 1s. 6d. per dozen, 8s. per 100.

LOBELIA—Brighton, Blue Stone, Pumila magnifica, 3s. per 100, 20s. per 1000.

HELIOTROPE—Jean d'Amour, Miss Nightingale and Light, 6s. per 100.

AGERATUM—Imperial Dwarf Blue, 5s. per 100, 40s. per 1000.

CALCEOLARIA—Golden Gem and Dark Camden Hero, 5s. per 100, 40s. per 1000.

COLEUS Verschaffelt and IRESINE Lindeni, 5s. per 100.

TROPÆOLUM—Vesuvius, dwarf, good bedded, 8s. per 100.

PELAGONIUMS—Show and Fancy, in single pots, 3s. per dozen, 20s. per 100.

Package included. Terms Cash.

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## HERBACEOUS

## And ALPINE PLANTS.

CATALOGUE of fifty pages, containing full information as to colour, height, situation, time of flowering, &c., free on application.

A CAPITAL COLLECTION for Rocks, Stumps and Borders, from 25s. per 100, or 4s. per dozen.

Most of the plants being in pots may be despatched at any time, or by Parcel Post when fit.

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Hundreds of Thousands of  
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THE FINEST COLLECTION  
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PRINCEPS, GRAND TRUMPETER.

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May be had in large quantity. For park planting one of the best.

See Six other good sorts to offer the Trade, and "Little Book" post-free.

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## AZALEA ROSÆFLORA

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A native of Japan. Flowers very double, of a delicate rosy-salmon tint, shading into clearer rose towards the centre.

Very dwarf in habit and exceedingly floriferous, even in a young state, whilst older plants are almost obscured by the abundant blooms, most of which are 3 inches in diameter and of perfect symmetry. Easily grown in an ordinary cool greenhouse, being nearly, if not quite hardy, plants having stood out-of-doors during the last two winters.

For Conservatory Decoration it is most valuable from the long duration of the flowers, whilst for Cut Flower purposes its neatness of form and bright colour place its usefulness beyond any other sort.

Having a good stock of this beautiful species now in bloom, we are able to offer them with

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Extra strong .. 15s., 21s., and 42s. "

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The most beautiful of all the hardy Marguerites; its flowers delicate sulphur-yellow, abundant bloomer. First-class for cutting, and should be grown freely wherever cut flowers are in demand.

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40 Acres fine NURSERY STOCK.  
5 " GLASS HOUSES.

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IN POTS; all the best New and Old English and Foreign sorts, from 18s. to 36s. per doz.

Descriptive LIST free on application.

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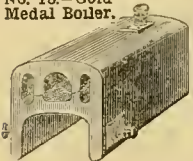
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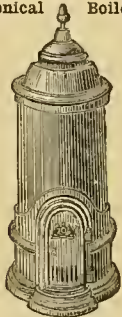
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MANUFACTURERS OF HOT-WATER APPARATUS.

To Builders, Hot-water Engineers, &c.

## IMPORTANT NOTICE.

Owing to the expiration of our Lease, and our removal to New Premises,

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opposite *The Times* Office, Queen Victoria Street, to save cartage of our large and varied stock of WROUGHT, WELDED, and CAST BOILERS, and HOT-WATER WORK GENERALLY, we propose offering it for disposal at most advantageous terms. Buyers will find this an exceptional opportunity for laying in a stock for the coming season.

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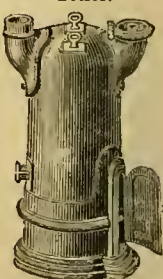
The Best and Largest Stock of Hot-water Fittings in London.

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ANTHONY WATERER begs to announce that the AMERICAN PLANTS at Knapp Hill will be in their greatest beauty during June, and will afford unquestionably the finest display of its kind that can be seen in any Nursery in the World. May be seen daily, Sundays excepted.

The large Standard and other Rhododendrons and Azaleas in Rotten Row, Hyde Park, are supplied by Anthony Waterer.

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NEW CACTUS DAHLIA, *picta formosissima*, 9d. each, two for 1s. 3d.

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The finest SINGLE and POMPON DAHLIAS, 3s. per doz. Terms cash with order.

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### THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, have a large and fine stock of EAST INDIAN and other ORCHIDS, and they are constantly receiving fresh importations from various parts of the world. Full particulars of Orchids in stock, and also fresh importations, forwarded on application.

The Company have also a large and fine stock of TEA and other ROSES in pots, GRAPE VINES, FERNS, and other ORNAMENTAL PLANTS, which they offer at extremely moderate prices. LIST with full particulars on application. The Vineyard and Nurseries, Garston, Liverpool.

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Reduced prices, to clear out. GERANIUMS, strong autumn-struck plants.

" Vesuvius (scarlet) Jean Sisley, Dazzler (crimson), Master Christine, Madame Vaucher, Happy Thought, 1s. 6d. per dozen, 10s. per 100, from single pots.

LOBELIA (true), from cuttings, "Emperor William," 2s. per 100, 15s. per 1000.

DAHLIAS, Single, named sorts, of all shades of brilliant colours, including White Queen and Paragon, 2s. per dozen, 15s. per 100, from single pots.

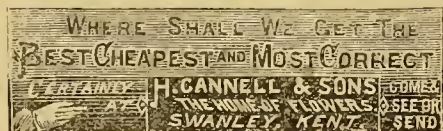
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Package free. Plants allowed for carriage. Terms ca. h. CATALOGUE, gratis.

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**GENUINE GARDEN REQUISITES**, as supplied to the Royal Gardens.—Fresh Cocoa-Nut Fibre Refuse, 4 bushel bags, 1s. each; 30 for 25s.—bags included. Two Ton Truck, free on Rail, 25s. Best Brown Fibrous Kent Peat, 5s. per sack; 5 for 22s. 6d.; 10 for 35s.; 20 for 60s. Best Black Fibrous Peat, 4s. 6d. per sack; 5 for 20s.; 10 for 35s. Coarse Bedding Sand, 1s. 6d. per bushel; 14s. per 1/2 ton; 25s. per ton. SPERMALITE TOBACCO PAPER, 10d. per lb.; 28 lb., 21s.; cwt., 70s. Second quality, 7d. per lb.; 28 lb., 16s. Finest Tobacco Cloth, 8d. per lb.; 28 lb. for 18s. Leaf-mould, 5s. per sack. Peat Mould, 4s. per sack. Yellow Fibrous Loam, 3s. per sack. Charcoal, 2s. 6d. per bushel. Bones, Guano, Spagnum, &c. LIST free. Special prices to the Trade for cash. W. HERBERT and CO., 110P EXCHANGERS WAREHOUSES, SOUTHWARK STREET, S.E. (near London Bridge).

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SMITH'S Celebrated WEED KILLER, the cheapest and most effectual preparation ever invented. For testimonials and prices address MARK SMITH, Manufacturing Chemist, Louth, Lincolnshire.

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4d per bushel; 100 for 25s.; truck (loose, about a ton), 40s.; 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks 25s.; sacks, 4d. each.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton in 2-bushel bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 12s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

MANURES, GARDEN STICKS, VIRGIN CORK, 10-BACCO CLOTH, RUSSIA MATS, &c. Write for

Price LIST.—H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Vard), W.C.



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TWO PRIZE MEDALS.



Quality, THE BEST in the Market. (All sacks included.)

PEAT, best brown fibrous .. 4s. 6d. per sack; 5 sacks for 20s.

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SILVER SAND, coarse, 1s. 3d. per bush., 12s. half-ton, 22s. ton.

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SPHAGNUM MOSS, all selected, 2s. per bush., 6s. per sack.

COCOA-NUT FIBRE REFUSE (by Chubb's special process),

sacks, 1s. each; 10 sacks, 9s.; 15 sacks, 13s.; 20 sacks, 17s.;

30 sacks, 25s.; 40 sacks, 30s. Truck-load, loose, free on rail,

25s. Limited quantities of G. special quality, granulated, in

sacks only, 2s. each. Terms, strictly Cash with order.

### CHUBB, ROUND & CO.,

WEST FERRY ROAD, MILWALL, LONDON, E.

12-oz. Sample Packets, free by post, 12 Stamps.

FIBROUS PEAT FOR ORCHIDS, &c.—

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., 4s. 6d. per Truck. BLACK FIBROUS PEAT,

for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s.

per ton per Truck. Sample Bag, 5s.; 5 Bags, 22s. 6d.; 10 Bags,

45s. Bags included. Fresh SPHAGNUM, 10s. 6d. per Bag.

SILVER SAND, Coarse or Fine, 5s. per Truck of 4 Tons.

WALKER and CO., Farnborough Station, Hants.

### BEESON'S MANURE

Is the best for all Horticultural Purposes.

Sold in Tins at 1s., 2s. 6d., and 10s. 6d. each; also in

Scaled Air-tight Bags, containing 1 cwt., 13s.

The 10s. 6d. Tins serve as a strong substantial receiptable to

refill from the 1 cwt. bags.

Supplies can be obtained through all respectable Nurserymen,

Seedsmen, and Florists in the Kingdom; or, in districts where

no Agents reside—Carriage Paid for Cash with Order—direct

from the MANUFACTURER,

W. H. BEESON, Carbrook Bone Mills, Sheffield.

Testimonials from the Rev. Canon Hole, and most of the

leading Gardeners, free on application.

Pure Crushed Unboiled BONES, any size, for Vine Borders,

&c. WHOLESALE AGENTS IN LONDON,

CORRY, SOPER, FOWLER & CO. (Limited).

### FIR TREE OIL INSECTICIDE

(Soluble in Water)

Effectually clears all Insects and Parasites from the Roots

or Foliage of Trees and Plants. Kills all Vegetable Grubs,

Turnip Fly, &c. Cures Mildew and Blight. Clears Grapes

from Mealy Bug, &c., and makes a good Winter Dressing.

Of all Seedsmen and Chemists 1/6, 2/6, 4/6 a bottle. Per gal-

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Manufacturer, E. GRIFFITHS HUGHES, MANCHESTER.

Wholesale from HOOPER & CO.; CORRY, SOPER, FOWLER and

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**EPPE'S SELECTED PEAT.**—Forty sacks, 2s. 6d. per sack; 30 ditto, 2s. 9d.; 20 ditto, 3s. 6d.; 10 ditto, 4s. 6d.; sacks, 6d. each. In trucks of 14 cubic yards, 11s. per yard. For Rhododendrons and common purposes, 15s. per ton, not less than four tons; sample sack, 2s. 6d. LOAM, SAND, LEAF-MOULD, SPHAGNUM, &c. See Special List, also for the Trade. Ringwood, Hants.

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BY THE USE OF

### JEYES' "GARDENER'S FRIEND."

One Gallon of this Fluid, diluted with water according to directions, and applied with an ordinary watering-can.

Effectually Removes all Weeds, Moss, Worms, and Insects on Gravel Walks, Lawns, &c.

Price, 3s. 6d. per gallon, including drum; 40-gallon casks, £4 10s. Carriage paid.

JEYES' SANITARY COMPOUNDS CO. (Limited), 43, Cannon Street, London, E.C.

### NORWEGIAN FISH-POTASH GUANOS.

Composed of Pure Flesh and Bone of Cod and Herring and Refined Potash.

A Perfect Fertiliser for Garden and Greenhouse, Lawns and Tennis Courts, Vegetables, Flowers, Exotics and Fruit Trees.

Prices, carriage paid, on receipt of Post-office Order: 28 lb., 6s. 6d.; 56 lb., 10s. 6d.; 1 1/2 cwt., 20s.; 2 cwt., 30s.; 5 cwt., 60s. Bags free.

Larger Quantities at Special Prices, for which, and for Analysis, &c., apply to

### J. JENSEN & CO.,

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Manufactory—

BRETTESEN, LOFFOTEN ISLANDS, NORWAY.

**GISHURST COMPOUND**, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

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The best and strongest it is possible to obtain. 6 lb., 4s. 6d.; 14 lb., 10s.; 28 lb., 20s. Good strong TOBACCO PAPER or CLOTH, 6 lb., 3s. 6d.; 14 lb., 8s.; 28 lb., 15s. Carriage paid to London or any Railway Station in Kent. All our articles contain the pure essence of Tobacco only. Used in Royal Nurseries, the Gardens of the Nobility, by Leading Men of the Profession, &c.

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Our celebrated Best ROLL TOBACCO PAPER, CLOTH, and FIBRE, guaranteed same quality as above, delivered free to any address in the United Kingdom, at the following rates:— 3 1/2 lb., 2s. 6d.; 4 1/4 lb., 4s.; 6 lb., 5s.; 6 3/4 lb., 5s. 6d.

Manufacturers,

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## NEW HARDY CRIMSON AUTUMN-FLOWERING CLIMBING ROSES.

Waltham Climber No. 1.  
Waltham Climber No. 2.  
Waltham Climber No. 3.

These Roses are seedlings from Gloire de Dijon, possessing all the good qualities of that well-known variety: they are all red Roses, but of different shapes and distinct shades of colour — No. 1 being the lightest, and No. 3 the darkest. They flower abundantly and until late in the autumn, and are recommended as supplying a long-felt want in the garden, namely, good hardy Crimson Autumn-flowering Climbing Roses, with fine foliage.

Strong Plants, in 5-inch pots, now ready, 10s 6d. each; the set of three varieties for 21s.

WM. PAUL & SON also desire to call attention to Mr. Bennett's New Crimson Hybrid Tea Rose, "W. F. BENNETT," the finest red Rose yet introduced for forcing and cut bloom, and for the sale of which in Europe they are the Sole Agents. For full description and price of this and other NEW ROSES (including Wm. Paul & Son's New Varieties of 1884, the Yellow H.P. "GLOIRE LYONNAISE," the new American variety "SUNSET," H.P. "QUEEN of QUEENS," &c.), see WM. PAUL & SON'S

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Post-free on application.



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FINE-FOLIAGED PLANTS,  
AND ALL  
SOFTWOODED PLANTS.

In Packets, ONE SHILLING, and in

Sealed Bags only,

7 lb.	14 lb.	28 lb.	56 lb.	1 cwt.
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A 7 lb. Sample Bag, carriage free on  
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CLAY &amp; LEVESLEY,

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Appointed by Royal Warrant Makers to  
Her Majesty the Queen and His Royal Highness the  
Prince of Wales.

## GREEN'S PATENT "Silens Messor" and "Multum in Parvo" LAWN MOWERS

Have been proved to be the best, and they have carried off every  
Prize in all cases of competition.

Every Lawn Mower is guaranteed to give entire satisfaction,  
otherwise they may be returned AT ONCE, free of cost to the  
Purchaser.



HAND MACHINES,  
"Silens Messor" Pattern.

To cut 8 in. wide .. £2 10 0	To cut 16 in. wide .. £6 10 0
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To cut 14 in. wide .. 5 10 0	To cut 22 in. wide .. 8 10 0
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For Donkey, Pony and Horse Machines, see Price List.

### GREEN'S PATENT "MULTUM IN PARVO" MOWER.

Suitable for Small Grass Plots.

A most useful Machine.

Prices, with Grass Box:

£1 5 0
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Prices,  
Without Grass Box

To cut 6 in. .. £1 1
To cut 7 in. .. 1 8
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It is simple in construction, easily adjusted, is well adapted  
for mowing small plots, cutting borders, verges, round flower  
beds, the edges of walks, &c. It is a most handy, serviceable  
machine, and very easy to work.



### GREEN'S PATENT GRASS EDGE CLIPPER.

With Chain and Wheel Motion.

A most useful Machine.

Price, £1 16s.

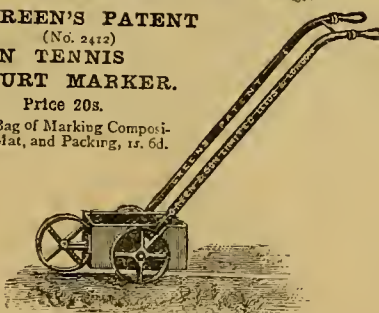
Packing Case, 2s.

SIZE,  
8 inches wide by  
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Price 20s.

Small Bag of Marking Composi-  
tion, Mat, and Packing, 1s. 6d.



Price List free on application.

The above Machines can be had of all respectable Iron-  
mongers and Seedsmen in the United Kingdom, or direct from  
the Manufacturers.

THOMAS GREEN & SON  
(LIMITED).

SMITHFIELD IRONWORKS, LEEDS; and  
SURREY WORKS, BLACKFRIARS ROAD, LONDON, S.E.  
Carriage paid to all the Principal Railway Stations in  
the United Kingdom.



THE

## Gardeners' Chronicle.

SATURDAY, JUNE 6, 1885.

### BROOMS AND BRUSHES.

NO apology is needed for introducing to the  
readers of the *Gardeners' Chronicle* the  
subject which stands at the head of this article.  
Brooms and brushes are so thoroughly cos-  
mopolitan that they belong to no class in parti-  
cular, neither to any country or people. In  
some form or other they are known and used  
in every corner of the world; so varied, indeed,  
is their structure, and the materials of which  
they are made, that sufficient matter could  
easily be got together to form a long and  
interesting article on brooms and brushes in  
general, seeing that the materials of which they  
are made are for the most part of vegetable  
origin. In this assertion, however, we do not  
forget the great use of bristles. Though we  
may recur to this at some future time, our  
intention now is to describe, somewhat briefly,  
a visit to a large brush factory, where the  
brooms and brushes are turned out by  
machinery at an amazingly rapid rate. Every-  
body knows a bass or Piassava broom when  
they see it, for most people, whether for gar-  
dens or for domestic purposes, use these  
brooms. If the general public do not know  
what bass or Piassava really is, but are  
still content to look upon it as whale-  
bone, which it was thought to be when  
first introduced, the bulk of our readers will at  
once recognise it as the strong woody fibre  
which is found abundantly at the base of the  
leaf-stalk of two Palms, *Attalea funifera* in  
Bahia, and *Leopoldinia Piassava* in Para.  
The fibre of the former is, for brushmaking,  
superior to that of the Para kind, on account of  
its being stiff and "springy," so that it can be  
used in long lengths. Though the Para sort is  
of a brighter colour and more flexible, it can  
only be used in short lengths, or supported by  
a stronger fibre. Bahia fibre can be obtained  
very strong and thick, or very fine. Para is  
never so strong or thick. The two fibres are  
distinct in appearance. Bahia being round,  
and Para somewhat flat; it is very light in  
weight compared with Bahia, and though not  
really finer is often more expensive.

### PIASSAVA.

The introduction of the use of Piassava, or  
Piassava, as it is sometimes spelt, for broom  
and brush making, not only in England, but also  
in France, Belgium, and Denmark, is mainly, if  
not exclusively, due to the exertions of Mr.  
Arthur Robottom now nearly forty years since.  
Mr. Robottom travelled through the forests of  
Brazil, and describes the Palms as thriving  
more abundantly in various districts situated in  
the province of Bahia, Brazil. Mr. Robottom  
describes the collection of the fibre as follows:—

"The natives climb the trees, which are from 30 to  
40 feet high, and make a nick in the first leaf, which  
bends, so that the man can stand on it with safety.  
The Piassava is then cut down, each tree giving from  
20 to 30 lb. The natives have a great objection to cutting  
it during rainy weather, as in the wet season the venom-  
ous snakes are known to conceal themselves within the  
trees for shelter. After being cut down the Piassava is



taken to the nearest village and cleaned in a rough way by fixing pieces of stick in the ground with sharp points, and the Piassava is drawn through this rude cleansing apparatus, so as to remove the flossy fibre, the bulk of which is sold for consumption in Brazil for making ropes to tie poles together or for making fences, &c.; and in several native villages that I have visited I found the huts were made entirely of poles fastened together by this Piassava rope, and covered with leaves from the Piassava tree. This fine and flossy part, which is useless in this country, is much esteemed in some parts of Brazil, for I noticed that many of the mules going up to Farra St. Anna, a district situated a long way from where the Piassava is grown, were loaded with this flossy Piassava. After being cleaned the Piassava is taken to the sheds, which are generally erected by the side of the rivers, to be pressed. It is then packed in bales and bundles and put on board the launches to be taken to Bahia, from whence it is shipped to Europe and elsewhere. The Piassava is sent principally to London, Liverpool, Hamburg, Antwerp, Havre, and some small quantity to Portugal, and sold to the bass dressers, who employ men to cut it into lengths from 5 to 14 inches. It is then sold in this state to the brush-makers, and manufactured into brooms (called 'bass' brooms) for sweeping yards, stables, roads, streets, &c. The brooms used by the sweepers of the London streets and of many provincial towns are made of this material. In some parts of England the brooms are misnamed 'whalebone' brooms; on shipboard they are called 'coir'; while in Yorkshire they are known as 'weed' brooms. I was told in Bahia that the name 'bass' brooms was given to the Piassava owing to the dealers in the early days of the trade having paid for it in Bass's pale ale. Piassava was first introduced into this country in the form of long ropes, and the 'fenders,' now so well known and used for placing by the sides of vessels when passing through the docks or when coming in contact with other ships. Shortly after its introduction a portion of one of the fenders got into the hands of a working brushmaker. He made a broom which answered well. About this time the bulk of the sugar which was shipped from Bahia was packed in cases of about 16 cwt. each, and small quantities of Piassava were used as dunnage, and lots of 2 to 3 tons would come forward, principally to Liverpool."

In consequence of the great demand for Piassava, Mr. Robottom recommends the cultivation of this Palm, or at least advocates the planting of fresh trees as the old ones are cut down. The Para Piassava from Leopoldinia Piassava is sometimes called Monkey Bass. These trees are described as growing by the side of the White River and other streams that flow into the Orinoco and the Barra de Rio Negro, the fibre being sent down to Para for shipment to England; this kind is finer than the Bahia sort from *Attalea funifera*, realises a much higher price, and is used for making small brushes for cleaning clothes, &c.

#### KITTOOL.

Piassava is undoubtedly of all vegetable fibres the most extensively used for brush-making, but another fibre has recently taken a prominent position in the brush trade, which has been introduced more as a substitute for bristles in the manufacture of soft hair brooms and for mixing with horsehair for stuffing cushions, &c., than for the stiffer sorts of brushes. The article in question is known as Kittool fibre, and is the produce of *Caryota urens*, a brief description of which appeared at p. 84 of the *Gardeners' Chronicle* for July 19 last. Kittool fibre is by no means a new article of trade in this country. It has been known for some thirty or thirty-five years, but like other new products it has met with considerable opposition, and it is due to the exertions of Mr. Robottom, as in the case of Piassava, that Kittool has taken the position it now has in broom and brushmaking. The only thing against it seems to be that it is too durable, and lasts too long, and for this reason manufacturers have not persevered in its use; one firm, however, namely, "Horsey's Patent Broom and Brush Manufacturing Company, Limited," are at the present time using Kittool in large quantities. I lately had the privilege of being introduced to Mr. John G. Horsey, the managing director of the company, who, finding that I was interested in the subject, kindly invited me to visit the works, and I was well repaid for the

hour and a half spent in following the life-history of a brush, more especially as every detail was carefully pointed out and explained by the very intelligent and obliging manager of the works, which are situated in Copperfield Road, Mile End. Enormous quantities of bass or Piassava, as well as Kittool, are used by this company, and as they have large contracts both for the Government as well as for some of the principal railway companies, are always very busy. At the time of my visit the *employés* were for the most part at work on Piassava.

#### BRUSH-MAKING.

The first room visited on the ground floor contained stack after stack of brush or broom stocks, namely, the wooden "backs," as they are often called, into which the bristles or fibre is planted. These stocks are all in the rough, being simply shaped for the several requirements for which they are to be made. The woods mostly used are Beech and Ash. Leaving this store, however, we are conducted into a spacious room, where are numerous bales of Piassava; these bales, as they arrive from Brazil, weigh about  $\frac{3}{4}$  cwt. each, and measure 3 feet long by 18 inches wide, and 1 foot thick. Bass or Piassava is bought here by weight, and is very often much adulterated by the natives, sand and stone being frequently tied up in the centre, and Mr. Horsey told me that he once saw a human skull filled with wet sand taken from a bundle. This system of adulteration causes serious losses to the buyers. Piassava also comes in bundles measuring 3 feet by 2 feet, and 1 foot thick. Both the bales and bundles are very tightly compressed, and when opened expand so much that it is at once seen how much more fibre is contained in one of these bales than at first sight appears. When a bale is opened out the fibre is found to be twice or even thrice the length of the bale itself, being bent or folded to bring it into the required size. In cutting the fibres into lengths it is necessary that they should be very straight, consequently the bent ends of the bundles were formerly cut off and thrown away. As much of the very best fibre was thus sacrificed, one bend always occurring in the very centre of its entire length, a system has been adopted of steaming the whole bale, which causes the fibre to become pliable, so that these bends may be straightened out, and used with the remainder of the fibre. The steam-bath is ingeniously constructed of brick, with iron lids. A perforated pipe passes along the bottom, and the waste steam, which is thus utilised, is let in or turned off by a valve at pleasure. This bath holds about half a ton of fibre. After steaming the bundles of fibre are removed to an adjoining house where they are cut into uniform lengths by a powerful single blade knife, like a guillotine, which is worked by steam, and with one stroke cuts clean through an entire bundle of fibre. These lengths are then passed on to an adjoining bench where they are pulled open, still steaming hot, and bundles of about a double handful taken out and drawn through a hand-hackle, consisting of numerous upright iron spikes set close together—just such a hackle, indeed, as was formerly used for hackling flax. The workman grasps one end of this bundle of fibres, and, throwing it into the top of the hackle, draws it towards him; this combs away all the loose and short fibres, and moreover cleans those that remain. When thoroughly cleaned the fibres are made into bundles of uniform bulk, and of lengths required for the several kinds of brushes. The combings or short fibres left on the bench after hackling are shaken together and made into bundles suitable for scrubbing and similar brushes, so that there is very little real waste. After the fibre has passed through the systematic manipulation here described, it is bright in colour, uniform in thickness, as

straight as a dart, and as rigid as whalebone—very different, indeed, from what it was in the bundle or bale.

The fibre is now ready for fixing in the stocks, or heads. To prepare them to receive the fibre they are taken from the large store previously referred to into a workshop fitted with lathes driven by steam-power. The workman takes one of the solid blocks, and with a kind of drill or gouge set in the machine he bores as many holes as there should be bundles of fibre in the broom or brush, dexterously inclining the block alternately to the right or left, so that the fibres may spread out when they come to be fixed. In the position, incline and depth of the holes, he has nothing but his practised eye to guide him, and a whole block is bored with marvellous rapidity. It will be noted that the holes are not bored through, as is the case with ordinary brushes, where the bundles of bristles or fibres are pushed through and a thin wire threaded through the whole at the top, over which a thin plate of wood is tacked. When this piece of wood comes away, and a wire rusts through or breaks, the whole system is shaken, and the fibres come out bundle after bundle. Neither are the bundles fixed with pitch, which melts with heat and sets them free, but the bundles are simply fixed each with a separate piece of stout steel wire, and in this lies the great advantage of Mr. Horsey's patent. The fixing the bundles into the wooden blocks is done by one of the most ingenious machines it is possible to conceive. Six of these machines are arranged in a row, and are worked simultaneously by steam power, one girl presiding at each machine. Ordinary bass brooms were being made at the period of my visit. After the blocks have been bored, as previously described, they are brought to these machines; the manipulator places one under the machine, a piece of steel the size of the drill that gouged the hole comes down into the hole, apparently to see that all is right and ready for the reception of the fibre; it is immediately withdrawn, and an automatic finger and thumb, so to speak, rakes out of a box attached, which is kept filled with the fibre cut of the proper length, just exactly the right quantity of fibre to fill the hole; it doubles it in half, pushes it into the hole, rams it well home, brings down a piece of steel wire from an adjoining drum upon which it is wound, cuts it off exactly the right length, pushes this into the hole across the bend in the fibre; the two ends of the wire become embedded in the wood, and so the fibre is firmly fixed—so firmly, indeed, that it cannot be got out without cutting through the solid wood. The more the fibre is pulled at, the tighter does the wire become, and the more secure is the fibre; indeed, it cannot possibly become detached; and even if it did, it would not affect the other bundles in the least, seeing that they are all put in separately. After the block is filled with the fibre it has to go under an operation of trimming, as the ends of the fibres are somewhat irregular in length; to effect this a girl takes the broom, lays it on its back on an iron table or bench, and pushes it forward, at the same time a series of revolving knives, exactly like those of a mowing-machine, pass over the top, clipping it to a perfectly level surface. When this is done, the ends of the blocks are sawn off very straight and very neatly by a fine circular saw, and the sides and backs planed by a steam plane: all this is effected in a marvellously short space of time. An ordinary brush takes 20 minutes to make—one by Horsey's patent is turned out in  $1\frac{1}{4}$  minute; in fact, the "life history" of a broom or brush is so rapidly gone through, that the propagation of the species is sufficiently plentiful to meet all demands, very large quantities being turned out each week by the company.

The preparation of Kittool fibre for broom-making is somewhat different from that adopted





FIG. 161.—“A BIT” IN THE OXFORD BOTANIC GARDEN. (SEE P. 732.)

with Piassaba. The fibre arrives in long hanks or bundles, and is of a dusty or dingy black or brownish colour. By steeping in oil it is at the same time strengthened and made more flexible, and of a more perfect or brighter black. It can be expanded nearly 50 per cent. by

steady pulling on both ends. The fibre, after being cut in suitable lengths, is drawn through hand-hackles, as is the case with Piassaba, and made up into very neat bundles, ready to be utilised for brooms and brushes in the same way as Piassaba.

The use of this fibre is spreading rapidly for brooms; being soft, it is stated that it will do all the work that is done by hair-brooms, that it is much more durable than the best hair-brooms, and can be sold at about a third the price of ordinary hair-brooms, and less than a quarter



of that of the best hair-brooms. These brooms are not only used in this country, but are being shipped in very large quantities to the European continent and to the British colonies.

Samples of Para and Bahia Piassava fibre and of Kitool fibre, and brooms and brushes made from them, are exhibited in the Museum No. 2 at Kew. *John R. Jackson, Museum, Royal Gardens, Kew.*

## New Garden Plants.

### VANILLA HUMBLOTTII, n. sp.\*

A NEW leafless African Vanilla. The two nearly allied species, *Vanilla Roscheri*, Rehb. f., and *V. Phalænapsis*, Rehb. f., I have studied in excellent condition. Omitting all other features, both have keels with hairs on the base of the lip, more conspicuous in *Vanilla Roscheri*, but I can find no such keels in Moos, Humblot's plant, but numerous twisted strong hairs scattered from base to disc. The flowers are very large. Sepals ligulate acute; tepals rhombic, acuminate, broad, blunt-edged both sides. The lip is rhombic, blunt-angled, much undulate in front. There is a curious dark zone like a broad ribbon over the anterior part of the disc. Never before have I seen such well dried Vanilla flowers. They have been evidently prepared in hot sand—an excellent idea. The peduncles are long, showing scars of at least twenty flowers. This great ornament of the African flora was discovered by my excellent friend, Mons. Leon Humblot, to whom it is dedicated with great pleasure. *H. G. Rehb. f.*

### ANGRÆCUM FUSCATUM, H. G. Rehb. f.

When I named this plant I had no idea that it was so fine a species. I have before me well dried inflorescences from M. Humblot, with eighteen fully expanded flowers, and the stem grows taller than I thought. *H. G. Rehb. f.*

### ANGRÆCUM ROSTELLARE, n. sp.†

This looks a diminished *Angræcum fuscum*. Its cuneate oblong leaves are emarginate, bilobed at the apex, and unusually soft, so that I believe they may last so. The numerous peduncles (I have four on one small plant) are loaded with flowers of the shape of those of the grand *Angræcum fuscum*. They have a distinct, long, ascending, linear rostellar process, spatulate apiculate petals, and a similar lip. Were it not for these features I should have regarded this discovery of M. Leon Humblot as a reduced *Angræcum fuscum*, Rehb. f. *H. G. Rehb. f.*

### EPIDENDRUM PAYTENSE, Rehb. f.; Seemann, *Bonplandia*, iii., 24; Walp. Ann., vi., 391.

It is many years since I have seen this lovely member of the group *Amphiglotium Schistochila carinata*. It has come once more into my hands from Dr. Wallace, whose son gathered it in the United States of Columbia, while Von Warscewicz discovered it in Peru. Dr. Wallace most kindly forwarded me a plant at once, whose stiff shoots have purplish-brown sheaths, and the short very strong oblong acute leaves are also tinted with a hue of the same colour. The flowers are of a most brilliant scarlet-vermilion, with some orange on the lip, which is also marked with some darker spots of the same hue. They are quite equivalent to those of *Epidendrum Schomburgkii*, cinnabarinum, and radicans. Lovers of this affinity will be satisfied to see this plant. *H. G. Rehb. f.*

### ÆRANTHUS LEONIS, n. sp.‡

A magnificent discovery of Mons. Leon Humblot, of course dedicated to this intrepid traveller, to whom we are indebted for so many fine things.

\* *Vanilla Humblottii*, n. sp.—Aphyllæ Africane; racemo multifloro; sepalis ligulato-lanceolatis obtusiusculis; tepalibus rhombico-obtusangulis acuminatis; labello cuneato flabellato rhombico antice obtuso crispulo pilis numerosis in disco; columna brevi basi cum labello connata. Cl. Leon Humblot dicata. *H. G. Rehb. f.*

† *Angræcum rostellare*, n. sp.—Humile, aff. *Angræcum fuscum*. foliis cuneato-oblongis inæqualiter bilobis mollibus; pedunculis plurifloris; bracteis amplis cucullatis ovaris pellicellatis multo brevioribus; sepalis lanceolatis; tepalibus cuneato-oblongis apiculatis; lamina labelli cuneato oblonga apiculata (spatulata apiculata), calcaris filiformis ovario pedicellato plus duplo longiori; columnæ processu rostellari lineari longissimo. *H. G. Rehb. f.*

‡ *Æranthus Leonis*, Rehb. f., n. sp.—Foliis ensiformibus late falcatis, curvis; pedunculis plurifloris, racemosis numerosis erectis; bracteis cucullatis obsoletis acutis amplis, brevissimis; ovaris pedicellatis dipertitis elongatis; sepalis lineari triangularibus acutis linea mediana extus carinatis; tepalibus basi multo latioribus.

The stem is not long as it appears. It has numerous swordlike, falcate leaves, a span long or nearly so, standing close together, of a very stout texture. They are a little slit at the base over the articulation. The laminae break away, leaving two aristate ears at the base. The apparently ivory-white flowers may be compared to those of *Æranthus sesquipedalis* (*Angræcum sesquipedale*). The spur, however, is much shorter, infundibuliform at its base, then filiform, and bent in all the flowers before me. There are as many as seven such flowers belonging to the one raceme. The fruits appear to be dimorphous; some are nearly globular, others are egg-shaped. All have two prominent wings, as has the ovary. A very stately thing, quite novel as to leaves, taking little space, and bearing large flowers—is this not sufficient to make a collector's heart beat with satisfaction? *H. G. Rehb. f.*

### POGONIA (NERVILIA) BARKLYANA.\*

This grand *Pogonia* was first made known to me by a sketch in colours, prepared, I believe, by Lady Barkly, and sent by Sir Henry Barkly, 1870, to Kew, where I was permitted by the liberal authorities to take a copy. It was but justice to name it after Sir Henry and Lady Barkly, who were such great promoters of natural history. It is a grand plant; by far the most stately of all the *Nervilias*. The peduncles reach nearly 2 feet in length, and one of my dried specimens shows eleven flowers. Sepals lanceolate acuminate. Petals broader and shorter. Lip trifid, side-lacinia angulate, mid-lacinia acuminate, reflexed at apex. They are represented green, with a darker green flush, and there is a fine network of veins on the mid-lacinia of the lip. The large leaf is roundish, apiculate sinuate, cordate at the base, a span broad, on a petiole also a span high. The tuber is a soft great oblongo-cylindrical body. Thanks to M. Leon Humblot, I am able to verify my description.

It is well known there are not only two (as was asserted recently) but numerous *Pogonias* in South Eastern Africa. Our plant does not correspond well with any of the described species.

I must state that the leaves at hand show remarkable asperities on the under-surface, which might have been described as hairs, though they are much more like scales. When these scales are wetted, and placed under the microscope they show legs, and heads, and abdomens, and breasts, being, no doubt, hemipterous insects, rather like the wretched *Phylloxera*.

As to the author of numerous ill-described species he speaks of Mayotte, V.C.I. This celebrity, however, would appear to be a collector, and not an island. *H. G. Rehb. f.*

## THE RETICULATA GROUP OF IRISES.

(Concluded from p. 563.)

THE five Irises previously mentioned form, as I have said, a very distinct group. The differences between I. Vartani and the other four are far greater than those existing between any two of the four. The four, in fact, form a group with which I. Vartani may be considered equipollent. The differences between the several members of the group of four are on the whole nearly equal if the members be arranged in the order sophenensis, reticulata, Krelagei, Ilistris. Thus, though the differences between sophenensis and Ilistris are very great, those between sophenensis and the typical reticulata are not very much greater than those between the typical reticulata and Krelagei, or between Krelagei and Ilistris; and in none of these cases are the differences so great as between any one of them and I. Vartani. If each of the four be considered a species then some term indicative of greater divergence ought to be employed to denote the relationship of I. Vartani. This would seem undesirable. On the other hand, to call these four kinds varieties would cut away our means of recording differences observable within each of the four; and that would be equally undesirable. I would, therefore, propose to speak of them as subspecies, and of differences obtaining within each subspecies as constituting a variety. The whole group as at present known might then be described as follows:—

triangulis acuminatis, labelli lamina oblonga seu obtusangula quadrata uno apiculo antice mediano abrupto basi cucullata; calcaris basi infundibuliformi amola filiformi vulgo varie flexo ovarium pedicellatum non aequante. Leon Humblot amice dicatum. *H. G. Rehb. f.*

*Pogonia Barklyana*.—Folio longo petiolato circulari apiculato undulato basi cordato, spithamam usque lato; pedunculo pedali sesue bipedali, basi hinc vaginato; racemo laxo; bracteis linearilanceis viridulis deflexis, ovaria pedicellata nunc excedentibus; sepalis linearilanceis acuminatis; tepalibus latioribus brevioribus, labello expanso antice trifido, lacinia lateralibus angulatis, lacinia mediana producta plus minus acuminata, limbo nunc crispulo nudato, hinc geminis elevatis per discum.—Il. Equiti Barkly ejusdem uxori obedientissime dicata. *H. G. Rehb. f.*

RETICULATA GROUP.—Bulbs with netted coats, tetragonal leaves, and single flowers.

### SPECIES I.

I. reticulata.—Bulbs ovate, blade of fall not much wider than claw, crest on claw absent or inconspicuous, crest of style not more than twice as long as broad.

### Subspecies.

I. s. sophenensis.—Flower dwarf, appearing before or as soon as the leaves; spreading; falls and claw very narrow, blade of fall obtuse; colour blue, merging into red-purple. [See p. 470, April 11, 1885.]

I. s. reticulata.—Flowers turbinate, not appearing till after the leaves have appeared; claw of fall much longer than blade; colour blue-purple; lateral veins on claw of fall slightly marked; sp. valves green.

I. s. Krelagei.—Flowers turbinate, not appearing till after the leaves have appeared; claw of fall not much longer than blade; colour red-purple; lateral veins on claw of fall conspicuous; spathe-valves green.

I. s. Ilistris.—Flowers turbinate, not appearing till after the leaves have appeared; claw of fall as long as, and nearly as broad as blade, which is conspicuously marked with blue-purple spots; spathe-valves nearly colourless.

### SPECIES II.

I. Vartani.—Bulbs elongate-ovate; blade of fall much wider than claw; crests of style more than twice as long as broad. [See p. 438, April 4, 1885.]

In this scheme the blue form of I. s. Krelagei, described above, would find a place as a variety, or I. s. Krelagei cyanea. But in pursuance of what seems to be the wise decision of the Narcissus Conference, to restrict Latin names to forms known to occur wild, and to employ trivial names for forms known to be the result of cultivation, I would propose to call the late Mr. Nelson's blue seedlings by his or some other name, e.g., I. s. reticulata "John Nelson," his large seedling as I. s. reticulata "Captain Nelson," and so on; but I do not know that I have any right to decide which names should be used.

Some of my own seedlings and some of those of Mr. Max Leichtlin seem to me to be hybrids between I. s. reticulata and I. s. Krelagei, and Mr. Max Leichtlin tells me that he has flowered a seedling which he felt sure was from seed borne by I. s. Ilistris, crossed by I. s. Krelagei, but concerning which he is in doubt, since the offspring seems almost entirely Krelagei. I see, however, no reason in this to invalidate his result, for I have grounds for thinking that Krelagei "blood" is very potent and able to assert itself preponderantly in any of its hybrid offspring.

It will before long be necessary to take decided steps towards arranging such a nomenclature of hybrids as will in some measure indicate their origin. I would venture to suggest, that where the parentage is exactly known a word might be formed out of the initial portion of each parent's name, the seed-bearer coming first. Thus offspring of I. s. reticulata crossed by pollen of I. s. Krelagei might be written I. × reticulæ, while I. × Ilistris would signify I. s. Ilistris crossed with pollen of I. s. reticulata. By taking some little care, words of commendable shortness and yet smooth to speak might be invented, and any sense of uncouthness they might at first suggest would soon wear off.

It will be seen from the above that it has been my good fortune to be able, within a few months, to extend the number of Irises of this group from three to five, i.e., nearly to double them, and that without insisting on any but veritable and marked differences; and the moral which I would venture to draw from this is that between the Mediterranean shores and the eastern limits of Persia or Afghanistan, there must be other as yet unknown members of the same group, some of which would probably serve to bridge over the wide gap which at present seems to exist between this group and that of I. sisyrinchium on the one hand, and that of I. xiphion on the other; moreover, the fact that one of these two new forms, and that the most distinctive, should have lain so long unnoticed in the much trodden and tourist ridden land of Palestine tells a tale.

### CULTIVATION.

With regard to the cultivation of these Irises, I do not feel able to say anything very definite. When I have said that they enjoy full sunshine, that they hate being water-logged in winter and enjoy being dry in

\* The letter s before the name might be used to denote subspecies. Thus I. reticulata would mean the whole species of four forms; I. s. reticulata the typical sub-species.



summer, that as far as mere cold is concerned they are perfectly hardy, I have said almost as much as I know. Being true bulbs, without permanent roots, they may be "lifted" in summer without injury, but they should probably be planted early, for, like Hyacinths, they send out their roots very early. They are difficult to grow in pots; that is to say, plants grown in a pot will not readily yield, after flowering, plump, sound bulbs, even when some care has been taken to water with judgment, and to ripen properly. With me *me I. s. Krelagei* is stronger and more robust than the type, but this may not be the case everywhere.

In many instances the bulbs suddenly or rapidly "go off" and disappear. This with me is especially the case with the type, and I am much inclined to attribute the failure, not to soil, but to some disease due to the attacks either of an animal or a fungus, though I cannot at present speak with certainty.

Nor do I feel at present quite sure what is exactly the best soil for these Irises, for I know of their "doing" and their "not doing" in many very different kinds of soil. If I were restricted, however, to one soil, I should be inclined at present to choose one rather rich and fat, but at the same time open and sandy, loam; yet, provided good drainage is present, I believe they may be grown anywhere provided that the sunshine is adequate, and that their slender foliage is not too much vexed with fierce gusts of wind. *M. Foster.*

## MAY-DAY EVE IN THE MORNING!

THE hour from 8 to 9 A.M. is often the quietest in all the day. Everybody has gone to breakfast, and the garden is deserted. Thrushes and blackbirds are breakfasting all over the meadow, and the distant singing heard among the further Elm trees gives emphasis to the nearer silence. Even the bees are gone home to breakfast; only here and there a lumbering old humble-bee grumbles alone in the blossoming fruit trees. It is time for the young nestlings' second or third meal, and the tame redbreast (who, though it is no longer winter, still visits my window) is hurriedly packing a slender worm in her bill, and then, by the direction of her flight, betrays the cherished secret of her treasure. Yet it must be confessed that when the air is less chilly the hour is often fuller of murmuring stir among the birds and bees than it is to-day. Cold as it is, there is one tall white Iris—just one among a thousand huddling now in double file throughout the garden—carefully, slowly opening. It rises above all the other Irises—first and fairest, as the first of every flower is—and to-morrow it will be full-blown, in honour of the day. The eve of May-Day should be full of mysteries in earth and air. A great change is approaching, and all Nature knows it. I myself but dimly guess and feel what it may be. It may be that the birth of summer is at hand, and already a few of Nature's loveliest children "haste to die." Snowdrops are forgotten, and Primrose-tide is fading from the woods. Under the yellow Berberis yellow petals lie in little heaps or lines of yellow drift; and every peary bud on the white Cherry trees has opened wide. There is no wind, but they will not last; another day or two, and the fruit will be set, and we shall see twin Cherries swelling greenly all over each long length of blossomed bough. Either to-day, or on May-Day, one ought to see the fairies, according to old Scottish legends! No fairies appeared this time, but I saw a good deal between eight and nine, looking from the broad walk upon our old kitchen garden walls, bright with the eastern sun. How shall the charm of these old brick walls be described? Words could never paint it. In the clear glow of morning light the reds are so delicately pure and warm, and they are mottled with such varied greys and many-tinted yellows. There are stout old buttresses, too, mossed and ferny, and grey with eld. Ancient rugged Pear trees grow up against it, and their outstretched knotted old limbs are set now with bunches of flowers, and young, tender leaves, and the half-transparent shadow of every flower and leaf lies still, or trembles on the wall. One of these Pear trees, quite worn out and decayed with age, had been cleared away last winter, leaving a broad vacant space, a space that is not bare, but full of interest. Little incidents and details, unobserved before, were plainly seen this morning. There is a curious arrangement of wood-bricks built in regular order amongst the others.

Worm-eaten and decayed, they have weathered to the same colour as the greyer of the bricks, and are so inconspicuous as to pass usually unremarked. These wood-bricks must have been devised for the more careful nailing up of fruit trees. The fine new garden walls of those days might not be disfigured with nails! some have fallen out, leaving recesses convenient for wrens' and other nests. Suddenly appeared a curved line of bricks set end-wise, showing where once had been a low-browed narrow doorway, bricked up long since. There is another as low and narrow faintly visible farther down. Carlyle wrote of the days "when dresses were smaller and thoughts were larger." Certainly our modern doorways are mostly wider than those of older date. The old walls, with the sunlight discovering upon them traces of Time's landmarks, are enough to set one dreaming of those former days, and for the moment it is easy to live in many a bygone scene; to fancy the precise training of the fruit trees to the wood-blocks; the daily traffic through that little doorway. I could see the gardeners with their quaint old-fashioned wheel-barrows and watering-pots going in and out; and I recalled the day named in Evelyn's Diary, when George Evelyn and his cousin John Evelyn of Sayes Court, walked through the door together—George, showing his gardens with due pride—John, with grave observant eye, noting how they were "exquisitely kept though large." That afternoon was July 23, 1679. The sunny wall stood then in deep shade on this side, and where now, on May Eve, two centuries after, Pear blossoms whitened all over it, George Evelyn's young trees were ripening their first fruits. Along the top of the wall grow wild grasses and crested moss. There is a plant of Shepherd's Purse with glorious spread of seed and flower, luxuriating up there in lofty, safe seclusion. Seen from below, so freshly green against the blue, these wild things do but—to us—enhance the picturesqueness of the old wall; and while looking up at them thus, one feels in some degree that curious sense of infinity, the reason of which no one ever has explained. The Evelyns in their day would have treated them as unruly weeds, and would have made short work with them. Not half an hour hence, when the Traveller turns the corner, and his gold face looks the other way, the old door and the wooden bricks, with the vision of that summer-day 205 years back, will fade fast, and be lost in shadow. Another old wall on the other side of the lawn is also propped at intervals with heavy buttresses. The aspect is north, and on these rude masses of old bricks grow my wild gardens. The buttresses are gnarled and irregularly scored and furrowed by huge Ivy stems veiled under moss and lichen. The finest of the two "gardens" is that one nearest the Syringa and the greenhouse door. There a Nut tree of 6 inches, and a Yew 3 inches high, are thrown into the shade by two great Moon Daisies and a giant Broom. These are my forest trees! The Broom don't care for so much cold shade, and every season makes rampant efforts to reach above it and catch the sun upon its golden plumes. It is all but at the top now. If I look down very closely a miniature landscape may be discerned—strips of flower garden inwoven with a wild scene of mossy caves and deep ravines. The edges of all these tiny fissures are at this time faintly blue with Eyebright of microscopic littleness. One must almost use a glass to see plainly the tiny perfect flowers, no bigger than a pin's head, with little leaves and stalks to match. Delicate small grasses overhang the mouth of the caverns, where small wild beasts of insect race lie lost after the night of rapine. Weird jungle of grey Cup-moss and lichen skirts the garden side, and sheaves of mimic Bulrush wave gold-brown heads in a morass of greenest moss; and then we come upon a brilliant little Daisy, every stalk a-flower in the very perfection of blithe good humour, though not one single ray of sunshine has ever touched its silver. A rather coarse Polypody Fern in part supports the Daisy's roots, and one or two more tender Ferns droop gently near it. The group is fringed below with a lilac patch of chance-sown Aubrietia. Perhaps a scarlet wood Strawberry will ripen late on the tufted pink runners that are always climbing higher up the buttress; and I shall soon look for the pretty *Draba verna*, which, with one or two sister weeds—all microscopically small—will in their courses bloom and fade here through the summer, that is, if they are not overtaken by the doom already threatening.

Along the upper ledges young leaves of *Cymalaria*

are coming thick and fast. The lovely, well-known little *Antirrhinum* is more or less common all over Europe, I believe, however named—whether Mother of Thousands, as in the old stone fences of Somersetshire, or the *Fronde della Madonna* of the rocks and carved pediments of Italy. Wherever old stone or marble is, there—with the universal Pellitory—we find the sweet enrichment of our Toad Flax. Soon it will be breaking in avalanches all down the old buttress, and at close of summer a thick green curtain will have long been drawn over my small enchanted wild.

May 21.—To-day there is heavy rain, and the gardener has just come in to announce the first blooming of a new Iris. A plant of pale grey Iris was given to me last summer, and we have looked anxiously for its flowering. The Iris procession begins this year with the white and purple in lavish profusion. They flower together for the first time, alternately, along the line of Holly hedge. The purple are too impatient usually to wait for the blooming of the white. These stand now in multitudes under the dining-room windows, and along the south walk. Someone has compared them to the company of St. Ursula's white-robed virgins. Our Irises begin to know that they are especial favourites here, and their great size and luxuriance is bewildering. Of course they would tell me it is only because their roots have become established, as we say. Both *Ensata* and the *Fleur-de-Lys* bear forcing well, and we have never been without either since January. The fine broad foliage of the *Fleur-de-Lys* was welcome, for its masses of fresh green in winter, when the flowering plants were brought into the house. The white flowers send forth, however, when thus forced, a fragrance that some find too powerful, as Gerard says of Lilac, "troubling and molesting the head in a strange manner, with a Ponticke and unacquainted savour." It is strange that Iris germanica, whose scent I have sometimes known at Rome (and notably where it grows round the tomb of *Cæcilia Metella*) to make the sweet air still more delicious, has here no kind of scent. A pleasant chance of colour comes near the entrance court: it is purple Iris growing with a clump of amber-edged yellow Tulips. And still more refined and lovely is the contrast upon a south wall of a large flowered mauve Clematis, with *Gloire de Dijon* Rose and the brown shoots of *flexuosa* Honeysuckle intermixed with white Iris below. The Tulips in the Tulip parterre are over, after a brilliant existence of nearly four weeks. One day they were seen to shine like lamps of coloured fire, through the thinner spaces of a large black Irish Yew. The beautiful effect never returned again; it was perhaps due to some strange accident of light. Light does often use "lawful magic" marvellously under the pure intensity of a morning sky, or just before the sun goes down. I have seen the *Phillyreas* in the garden in the early hours, reflect back positive blue from their dark foliage, and there is a Persian Lilac in bloom whose colour is gorgeous at such a time. It is absolutely dazzling. Birds, too, flash past with colours that might vie with those of oriental plumage. Greenfinches on the wing or among the branches are emerald-green like real green parrots, or a timouse fits from tree to tree in "azurn sheen" as blue as any kingfisher. It is the way the sun strikes at this sweet hour. At sunset, I have seen the great Elms all glorious within, the straightness of their massive stems burning with a lurid glow from root to tree-top behind the leaves; and last evening when, after the rain, the sunset shone upon a Cypress, a million rain-drops twinkling all over it became lustrous diamonds of the purest water, darting long rays of rainbow hues. No springtime could ever be more perfect in its outward beauty than this May is, though indeed the rain and cold do somewhat spoil our full enjoyment. It must have been in a spring like this that Jean Paul wrote of "winter painted green." Yet there were days when the perfume of Apple blossoms was borne through all the garden as balmily as if the breezes had not been ice. Never were Apple trees more snowily, rosily radiant. It was as beautiful as a dream to pass along underneath their flower-laden branches; and so abundant was the bloom that when it fell the petals lay so thick upon the grass that the thrushes tripped up and stumbled in their haste to run through it. Lilac, too—a more lasting pleasure—is in finer bloom than ever I remember it. Lilacs do not usually take the place they are worthy of in our gardens. In former



days, when the "Blew-pipe tree" was a novelty, they planted it in the front ranks; but now, somehow, it seems always pushed out of the way; and yet the loveliness of Lilac trees in May can be scarcely equalled, while one feels that the first whiff of their perfume in the garden is as the very heart and soul of memory. Our old trees at the back of the Broad Walk border are scarcely seen from the garden. They cheerfully give their beauty to the other side, overhanging the tarred paling of the potting-house yard, and glorifying its business like surroundings with a world of fragrant colour. From an upper window of the house I look down upon a distant view of this tossing sea of Lilac. Two or three young Lilac bushes were planted a few years back in the orchard; they are better placed: one can enjoy them more intimately, walk round them, or pull down a branch to smell the lilac cones. But our white Lilac, most refined and loveliest of all, grows nowhere unencumbered with shrubbery. If the Forest of the Fantaisie were but half a mile round, instead of half a rood, it would be perfect. Its position gives variety, that quality which charms as much in a garden as does the play of expression in a human face. It is as if in following the green garden ways we went "from grave to gay, from lively to severe."

From the sunny masses of pink and white Phlox repens, blue Gentian, and Narcissus poeticus, in the wildest profusion, ending in a wholly indescribable glow of Azalea mollis, the path winds along smooth grass and close-trimmed Laurel into the woodland shade, between great clumps of purple Iris growing among stones and flints, over-run with Stonecrop, Violas, and Fumitory. Here, though so tiny that some one the other day took it for a child's garden, there is something of the dim quiet of a wood. Every wild plant that makes its home in it is welcome; even Dandelions, and Stellaria, and Wood Sorrel (flower of the Holy Ghost), one little flower of which has just remembered it is Whitsuntide and opened its veined petals. The Bluebells nodding to each other under this sun-chequered living green of spring are fresh joy to me every morning and every evening. I suppose wide sheets of them, a very "Heaven's upbreathing from the earth," might give greater pleasure; but only in extent—scarcely in degree. My "wood" is but a little chink of heaven, yet the delight of it is as pure as it is small. There was a fear lest these wild Hyacinths might deteriorate in land not poor enough to keep them humble; that downward curve of the slender stalk, which is grace itself, and the glory of Bluebells, seemed about to be lost in over-luxuriance; the heads of flower bent low enough, however, after they were fully blown. There are countless groups of white, and blue, and pale mauve Hyacinths that once were wild, dispersed about the borders; but the cultivated ground seems to give a certain fatness to leaf and stalk and flower, which takes just so much from perfect beauty.

Coming out of the wood a sharp turn to the left leads one into a fair round green, and Glorietta smiles out of the enclosing thicket. Parrot Tulips flaunt in yellow and scarlet rags, amid purple Iris and red Anemones, round one-half of the charmed circle; the other half, being turned from the sun, can only boast of late green buds. A deeper interest lies in the Jupiers above the budding Tulips, for there the birds build, and know themselves secure. *E. V. B.*

## PARADISE AND VICTORIA NURSERIES, UPPER HOLLOWAY.

THE Orchid show at Mr. B. S. Williams', which has attracted so many distinguished visitors of late, is spread pretty generally throughout the Orchid-houses, but centres in the long show-house; and here, arranged beneath the tall Palms and among the graceful Maidenhair Ferns and showy scarlet Anthuriums, may be seen the realisation of the Orchid grower's dream—a profusion of healthy plants of good varieties well flowered and skilfully arranged. A glance along the noble banks of flowers shows the advantages which such an old cultivator as Mr. Williams has when arranging such a roomy building. In it, ordinary plants without the aid of a great many old and well grown specimens would make but a poor display, and here the telling effect of the great masses of *Lælia purpurata*, *Cattleya Warneri*, *C. crispata*, *Vanda tricolor*, *V. suavis*, and many others, which take years to get into good flowering condition and which Mr. Williams has always been carefully selecting and growing on, comes in. Among such plants may be

noted as noble examples of the reward of steady good culture some grand *Cattleya Mossiae* with from twenty to thirty flowers each; *Dendrobium moschatum* cupreum with sixteen spikes; *Aërides Fieldingii* with five long branched spikes; a noble specimen of the true *Anguloa Ruckeri sanguinea*, and many grand plants of *Lælia purpurata*. Of this last named, a famous collection is in bloom, and the specimens yet to open have considerably over one hundred spikes between them. The best by far in point of size and richness of colouring is the handsome *L. purpurata Williamsii*, recently certificated by the Royal Botanic Society, although there is a very lovely white-petalled and purple-lipped form in bloom which, if it were not too widely distinct from *Williamsii* for comparison, would run it hard. Next, as being beautifully distinct, comes *L. purpurata Nelissii*, with rose tinged petals and peculiar lip of reddish-crimson, and the dark *L. p. atropurpurea*. *L. Stelznerianum* and *L. Russelliana* may also be regarded as of the *purpurata* section, and the fine collection in bloom (some with five or six flowers on a spike) at Holloway gives excellent opportunity for comparing them, as quite a dozen first-class and distinct varieties of *L. purpurata* may be there selected. At every step along the showy and fragrant arrangement rare things meet the view; here the unapproachable *Saccolabium guttatum* Holfordi, with its brightly spotted ruby-lipped flowers, and near by in marked contrast the curious *S. difforme*, *Phalaenopsis*-like in growth, but with long sprays of curious yellow and black flowers, with fiercely moustached labellums.

Further on is a fine specimen of the rare *Odontoglossum cuspidatum xanthoglossum*, with yellow, white, and chestnut flowers, like an improvement on *O. mulus*; two good plants of the rare *O. prionopetalon*; *Cœlogyne Massangeana*, in fine order; *Scuticaria Hadweni*, with large waxlike flowers of yellow, brown, and rose, and with short ascending leaves: this plant, although very old, is but little known; and *S. Steellii*, which is frequently imported, is often confounded with it. The beauty of *S. Hadweni*, and its distinctness, should make it well sought after. The crimson *Calanthe Sanderiana*, too, is a great acquisition. Among the rare *Masdevallias* *M. Harryana gigantea*, *M. H. purpurea*, and a new reddish-orange coloured form of *M. Harryana*, which is here flowering for the first time, show themselves to be of the highest merit, the last-named as well as the pale *M. H. rosea* being useful to arrange with and show up the darker coloured varieties. At the entrance of the show-house stands a novel arrangement of Orchids in bloom growing on an ornamental tree stump, planted behind a great mass of *Odontoglossum vexillarium* in full flower. On the branches of the rustic stand are various *Odontoglossums*, *Mesospidium sanguineum*, *Dendrobium Farmeri*, *Epidendrum vitellinum majus*, *Aërides crassifolium*, and several *Bromeliads*. The arrangement has the charm of novelty, but from a cultural point of view it is arranged rather to show what can sometimes be done than what should be done in all places. *Odontoglossum crispum* and *O. vexillarium* in great quantities are spread through the house, and arranged with them several well bloomed plants of *Calanthe veratrifolia*, *C. Dominiana*, *C. masuca*, *Cattleya intermedia*, *C. elegans*, *C. Walkeriana*, *C. labiata Warneri* (about twenty-five spikes), *Vanda suavis*, *V. tricolor*, *V. Denisoniana*, *Oncidium Gardnerianum* (true), *Cypripedium Druryi*, *C. ciliolare*, *C. Argus*, *C. barbatum superbum*, *C. superbiens*, *C. Lowii*, *C. caudatum*, *Maxillaria gigantea*, *Trichopilia crispata*, *Odontoglossum hystrix*, *O. Andersonianum*, *O. Roelzii album*, *Galeandra Devoniana*, *Dendrobium Jamesianum*, *D. densiflorum*, *D. thyrsiflorum*, and some dwarf plants of *Vanda teres*, whilst overhead the drooping sprays of *Odontoglossum citroszum roseum*, *O. c. album*, and others heighten the effect of the arrangement. The whole display is admirable, and it should be visited by all who are interested in these lovely plants.

In the long cool house a rival display to that in the show-house, but on a smaller scale, will be found the chaste arrangement of great quantities of fine forms of *Odontoglossum crispum* with their snowy flowers among the violet, crimson, mauve, and orange *Masdevallias*, appealing strongly to the sympathies of all lovers of the beautiful. The colours named are the prevailing in this house, and some of the brightest are given by *Masdevallia Harryana lata*, reddish-crimson; *M. H. splendens*, dark violet; and *M. H. magnifica*, mauve; and blooming in the

other Orchid-houses are *Vandas* and *Saccolabiums*, *Anguloa Ruckeri*, *A. Clowesii*, some handsome *Aërides*, *Sobralia macrantha*, Woolley's var.; some good *Cattleya gigas*, a grand *C. labiata Pescatorei*, very rare (not yet out), *Odontoglossum citroszum*, with nine spikes; many *Cattleya Mendellii*, with three and four flowers on a spike; *Dendrobium superbiens*, and many other beauties well worth seeing.

For the rest of the nursery it is all in summer garb; each department of this, one of the finest of general nurseries, giving its own show of flowers. The specimen *Azalea*-house is full of bloom, the *Amaryllis*-house is still gay, the New Holland-houses full of Heaths and other hard-wooded plants, the great show-house, with its gigantic specimen Palms, Tree Ferns, resplendent with *Pelargoniums*, *Azaleas*, *Hydrangeas*, *Crassula jasminum*, and pretty *Marguerites*; one little group of *Adiantum farleyense*, scarlet *Anthurium Andreanum*, and white *Hymenocallis macrostephana*, arranged together, being very lovely.

The *Nepenthes*-house is also in fine order, and the noted collection of Ferns equally good, that portion devoted to *Gleichenias* and Filmy Ferns being very extensive and containing many unique specimens. Among the worthy novelties in the Fern-houses are *Adiantum macrophyllum bipinnatum*, *A. cuneatum grandiceps*, *A. dolabriforme*, *A. Williamsii* (a golden Maidenhair), and *Gleichenia dicarpa bipinnata*.

## PHOTINIA SERRULATA.

THIS hardy evergreen tree is worth growing were it only for its bold shining dark green foliage, and the beauty of its unfolding buds. It is hardy in most parts of England, but does not often flower, unless against a wall. The specimen figured (fig. 162) was sent us from Lord Cadogan's garden, at Bahraham Hall, Cambridgeshire, by Mr. Edwards, the gardener, and the illustration will show that the flowers are as ornamental as the leaves. The tree is a native of Japan and China, and may be grafted or budded on the Thorn or Medlar.

One of the largest specimens of this distinct foliaged plant is at St. Nicholas Vicarage, Shaldon, South Devon, where it assumes the dimensions of a tree, so to speak. It is upwards of 21 feet in height, and some 18 feet through, and is a dense mass of foliage. The brown tints of the young growths against the sombre green of the matured leaves, together with the clusters of its white *Laurustinus*-like flowers, present a most pleasing contrast. It was planted in its present position some thirty years ago by the present gardener, Mr. Styles, but was unfortunately placed too near the carriage drive—a frequent error by some planters. The Vicar, the Rev. H. Wrenford, has in consequence been obliged to have many limbs lopped off, nevertheless it is a unique plant, and one of which the possessor may well be proud.

## NOTES FROM FRENCH NURSERIES.

THE visitor to Paris should, if he is a lover of plants, pay a visit to the nurseries at Versailles, and others not far removed from the city. We will take two in the town of Versailles as specimens, as showing well the modes adopted in growing the classes of plants most in favour with the Parisians of the present day. These differ greatly from ours, in so far as the preference is given to plants with hard foliage, capable of withstanding the evils of confinement in living rooms at all seasons without losing their foliage, hence *Ficus*, *Bromeliads*, *Philodendrons*, *Anthuriums*, *Dracenas*, and *Palms* form the largest section amongst the foliage plants, as do *Azalea indica*, *A. mollis*, *Gloxinias*, *Lilac* in variety, and the so-called Paris Daisies amongst the floral section.

MM. DUVAL.

One of the newest of these plant manufactories at Versailles is that founded about two years ago by MM. Duval, situated in Rue d'Hermitage, on the outskirts of the town. The *Azalea indica* is grown here to the number of 60,000 annually. Most of the plants are struck from cuttings in February; some thousands are likewise raised by means of grafting, but the first-named method is mostly employed. These are grown in low span pits in shallow boxes or pans, standing



at the time of our visit on the side tables, but to be afterwards, in June, transferred to the many parallel beds of a width of 4 feet and a length of 20 yards, which occupied almost one-half of the nursery.

These beds are composed of a kind of forest soil resembling peat in texture, but which is made up chiefly of leaf-mould permeated with the roots of Ferns and other low growths. It is light, rich in the materials the Azalea requires, and is to be had for the carting. In these beds they make nice

barred varieties, like zebрина. These are likewise plentifully crossed, with the result of obtaining many remarkably novel forms. *Ficus elastica* is found here in large numbers, with fine foliage, but the wood somewhat long jointed. These plants are of Algerian growth, and the transit being reasonable, and the time required to bring them over not long enough to cause injury to them, it is found preferable to have them grown there under a hotter sun, and where the conditions all the year round are favourable to their cheap cultivation. The same holds good of Phoenix

houses worthy of adoption under certain circumstances. Owing to the rather limited area the span-houses are built almost touching each other; at any rate, there is only a space of about 1½ foot between the side walls. These narrow passages are closed with brick-work, fitted with small doors at either end, and covered over with zinc, the side walls being furnished with air inlets, so that by opening the doors at the ends to any desirable extent air can be let into the house or houses with the minimum of trouble, and it is also warmed during its journey through the passage, and impinges on the plants at a lower degree of warmth than that of the house. The zinc covering over the space enclosed is constructed with a running-level, so that it acts as a wide gutter to the roofs, which dip towards it. A lath-roofed construction was seen covering many rods of ground, stood aside from the houses, which is used during warm weather to retard Rhododendrons, Azaleas, Roses, &c., in bloom, and Ferns—a useful fitting for any garden, and better than the north side of a wall for the purpose intended.

#### M. TRUFFAUT.

M. Truffaut's is another good establishment at Versailles, situated a considerable distance from that of M. Duval. Here *Dracænas* are much grown; very primitive looking frames of 3 or 4 feet in height and sufficiently large to accommodate six or eight plants were placed on slight hotbeds of stable manure and leaves, the plants being plunged up to the rims of the pots therein. The steamy ammonia-laden air causes rapid healthy growth, and the lower leaves are rarely lost—a great desideratum in a *Dracæna*. *Vriesias*, *Encholirions*, *Caraguatas*, are treated in much the same way as in the other nursery noticed, and several houses were filled with them. *Ficus elastica* forms an important item, as many as 4000 being annually sold. A beautiful stock of saleable plants of *Azalea indica* (about 12,000) were growing in rough looking frames, which had withstood the winter with nothing more than straw mats over the glass, and some amount of dung linings; the plants were even in size and the foliage all that could be desired. They were enjoying full exposure, the lights being used for other purposes. A beautiful *Azalea* was observed in Joseph Lefebvre, a single-flowered white, with crimson stripes and spotting. *Cyclamens* are done very well at this nursery, and form one of its specialties.

The collection of Orchids which M. Truffaut is getting together will be in time one of the most important trade collections in the neighbourhood of Paris. The bulk of the flowering plants were at the time of our visit at the great show in the Champs Elysées, but the more numerous unflowered specimens test at home promised to become strong and healthy. We should think that the great difficulty will be found with *Masdevallias* during the hot weather, and less so with *Odontoglossums*. Collections of the best of the *Cattleyas*, *Dendrobiums*, *Cypripediums*, *Phalænopsids*, *Lælias* were found, as were also fine masses of *Ceologyne Massangeana*, the late-flowered creamy form. Many Phoenix and *Latanias* from Algiers were here, quite recent importations, newly potted, and taking hold of the new soil, but showing no trace of having lately taken so long a journey. The plants are arranged for transit on racks in large crates, the heads facing each other, the plants lying on their sides just as Pine-apples reach us from Madeira. Raising Cycads from seed is another special culture with M. Truffaut, and many were seen, but in a state too small to show their true characters. *Rhododendron hybridum* was planted on either side of the main walk alternately with specimen Hollies, and beds of *Aralia Sieboldi*, *Dracæna australis*, *Amaryllis*, *Azalea mollis*, *Phormium tenax* were noticed. Under a lath structure fine masses of *Struthiopteris germanica* were found, and doubtless these places are always made use of for Fern growing during the warm weather. Nothing could be more suitable.

#### MESSRS. VILMORIN, ANDRIEUX & Co.

The large seed grounds of this famous firm at Verrières are almost always worthy of a visit, as perhaps nowhere else can so many samples of flowering, vegetable, and agricultural plants be seen together as here. The day of our visit was, unfortunately in one sense, also the occasion of a meeting of all the leading nurserymen of western continental Europe, who had been invited by M. Vilmorin to partake of a *déjeuner* at the nursery. A short period could only be allowed for a stroll through the well kept quarters, and a



FIG. 162.—*PHOTINIA SERRULATA*: FLOWERS WHITE. (SEE P. 728.)

bushy plants, far in advance of what is possible under pot culture. House after house was filled with Azaleas of different ages, but few old plants were seen, and nothing larger than 2 feet high, and perhaps 3 feet in diameter; the imposing, but unwieldy, and expensive pyramids formerly seen in our nurseries, were nowhere visible.

Bilbergias are grown in almost as great quantities as the Azaleas, and much hybridisation is intelligently carried on. The seeds are sown thinly in very shallow pans of sphagnum, in which they lie a long period before germinating; but when once they start the progress is very rapid, so that in three years, in some cases, saleable plants are obtained. *Vriesias* are favourite plants, especially the distinctly

dactylifera, *P. leonensis*, and other Palms, whole pits and houses full being found of splendid bushy stuff, the like of which cannot be had from pot culture in houses. *Aspidistra lurida variegata* is much grown at this nursery, as are foliage Begonias. Amongst the latter were some pretty new forms in Charles Weber, Mdlle. Veillard, Madame Ziegler, Stellata, La Belle France, and Jeanne Marie. Seedling Anthuriums are raised in quantity, the raising of novelties being practised as with Bromelias. The *Gloxinias* are celebrated at this nursery, and as many as 20,000 are sold yearly. *Adiantum cuneatum* is another specialty, and several long span pits were filled with them.

There are some points of construction noticed in the



cursorily glance at a few of the plants in bloom. Least, but not last, must be mentioned the Daisies, which are here found in great variety. They play a great part in all early summer bedding displays in northern France. The colours are decided, and of much diversity, and we think a garden could be made beautiful with these alone during April, May, and June, if planted judiciously. Most of the kinds are raised from seeds obtained from the semi-double flowers that are produced abundantly as the days get hotter. Columbines and Scabious were coming beautifully into bloom, and exceedingly telling was a large patch of *Scabiosa caucasica*, which is getting rather rare in Europe. *Verbascum* were found in variety, dark red, white, and other colours; the dark red-purple phœnicium being remarkable for the richness of its tints. *Centaurea babylonica* is a bold, large, grey-leaved plant; standing in leaf, 2 feet high, it would associate well with subtropical plants, or make a magnificent border to a bed of dark green shrubs. The Papavers were splendid in vigour of foliage and size of bloom, several of *P. orientale* and *P. bracteosum* being 5 feet in height, and blooms 10 inches in diameter. *Viola cornuta alba*, of a pure white colour, is a good thing, quite as free and as enduring as its pale blue congener. Two of the finest *Abies Pinsapo*, fifty-two years of age, stand in the grounds near the dwelling. They were two weak plants left in the seed bed, as being hardly worth planting out at the time, and now they will measure 50 feet in height, and fairly well furnished with branches throughout.

(To be continued.)

## FORESTRY.

### OPERATIONS FOR JUNE.

THE prevalence of dry weather with cold easterly winds during the greater part of May has somewhat retarded barking operations, although in most districts the work is now well in hand, and will, during the early part of the present month, be brought to a successful close, the bark itself seldom being finished off in better condition for the tanner. Prices of bark again rule low, and £5 per ton in the yard, or delivered on rail, may be taken as somewhat above the average of this district. In the woodlands little can now be done except cleaning young plantations, removing or burning all brushwood and other rubbish, and lightening the heads of weak-stemmed hardwoods. Pruning generally may be commenced about the end of June, as healing is more rapid at that season than at any other time of the year.

As the Oak-stools will soon throw up young shoots, all timber, firewood, and branches should be removed from the interior of the plantations as soon as possible. The smaller spray may be burned in an open part of the woodland, the larger bound up for faggots, and the firewood and timber removed to the clearance roads unless otherwise required. Prevent Ferns or other rough vegetation from interfering with the growth of recently planted-out trees. Pinch off or disbud all contending leaders and strong lateral shoots from young Conifers, and at the same time pay strict attention to their moorings so as to prevent wind shaking and all its attending evil results. This is very essential, and ought not, under any circumstances, to be neglected. To resist the inroads of stock keep all plantation fences in a good state of repair, as likewise tree guards, gates, and hurdles.

Continue the erecting of fences, and paint and varnish during dry, warm weather all outdoor erections—gates, fences, tree-guards, and tool-huts. In tarring gate-posts and fences have all grass removed, so that the brush may be used down to, and even under, ground level.

Advantage should be taken of the present dry weather to repair river-sides that have become damaged by the winter rains, to clear out woodland drains generally, and to make good any defects in drainage which may have been noted during wet weather. In the nursery uncover all seed-beds, paying attention to weeding and watering where necessary. Elm seeds may be collected during the present month, and sown at once on well prepared beds of fine rich soil, the covering to be light and evenly distributed. Prune with the switching-bill all Furze edgings, which will prevent seedling, and render the fence much more compact and lasting than when allowed to spread at will. Hawthorn, Privet,

Holly, and other hedges should be thoroughly cleared along the base, to keep down weeds and allow of a free circulation of air. Where Elder is used as a fence it should receive two annual trimmings—once in June, and again about the middle of October, thus checking the loose rampant growth and giving a compactness of form.

Finish the removal of evergreens as soon as possible, where any such work is still to do; and during dry, windy weather give a good soaking of water until the plants become established in their new abode. Syringing overhead in the evening is of the utmost value, and should always be insisted on where a command of water is readily obtained.

Clear carriage drives, roads, and walks, and by edging the sides at least once in each season, the roads will not only be kept to their proper line and size, but look much better, and are easier kept in a good passable condition. Prune back all branches that infringe upon the walks and drives, clear water-courses along their margins, and keep the surface as clear of inequalities as time and other circumstances permit. Where weeds are extra troublesome, salt or carbolic acid may, with caution, be used with very satisfactory results. Material for road repairing should now be got ready and placed in some convenient position for use when required. Loosen the bandages from grafts, and renew the clay where necessary, more especially on such as were operated upon late in the season. Hollies may now be budded, the stems having previously been cleared of all superfluous branches so as to direct the sap upwards.

The variegated and yellow-berried species are particularly worthy of increase, and as they cannot be raised from seed, nor readily propagated from cuttings, grafting and budding is usually resorted to.

Whenever a temporary lull in the forest work occurs advantage should be taken of the chance for pitting, digging, trenching, draining, and enclosing of ground intended for planting next autumn. This work cannot be taken in hand too soon during the summer.

Although the season is somewhat late, yet we have seldom seen such vigorous strong growth produced in June as is now observable. Deciduous trees are richly clothed with a most luxuriant mantle of verdant foliage, while the pale green of the young shoots of coniferous trees offers a striking contrast to the dark green of the old foliage. As an ornamental lawn tree few have been more conspicuous this season than the Horse Chestnut. Although, as regards value of timber, this tree cannot even gain middle rank, still it is to be seen in every ornamental plantation, park, and pleasure-ground in the kingdom.

Several other kinds of Horse Chestnut are most ornamental, but, unfortunately, they are not half so well known as their merits deserve. Amongst these the red-flowered (*Æsculus rubicunda*) is one of the best and most attractive flowering trees that can be introduced into any ornamental grounds. The Pavias, or yellow-flowered Horse Chestnuts, are very desirable ornamental trees, of average size, symmetrical habit, and the easiest culture. *P. flava*, of strict habit, produces in favourable localities its elegant spikes of yellow flowers in abundance; while another dwarf form, *P. rubra*, with flowers not unlike those of the red-flowered Horse Chestnut, is valuable for planting in confined spaces or within easy distances of drives and roads. Another very ornamental tree of dwarf growth is the Bird Cherry (*Prunus Padus*), and which at present has quite a decided character, from its terminal racemes of white flowers and doubly serrated leaves. *A. D. Webster.*

## HARDY SHRUBS.

**CHIONANTHUS RETUSA.**—Messrs. Veitch send us from Combe Wood sprays of this fine hardy shrub. The broad lanceolate leaves are dark shining green on the upper surface, downy beneath. The flowers are in axillary clusters, with long slender stalks, bearing nodding bell-shaped flowers about 1 inch long, and with four snow-white linear petals. The shrub is a native of Japan.

### RHODOTYPUS KERRIODES.

We met with this pretty shrub in bloom in the Oxford Botanic Garden. Its leaves are like those of the old *Kerria japonica*. The flowers white, like those of a single Bramble, surrounded by a large leafy calyx.

### HYBRID RHODODENDRON.

Messrs. Veitch send us trusses of a magnificent hardy Rhododendron with fine bold trusses of white

flowers, the peculiar calyx of which reveals the influence of one of the parents, *R. Aucklandiæ*. We hope shortly to give a figure of this.

### WEIGELA ABEL CARRIÈRE.

The Weigelas (*Diervillas*) are flowering with great freedom this year, and their remarkable beauty should help forward the taste for hardy flowering shrubs, which furnish a greater amount of beauty at less cost of money and trouble than any other class of plants. The variety above-mentioned has very rich crimson flowers, and is in full beauty in Mr. Bull's nursery.

### VERONICA HULKEANA,

treated as a greenhouse plant, when it was first imported from New Zealand, is capable at least of withstanding mild winters under favourable circumstances. Mr. Burbidge sends us fine sprays of its pale lilac flowers, the thick green leaves showing much more substance than when grown under glass.



## Orchid Notes and gleanings.

### CATTLEYS AT TRING PARK.

THE Cattleyas contained in the two spacious houses at Sir Nathaniel de Rothschild's have been more than usually fine this year, the plants under Mr. Hill's skilful treatment having steadily improved since the commencement until now they are equal to the best examples in cultivation. Some time ago the *Trianae* house was a grand sight, with its large specimens clad with gorgeous blooms; then followed the *Mendelii*, equally good, and now the display of *C. Mendelii* and *C. Mossiæ*, aided by the show of *Odontoglossum vexillarium*, is a sight to be remembered. It is pleasant to note by the gradually increasing vigour of the pseudobulbs every year what a reward good cultivation brings to the grower. One sturdy plant of *C. Mossiæ* seems to have attained the highest point of excellence, for one of its pseudobulbs bears four massive flowers, each 8 inches across and of fine form; the variety, too, is superb in colouring. All the plants are densely crowned with flowers—no wonder they are such favourites. The collection, too, is rich in the various white forms of *C. Mossiæ*, one great mass of *C. Wagneriana* having over twenty buds. All the other Orchids at Tring Park are in equally good condition—the *Odontoglossums* robust, healthy, and laden with bloom—the *Phalenopsis* house grand, two of the plants of *P. Schilleriana* being perhaps the largest in the country, one of them having leaves 2 feet in length, and the other (a rounder leaved form) leaves 6 inches across. The hundreds of dwarf plants of *Vanda teres* planted out on the front of the warm house are literally aglow with their large rose-coloured blooms, and constitute a sight well worth a journey to Tring to see.

### STANHOPEA GRANDIFLORA.

This is the large flowered, ivory lipped *Stanhopea*, which was named *S. eburnea* by Lindley, and which appears to be rather widely distributed over Tropical South America and the West Indies. A plant of it is now flowering at Kew, where, among the tropical Orchids, its powerful fragrance extends over the whole house. Measuring the flowers from tip to tip they are at least 6 inches across; but the broad, white, wavy-looking petals and sepals are somewhat recurved, displaying the large, fleshy boat-shaped lip, with its curious horns and purple-spotted cavity. Over the lip, and extending out from the flower some 3 inches, is the green, curving, broad winged column. If *Stanhopeas* have a fault it is the short time they remain in flower; but even this, when it gives us such a large, beautiful, and fragrant blossom of very extraordinary structure, is a sufficient return for the little care the plants need to keep them healthy and cause them to flower. Certainly the large genus *Stanhopea* is deserving of much more attention from Orchid growers than it appears to receive at present. *H.*



## The Flower Garden.

Titze summer bedding-out ought now to be completed, the weather of the last few weeks having been favourable for this description of work; the rains will have assisted the plants, and enabled them to become quickly established, and have promoted early growth. Constant attention will be required in tying, pegging, and stopping the young shoots till they have filled their allotted space, and until this is accomplished all the bloom should be picked off so as to encourage free growth. After planting, the surface soil should be frequently loosened. When they have become established the Pelargoniums, Calceolarias, Verbenas, &c., will be benefited by the occasional application of liquid manure in a weak state. When the unavoidable litter connected with bedding-out has been cleared away let the walks and edgings receive attention; the former should be hand-weeded, and well rolled in showery weather. Box edging may now be clipped, but care should be taken not to cut into the old wood. Evergreen hedges, such as Privet and Yew, should now be clipped; but common and Portugal Laurels and Arbor-vitæ look best if pruned with the knife.

### SUBTROPICAL BEDS.

Where subtropical plants are grown, such plants as Castor-oil, Wigandias, Acacia lophantha, Ficus elastica, Solanums, and Abutilons, and all plants likely to be injured by wind, should be staked at once, most of them having large foliage, which the wind has great power over. If beds or masses of large growing subtropical plants, which must necessarily be planted thinly, were covered with an undergrowth of some low-growing plants their appearance from the first would be much improved. For this purpose the following kinds are suited, viz., Vincas, variegated and green; Euonymus, the variegated varieties; Pelargoniums Lady Plymouth and Manglesi variegata; Iresine, Coleus, Amaranthus, Golden Feather, and other variegated plants, could be used, and if well selected go well with the taller subtropicals.

### ROSES.

Since the favourable change in the weather these have grown rapidly. Examine them for the leaf-rolling grubs, and have them carefully picked off and burnt, and if greenfly should appear syringe with soapsuds and tobacco-water. All Roses will require a good supply of manure-water from time to time to bring them to perfection. Advantage should be taken of showery weather to transplant annuals, biennials, and perennials, which have been sown and prepared in frames or beds. To protect them from slugs and snails, dust them with soot and lime mixed in equal quantities, which is the best protection of anything I have tried. *W. Smythe, Basing Park, Alton.*

## Plants and their Culture.

### SEASONABLE WORK: BOUVARDIAS.

WITH the very favourable change of weather during the past week it may now be considered safe to plant out the stock of Bouvardias that are not intended specially for pot culture. An open border where they will have the full benefit of the sunshine will be the best suited to their requirements. In such a position, and in soil that has not been heavily manured, they will be found to succeed, but should the soil be of a retentive character it must be modified to suit their requirements by the addition of some light compost, such as the siftings from the potting-shed, refuse peat, or leaf-soil. Presuming that the plants were cut back into the hard wood, and a good break has resulted, the balls reduced in size, and the plants potted afresh early in the year, there will not be much to do to the roots beyond pricking up the surface and liberating the roots somewhat around the sides, the crocks likewise being renewed. Should, however, the preliminary work have been passed over it is not too late now to make a start with any scrubby plants that have not been touched since their blooming period. In such cases the best plan

will be to prune them back hard at once and shake them out of the exhausted soil, just as in the case of old plants of Fuchsias; then plant them out, as previously recommended, and better plants will by this means be obtainable by the autumn than by any mode of pot culture. When active growth commences regular attention to pinching the stronger shoots to secure a more even and compact plant will be advisable; regard should also be had to watering and other minor details as occasion may demand.

### SOLANUM CAPSICASTRUM VARS.

These should receive a somewhat similar treatment to that just recommended for the Bouvardias. In my own case I have found some trouble to result from attacks of aphid when the plants have been pruned early, and kept in warmth to induce them to break into fresh growth. To avoid this, after being removed from the conservatory, the plants were stood in a sheltered spot in the open air and allowed to remain dormant for a time; having now been pruned back hard for some few weeks they are fit for planting out. When this is done in their case, all the soil will be shaken away from the roots, and these cut back also. This seems rather hard treatment, but it ensures a moderate break that will be found more productive of early bloom, with a corresponding early set of berries. *James Hudson, Gunnersbury House, Acton, W.*

## FRUITS UNDER GLASS.

### STRAWBERRY PLANTS IN POTS.

IN order to produce Strawberry plants in pots in a proper condition for early forcing and fruiting in March and April subsequently, it will be needful to give immediate attention to layering when the runners are fit for it, and, further, to encourage the plants to root quickly, so that they can speedily be potted into fruiting pots, and thereby become well established in them at an early date, in order to obtain ample time for them to develop and mature a growth, and also afford the needful time requisite for rest before they are started into growth again. I believe if this matter had more attention, the many complaints of the fruit imperfectly setting and partial failures with early forced plants would be diminished if not altogether avoided. For early work early and vigorous runners are indispensable. To get these I consider it worth while to sacrifice the fruit on a certain number of the runners that were planted out last autumn, for the sake of the runners only, and thus ensure a supply of both strong and sturdy plants. It is advisable as far as practicable to get the young stock of plants from those in the prime of vigour; layering, therefore, should proceed as they become fit for the general crop, and for planting purposes also. My custom is to plant a certain number of strong runners in the open quarters every year, and destroy an equal quantity of the oldest plants likewise. We employ small 60 flower-pots, and peg the runners firmly into the soil, which consists of well enriched stuff of a light character.

The runners will need good attention in the way of watering, especially in dry periods, as soon as the plants are fairly well rooted. Proceed with potting them into the fruiting pots of 5 or 6 inches diameter and put them into a shady place until such time as the new roots have taken hold of the fresh soil. The compost should consist of moderately strong loam, about a sixth of thoroughly decomposed manure, some roadside cuttings, with a little soot added; this should be turned over and well mixed up together and afterwards be stored where it will not become over dry. In the process of potting well dust the crocks over with soot and ram the soil very firmly into the pots, taking care to keep the crown of the plant when the operation is finished just above the surface of the soil. At this advanced season fruiting plants in heated houses will need much attention in the way of watering; if this matter be neglected the prospect of having first-class fruit will be somewhat doubtful. The plants should be looked over twice every day, and more frequently if dry and sunny; ply the syringe over them in the morning, and again at shutting-up time every day until such time as the fruit begins to colour. We contrive, as far as possible, to get a good batch of strong plants into cold pits or frames at about the beginning of May, these come to maturity just before those in a natural way out-of-doors, and

often prove to be a more valuable crop than some of the preceding ones which come in at an earlier date.

### FORCED STRAWBERRY PLANTS,

after the fruit is gathered, make excellent plantations, and yield as much fruit the subsequent year as can be obtained from the runners that were planted out last autumn, but in all probability the fruit will not be so fine in point of size, neither will the runners from them be so early or strong; but when fruit is the chief consideration, this is an excellent way. For this purpose select only the best plants; reduce the balls of earth somewhat, and plant them firmly in the ground; water them well, and keep them free from runners for the rest of the season. *G. T. Miles, Wycombe Abbey.*

## The Hardy Fruit Garden.

### APPLES.

WHERE dwarf, pyramidal or bush trees are grown on the Paradise stock, they will generally be found to have set a heavy crop of fruit. These should now be looked over and thinned out, leaving only sufficient to form a moderate crop, but which must depend on the size and vigour of the trees and the variety. Small growing varieties, such as Cox's Orange Pippin, Margil, Scarlet Nonpareil, Court Pendu Plat, Yellow Ingestree, Downton, Golden Pippin, &c., should be left much thicker than larger growing kinds, such as Ribston, Blenheim Orange, Lady Henneker, Hoary Morning, &c.

### PEARS.

Pears should also be well thinned, both on walls and on bush trees. The same rule applies to these as to Apples. In thinning them a quick eye and nimble fingers will get over a number of trees in a day, and I am sure the extra quality and size of the fruit will well repay the labour.

### STRAWBERRIES.

The rainfall up to this date being under the average, plantations of these should be well watered; first, with ordinary rain-water, and after the ground is well moistened, a good watering with manure-water will be of great benefit to the fruit. Early varieties, such as Black Prince, are sure to suffer unless kept moist, and growing freely. The least check is sure to produce mildew, which should by all means be guarded against.

### BUSH FRUITS

of all kinds have also set good crops. Black Currants delight in a cool, moist soil, so if they are not already mulched with dung, or long stable-manure, they should at once receive attention. Gooseberries should also be mulched to keep the fruit clean and the trees healthy. *J. Smith, Mentmore, Bucks.*

## The Kitchen Garden.

### SCARLET RUNNER BEANS.

If obtainable, the stakes or poles for this crop should be 8 or 10 feet long, and the plants should not be stopped, but allowed to run up the whole height, so that the longer the poles the larger the crop. Preparations should be made for making a second sowing about the middle of the present month, not forgetting that they pay for growing on well-dunged trenches.

### KIDNEY BEANS.

Two sowings will be necessary this month, one at the beginning, and one at the latter part.

### PEAS.

About the middle of June make the last sowing of the large wrinkled varieties, such as Ne Plus Ultra and Sturdy; then such as William I. must come into use again for the last sowing out-of-doors at the end of June or beginning of July.

### MISCELLANEOUS SOWINGS.

Sowings of the following should be made about the dates given:—Savoy: main sowing middle of June; a later sowing beginning of July. Coleworts: first sowing end of June. Parsley, about the end of the month. Rampion, any time in June. The ground for this crop should be well worked, and be in a semi-shady position. Sow in shallow drills 1 foot apart, and cover with fine-sifted soil or sand. *G. H. Richards, Sonnerley Gardens, Ringwood.*



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	June 8	Sale of Imported Orchids, from Mr. Leon Humbert, at Stevens' Rooms.
		Royal Horticultural Society: General Meeting to Elect Fellows, &c.; Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M. Orchid Show.
TUESDAY,	June 9	National Rose Society: Meeting of Executive Committee, at 3 P.M. Sale of Natural History Specimens, at Stevens' Rooms. Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms. Sale of a Grand Collection of Orchids in Flower, at Stevens' Rooms.
WEDNESDAY,	June 10	Sale of Carnations, Ficoles, and Plants in Flower, at Protheroe & Morris' Rooms. Linnean Society Meeting.
THURSDAY,	June 11	Sale of Imported Orchids in Great Variety, at Stevens' Rooms.
FRIDAY,	June 12	Sale of Imported Orchids, at Protheroe & Morris' Rooms.

THE OXFORD BOTANIC GARDEN possesses charms that many an establishment of greater pretensions might well envy. Its site, overshadowed by the exquisitely proportioned Magdalen Tower, recalls the similar gardens at Pisa and Padua—so like and yet so different, the spires and frequent chimneys remind one of the booming bells one hears so often in the garden at Ghent. And then the history and the manifold associations connected with the place, the long line of professors and curators, the generations of scholars and statesmen, of wits and divines, who have frequented this little enclosure, invest it with a charm such as no other garden in the kingdom can lay claim to. It is not alone for its associations with bygone ages and with men long since gathered to their fathers that the Oxford garden claims respect—we might properly enough use a stronger expression; its present condition, though it has somewhat fallen from its high estate, still affords the visitor an abundance of interest; and although those who knew the garden a few years ago will miss some of the specialties which then rendered the garden pre-eminent, yet enough remains to render a visit one of genuine pleasure to the plant lover.

We have no intention here of compiling a guide to the garden, but we may allude to a few matters that struck us on a recent visit, and first of the Succulent-house. This is a span-roofed house of considerable dimensions, and filled with a remarkable collection of succulents, many of large size, whose health and well-being testify to the care bestowed on them, and to the suitability of the house to their requirements. It is of no use crying over spilt milk, but in view of the excellent collections of *Cereus*, *Echinocactus*, *Mamillaria*, and the like still existing, one cannot help regretting the transfer of the unique collection of *Stapelia*s, *Mesembryanthemums*, &c., to Kew. The step may have been necessary—of that we cannot judge—but we may nevertheless regret that it was necessary.

A small establishment with slender means—one in which few save those immediately concerned take any genuine scientific interest—cannot hope to compete with larger and better endowed establishments. Any attempt of the kind would only afford a fresh illustration of the story of the frog and the ox. But, on the other hand, such small establishments are just the places where some specialty may be taken up and developed to an extent which could hardly be done in a garden of a more general character. A university garden must provide illustrations of the principal groups of plants, and abundance of specimens of representative plants for the use of the Professor and his pupils; and having fulfilled these, its primary duties, it may well turn its attention to some specialty which shall insure it a reputation among similar establishments. What that specialty shall be must, of course, depend upon circumstances, and the predilections of the authorities. To some extent these requirements are still fulfilled at Oxford in what remains of the collection of succulents, alpine plants, and specially of stove aquatics. The stove aquarium has long been

noted for its rich illustrations of the genus *Nymphaea* and plants of similar requirements. These fill the tank once allotted to the Victoria. That queen of Lilies demanded an amount of space quite out of proportion to the dimensions of the garden. Its place, then, has been judiciously occupied by the collection of other aquatics. One such plant which originated in the gardens—*Nymphaea Daubeniana*—holds its place as one of the best of its class, not only for its beauty, but for the length of time in which it continues to produce its flowers. For more than half the year this beautiful plant adorns the tank. Just now the chief attraction is the *Eichornia azurea*, which grows here like a weed, and produces in abundance its magnificent spikes of pale blue flowers; the central or uppermost petal is darker than the rest, toothed at the margin, and provided with a bright orange spot near the base. Mr. BAXTER grows it in a box, sunk in the tank to a depth of 6 inches, and when it grows too rampant it is easily divided, each division readily throwing out fresh roots and becoming a new plant.

While this plant flowers very freely, its near ally, *E. crassipes* (better known as *Pontederia*), remarkable for the balloon-like dilatations of the leaf-stalk, more rarely flowers. Quite recently this plant, which is so commonly grown for the singularity of its appearance, has produced spikes of its chaste and beautiful flowers, fifteen in number, of the most delicate colour, approaching that of opal, except the upper petals, which are considerably darker and have a diamond shaped marking of yellow in the centre, margined with purplish-mauve. Its

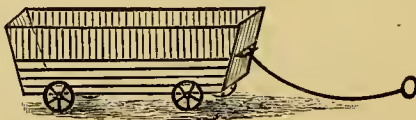


FIG. 163.—A HEATING APPARATUS OF THE OLDEN TIME.

treatment has from time to time been varied with the hope of inducing it to flower, but, until now, without any favourable result. At the commencement of this season the plants, too, were in better condition than usual, and from early in March last they have been subjected to a rather higher temperature (75° to 80°) than hitherto at that time of the year. The division of the tank the plants are now growing in is about 4 feet square by 1 foot deep, and the average height of the foliage and flower-spikes above the water level 18 inches, the inflated petioles having become elongated. *Canna Ehemanni* is also producing its brilliant spikes of bloom, while *Nelumbiums*, always attractive for their foliage, are showing for bloom; *Brasenia peltata*, *Limncharis Humboldtii*, *Sagittaria montevidensis*, *Justicia pedunculata*, the yellow spathed *Richardia melanoleuca*, *Herpestis Monnierii*, are among the plants now in bloom, while the botanist will be interested in the abundance of *Pistia*, *Salvinia*, *Azolla*, and *Riccia* which are to be found here. The striped form of *Arundo donax* is a very striking plant, contrasting finely with the elegant *Papyrus*. In one or other of the houses may be seen the variegated *Phormium tenax* coming into bloom, a fine plant of *Dracena Draco*, good specimens of *Dioon edule* and *Platynerium alcornocorne*, a large bush of *Ficus diversifolia*, laden with fruit; *Malva umbellata*, and, what will please the botanist, the very curious balls of *Conferva ægagropila*, which have been grown here in a pan in a shaded place, for many years, and seem as much at home as in the Shropshire meres.

These few illustrations must suffice to show how much of beauty and interest is still to be found in the old garden. Of other plants we

may take an opportunity of speaking more fully on another occasion; meanwhile, as a curious matter of history, we may refer to the illustration at fig. 163. This contrivance was made of iron lattice-bars, and was intended to hold glowing charcoal. It will scarcely be credited that this apparatus was in use in the old conservatory or orangery (now used as a lecture-room) within the memory of the present Curator. Hot-water pipes were not then in use, and flues were not existent even so late as fifty years ago. To keep a warm temperature in winter the contrivance here figured was placed first in one corner of the building, then in another, and was occasionally drawn to and fro throughout the house for several minutes at a time, with a view of ensuring the necessary diffusion of heat. The world has progressed since then!

The herbarium and library, priceless in their interest, the lecture-room and laboratory, are at present in a transition state, but when the arrangements are completed the establishment will be singularly compact, and under the auspices of Professor BALFOUR we may confidently look for the development at no distant period of a singularly complete botanical school. The garden is in the charge of Mr. BAXTER and his son—worthy inheritors of the name and repute of WILLIAM BAXTER, the friend and teacher of a race of Oxford men, most of whom are no longer among us. The BAXTERS take an honoured position in the history of the garden along with the SHERARDS, the DILLENIIUS, the SIBTHORPS, the BOBARTS, and the DAUBENEYS of the past.

## THE PARKS.

Some five-and-twenty years ago or thereabouts the University secured a large area destined as a recreation ground. At that time neither Keble College, nor the New Museum, nor the Physiological Laboratory in course of construction, and all of which adjoin the Parks, were in existence. The purposes to which the "Parks" were destined necessitated a large central space to be kept open. It is bordered on all sides by a belt of trees and a narrow border for shrubs and herbaceous plants. As the trees have grown up they have been thinned, wider grass borders have been secured, to the great improvement both in boldness of design, repose, and general picturesqueness of effect. Much might still be done to relieve the monotony of outline and of surface, and now that the University has secured additional meadow land by the Cherwell, the landscape effect and sense of distance might be immensely enhanced by the removal or the breaking up of the lines of hedgerow or ditch-row timber, by the isolation of fine trees or groups of trees, and various devices such as a judicious landscape gardener would employ. At present the impression is that the authorities have not availed themselves nearly so freely as they might have done of the art of the landscape gardener. Perhaps a multiplicity of counsellors and curators has impeded the carrying out of a consistent plan and of a bold landscape style of treatment. The selection of trees and shrubs is admirable. From its limited space it was impossible to illustrate properly the wealth and variety of arboreal vegetation in the Botanic Garden. This deficiency is, in a considerable measure, supplied in the Parks, where may be found the foundation of an excellent arbo-retum. The number and variety of specimens are alike striking, the collections of *Crataegus*, *Beech*, *Elms*, *Hollies*, *Pyruses*, as well as of flowering shrubs, being very rich. It is to be regretted that this choice collection which would serve the new Sibthorpean Professor with so many illustrations of arboricultural science, and which would afford so many of the landed proprietors and landscape gardeners of the future a means of becoming acquainted with trees and shrubs suitable for forest growth or for ornamental planting, is almost if not quite destitute of labels. There are not many persons who can boast of



such a full knowledge of plants and trees as Mr. BAXTER (to whom also the supervision of the Parks is entrusted), but even he, obliging as he is known to be, cannot supply the place of a skilfully devised and carefully maintained system of labelling.

— THE DARWIN STATUE.—This memorial to the great naturalist will be unveiled on Tuesday, June 9, at 12 o'clock, by the President of the Royal Society, Professor HUXLEY. The Prince of WALES, on the part of the Trustees of the British Museum, will receive the memorial as a gift to the nation. The statue is placed on the central landing in the Great Hall of the Natural History Museum at South Ken-

matters of pure science, but also in the application of science to practical cultivation. Miss NORTH's gallery of paintings is another illustration of the fact that, once an establishment has gained the confidence of the public, and the managers are seen to be doing good work, donations of an unexpected character flow in. The new rock garden as an educational feature is as important in its way as the laboratory, and much more attractive to the general public. It forms one of the most satisfactory bits of landscape work in the whole garden, independently of its botanical value. These departments are, of course, duly mentioned in the Guide. The new arboretum and pleasure grounds also come in for fuller description than heretofore—a circumstance the more to be commended because even among horticulturists comparatively little is

— PEACHES IN TWO STAGES OF RIPENESS ON THE SAME TREE.—We received recently from Mr. HARRIS, of the Singleton Gardens, Swansea, two Peaches of Royal George, both gathered from the same tree, but the branch from which the ripe fruit was gathered has shown signs of earlier ripening than the remainder for several years, but this year it was much more early—quite a fortnight. Of the sample of fruits sent, one of them was 10½ oz. in weight, true to name, juicy, and well coloured; the other, the un-ripe one, required fourteen days' bright sunny weather to bring it up to an equal degree of ripeness. The probability is that the particular roots supplying the earlier ripening branches found themselves in a warmer part of the border than those from which the late branches derived their root-food.



FIG. 164.—VIEW IN THE OXFORD BOTANIC GARDEN. (SEE P. 732.)

sington, and has been executed by Mr. BOEHM, R.A.

— A TWENTY-NINTH EDITION!—"Some school-book, perhaps," will be the impression made on those who read this heading, and, indeed, it applies to a book of high instructional value, if not in the technical sense a school-book. It is eminently satisfactory to record that the book thus in its twenty-ninth edition is the Official Guide to the Royal Gardens at Kew. Of so well known and appreciated a guide there is little necessity to say much. Some of the newer features, however, demand notice, as showing how Kew grows, how large and important are the additions and extensions that are being made to this unrivalled establishment. In this edition, for instance, we find mention of the physiological laboratory, from which we may hope much in future, not only in

known of the treasures here to be found, and the labour, skill, and knowledge brought to bear on them. Unfortunately the poverty of the soil, the low altitude and proximity to the river, and to the noisome vapours of Brentford, interfere to some extent with the rapid growth of the trees and shrubs. Nevertheless, there is a very large collection of carefully named trees and shrubs, comprising many that the fickle taste of the day has banished from our nurseries. The "dell" is, in its way, as attractive as the rockery, while the collections of trees on the northern or western half of the pleasure-grounds form a most interesting study for the botanist, and should certainly attract the attention of foresters and woodreeves, who are too often signally deficient in their knowledge of trees and their mode of growth—a deficiency which has even attracted the attention of the Prime Minister.

— ANEMONE SPORT.—We have had sent us a single Anemone bloom on the stem of which is seen a petal exactly resembling those which form the flower but growing out from the fringed involucre or collar always seen in Anemone stems, indeed a segment of this collar has changed from its normal green fringed form into a perfect floral petal. Those with green collars are often seen showing colour identical with that of the flower, but so striking an evidence of floral development as this is rarely seen. It almost leads to the conviction that a race of duplex and hose-in-hose Anemones might be in time created. The bloom sent is but a small one, being almost the latest of the bed from which seed is being now fast collected.

— ERODIUM HYMENODES.—A pretty herbaceous perennial, with oblong pinnately-lobed and crenate leaves, thinly covered with longish white



hairs, the erect peduncles, like the calyx, more densely clothed with spreading glandular hairs, and thus preventing access of marauding insects from below. The flowers are in umbellate cymes, each one about an inch across, and with five spreading obovate petals, pale pink, with darker veins, and in the case of the two uppermost petals with a purplish blotch at the base, as in true *Pelargoniums*. The plant is marked as half-hardy, but under the shelter of a south wall in a warm dry border in the Oxford Botanic Garden it sows itself and is quite at home. The base of the petals exudes a quantity of nectar, and the anthers open before the stigmas unfold (protandrous). The pedicels, which are at first erect, afterwards spread horizontally, and as the ovary ripens into the fruit they bend sharply downward, turning up at the extreme points.

— **MORELLO CHERRIES.**—A correspondent sends for our inspection sample shoots of Morello Cherries, and relates, for our information, that they were gathered from trees growing in a market garden orchard near Iloumslow that but a week or two since were singularly beautiful when in bloom, promising a wondrous crop of fruit. Now nearly all the trees—large standards some eighteen years planted—look as if seared with fire. He says:—"I have been familiar with these trees for fourteen years, and have never seen such a sight as they now present. Some seem as if every shoot were thus killed. Others have two-thirds, one-half, and lesser numbers of the points thus destroyed, but the general aspect of the trees is most distressing. What is so strange, assuming this to have resulted from frost, is that Apples, Pears, Plums, sweet Cherries, and bush fruits intermixed with and surrounding these Morellos, are quite unharmed. Still farther, those seem to have suffered most that were the least exposed to weather. The damage must have been done towards the end of the blooming stage." We are unable, from the evidence before us, to give any satisfactory explanation of the phenomenon.

— **WHITE HERCULES RANUNCULUS.**—Mr. HARTLAND, of Cork, sends us blooms of this, 3 inches across, perfectly double, *i.e.*, without a trace of stamens or pistils, but with a vast number of regularly overlapping whitish petals instead. CLAY'S Fertiliser had been used as a manure, and the specimen before us is a good illustration of the effect that nitrogenous manures have of forcing on growth, and preventing that arrest of growth and change of developmental energy requisite for the formation of stamens and pistils.

— **PANSIES AT PARIS.**—The beds of these seen at the Jardin d'Acclimatation and other places quite put our smaller varieties in the shade for size and substance. Flowers of 3 inches in diameter, and even more, are found in great masses, sometimes of one colour, and likewise mixed together. English kinds, as Lord Beaconsfield, Maggie, and Marquis of Kintore, grow there of far greater size than at home. The Pansy beds are usually made up as bold mounds, with turf sides, and are bordered with white Daisies or white varieties of Pansy.

— **SHROPSHIRE FLORAL AND HORTICULTURAL SOCIETY.**—The summer exhibition of this very successful Society is to be held at Shrewsbury on August 19 and 20. The prizes in the principal classes are on the same liberal scale as heretofore. In the class for twenty stove and greenhouse plants, not less than ten in bloom, £25, £20, and £15, are offered; for nine stove and greenhouse plants, not less than five in bloom, £10, £6, and £4. None of the classes are now confined to exhibitors residing in Salop and Montgomery, but are thrown open to all-comers. In thus acting we consider that the committee have taken a wise course, as exhibitors who come long distances are necessarily sufficiently handicapped to give local competitors all the advantage they can reasonably hope for. Ample provision is made for amateur exhibitors in special classes, apart from those that are open. The schedule is fully comprehensive, numbering ninety-eight classes for plants, flowers, fruits, and vegetables, independently of the cottagers' division.

— **LANCASHIRE SHOW TULIPS.**—It is the intention of SAMUEL BARLOW, Esq., J.P., of Stakehill House, Castleton, Manchester, to exhibit at the

next meeting of the Royal Horticultural Society, on June 9, a collection of his famous Tulips. By that time many of his flowers will be in good character, and as the finer varieties of the florists' Tulips are now seldom seen in London, some interest will attach to this exhibition. For thirty years at least Mr. BARLOW has been a cultivator of Tulips, and during that time all the finest varieties that have been raised have come into his hands for cultivation, and at the present time his collection is unequalled. It is a flower full of interest, for, apart from its historical associations, it is a charming subject to cultivate, and it always imparts lively satisfaction to those who undertake it. A perfectly marked broken Tulip is a flower of great beauty and attractiveness, while the self-coloured varieties are very handsome and unique. A leading feature of interest on the 9th inst. will be Mr. BARLOW'S Stakehill Tulips.

— **A NEW FRUIT TREE.**—Baron VON MUELLER informs us of the discovery of a new fruit tree called by him *Bassia Erskineana*, and native of south-eastern New Guinea.

"For many years," writes the Baron, "it has been known, that in the south-eastern parts of New Guinea a tree exists, which affords a fruit so wholesome and palatable, that it is largely consumed not only by the natives, who know it as Posi-Posi, but also by the European and other settlers. It is said to have a flavour like that of the Pear but quite distinct. Hitherto no means were available of tracing this fruit to the particular species of tree affording it. My wish to obtain full material for placing this highly useful plant on phyto-graphic record having been rendered known to the worthy missionaries of New Guinea, I was recently supplied with flowering and leafy branchlets and also seeds of the tree in question by the Rev. Wm. WYATT GILL, and thus I am now enabled to offer a diagnosis of this interesting species, which promises to become important for tropical culture.

"*Bassia Erskineana*.—A tree attaining a height of 60 feet. Branchlets robust, glabrous; leaves large, crowded at the summit of the branchlets, ovate-lanceolate, glabrous, bluntly acuminate, narrowed into a short stalk, very spreadingly veined, faintly reticular-venulated; flowers in terminal almost umbelliform fascicles, very numerous; stalklets not much longer than the flowers; calyces rather small, several times shorter than the corolla, four-cleft to the middle, as well as the stalklets, brownish, silky-hairy, its lobes almost semi-orbicular, slightly pointed, the two inner broadly membranous towards the margin; corolla white, eight-cleft; its tube not very turgid, somewhat silky outside; its lobes almost ovate, narrowed towards the base, and there ciliolated and somewhat bearded; stamens sixteen; filaments densely short-downy, about as long as the anthers; the latter somewhat silky-downy at the back, the blunt protruding portion of the connective short-bearded; style and ovary glabrous; fruit large, globose; seeds large, oblique-ovate, somewhat compressed; testa crustaceous, rather brittle, dark-coloured, not shining; umbilical area cymbiform, occupying about one-third of the surface of the seed.

"Two other congeneric trees with esculent fruits are likewise known from New Guinea—namely, *Bassia Cocco* (SCHEFFER in *Annales du Jardin Botanique de Buitenzorg*, i., 134), the 'Nate' of the aborigines, a species bearing only small fruits; then *Bassia Maclayana* (F. v. M. in *Victorian Naturalist*, i., 168), the 'Dim' of the natives, which has globular fruits of fully 5 inches diameter, with copious pulp.

"New Guinea is almost sure to yield from some of its *Bassias* and other Sapotaceous trees new sources for gutta-percha."

— **ZONAL PELARGONIUMS AT PARIS.**—Some of these, which were shown in groups at the late flower show by M. POIVIER, nurseryman, of Versailles, were of novel tints, and all seemed to be of a dwarf habit, fitting them for either beds or pot culture. Theodore Lindauer, scarlet, had a fine full truss, and regular pips; Clytie, a pretty rosy-scarlet, was also a good sort; Comtesse de Bellevue, with rose coloured margin, the centre of the flowers being white, suffused with rose, a distinct soft-coloured flower with a good-sized full truss; Marie Miotte was a compact cerise-red, of much regularity in form of florets and truss; Duchesse de Cas was one of the best white forms seen, the growth being close and dense. Some capital sorts were observed in a similar group shown by M. ADOLPHE FOUCHARD FILS, 6, Avenue de Brimont, Paris. Paul Louis Carrière was an excellent crimson; Jules Grévy, a fine rose-coloured, compact, with a petiole shorter than is common. M. Cazelle had very large trusses of pink flowers of good quality.

— **AZALEA INDICA AT PARIS.**—Among the great number of new varieties of these popular plants turned out by the continental raisers may be mentioned the following, as being remarkable for new tints of colour or for other good points:—*Empereur de Brésil*, a regular flower, flesh colour, with bright crimson spots; *Baron Georges de St. Genoise*, a fine scarlet; *Imperatrice des Indes*, a pale rose coloured bloom, having a margin of white; *Camille Vervaene*, a rosy-crimson, very showy, large; *Antigone*, a striking variety, white with a purple stripe on the petals; *Herman Seidel*, a beautiful red; *Diablotin* has quite a novel colour, and is very distinct, it is brilliant purplish-crimson; *Daphne* and *Marie Planchon* are both fine white varieties; and *Theodore Reimers* has beautiful perfect blooms of a purple colour, one of the best of the class. All the above-named have double flowers. In singles we noticed *Königin der Weissen*, a very fine white; *Tothmanni*, a crimson; *Wilson Saunders*, bearing white flowers and pink ones in about equal proportions; *Bijou de Paris* is a fine white form striped slightly with rose.

— **CEMENT CISTERNS FOR WATER.**—Cisterns are not usually objects of art, and when employed about a house or garden are consigned to some out-of-the-way corner. Some of a better form were seen at the Paris Horticultural Show made of grey cement, so strong that in no case were the sides more than  $\frac{3}{4}$  inch in thickness. They were made of various sizes, from 2 to 4 feet in height and diameter. The form is circular, with upright sides, and the material of which they are made, being quite smooth, it would admit of being painted or otherwise treated decoratively on the outside. We saw in villa gardens such cisterns placed on pillar-like supports built of brick and cemented over, with creeping plants, as Ivy, Clematis, &c., trained up the side, that were really pretty objects.

— **CULTIVATION IN ALGERIA.**—The cultivation of cereals in Algeria is declining, in consequence of the irregularity of the crops, due to the uncertainty of the seasons. A series of good years, it is stated, is often succeeded by droughts, when the agriculturist hardly gathers in the amount of corn he has sown. Competition abroad is so great that he cannot obtain remunerative prices for his produce, and in some places, where the land is best, the means of communication are so defective that it will hardly pay the Arab to take his grain to market. Near the sea the production of early vegetables and fruit for the markets of Europe promises to be successful, but beyond all doubt the great hope of Algeria is in the Vine. The gradual recovery of this plant from Phylloxera in the South of France will probably prevent the colonists in Algeria from making as rapid fortunes as appeared probable when that scourge first commenced its ravages, but there is every chance of the wine of Algeria commanding a remunerative price both at home and abroad. There is no reason why the European should not imitate the Kabyle, who cultivates his small patch of mountain land with the care usually devoted to an orchard or market garden.

— **SARMIENTA REPENS.**—No one who has noted the rate of progress made in the growth of this attractive little gem during the last two or three years at Kew, could fail to perceive that the humid atmosphere of the Orchid-house is far more agreeable to its welfare than that of the Heath-house, which is distinctly of a dry character. Being in the cool end of the Orchid-house the treatment of the plants in both cases was similar or identical with regard to temperature. The plants are grown on pieces of Fern stem, which suits their epiphytial habit. The growth at best is slow, but the general vigour of the plants after a season in the moist atmosphere is quite evident. The slender trailing stems and small opposite leaves remind one of our native *Linnaea borealis*, but of course the flowers are larger, of a bright scarlet colour, borne in the axils of the upper leaves (generally in the uppermost pair), and altogether different in shape. The nearest resemblance to it we find in *Mitraria coccinea*, and certainly that is the nearest relative. The plant is figured in the *Botanical Magazine*, t. 6720, and in the *Floral Magazine*, ii., t. 112.

— **GARDENING APPOINTMENT.**—Mr. WILLIAM HARDING, late Foreman, Andover, Hants, has been appointed Gardener to WILLIAM MOON, Esq., River Mead House, Sunbury.



## Notices of Books.

### Botanical Text-Books.

*Henfrey's Elementary Course of Botany*, 4th ed., by Dr. M. T. Masters, assisted by A. W. Bennett. London. 1884.

*Text-Book of General Botany*, by Dr. W. J. Behrens; translated by Miss Harris Smith, and revised by P. Geddes. Edinburgh. 1885.

*A Course of Practical Instruction in Botany*, by F. O. Bower and S. H. Vines, D.Sc. London. 1885.

We are glad to see that the fourth edition of "Henfrey" has been called for, as, in our opinion, it is by far the best book of its kind. Several alterations and improvements have been made in this edition, and many new illustrations (previously a weak feature of the book) added. Under "Ramifications" a more prominent distinction is made between the monopodial and polypodial kinds, though any new term introduced, as "botryose," should have been explained. We hope to see fig. 152 expunged from the fifth edition, as perpetuating the erroneous interpretation of the scorpioid cyme, which is, however, explained under "Boraginææ." The change from poly to dialy seems inadvisable, as prolonged usage outweighs the inaccuracy of the prefix "poly," many doing duty for separate, especially as the Editor has wisely followed Bentham and Hooker in the systematic part, where Polypetalæ (p. 185) forms a prominent heading to the first subclass of Dicotyledons; moreover, "polyphyllous" is retained (p. 115). The classificatory department has been thoroughly recast and modelled on the *Genera Plantarum* (the Editor observing rightly that all "natural" systems must be to some extent "artificial," and that it is the underlying principle that makes a classification one or the other. This is more fully explained on p. 162, but we think the difference is not quite so absolute as the reader might imply. A dictionary (as the Editor remarks) is on the whole artificial, yet just as numbers of cognate words are grouped together with a single character in common, or the "root," so Linnæus' "Tetradynamia" and "Syngenesia" &c., are based on single characters, and are yet recognised as "natural" groups. It is, in fact, a question of degree in many instances, and not of kind. Classifying by means of one, two, or very few characters, one runs the risk of being "artificial," thus the presence of two stamens would unite the Ash tree, a grass, and Duckweed together, whereas, classifying by many, or, better still, all the constant characters observable, the result will be "natural." Numerous valuable additions in morphology have been added to the "orders," but one feels a doubt as to the usefulness of the floral formulas adopted, as being too troublesome, e.g., the vertical line for adhesion, not standing between the organs united, seems undesirable. No explanation is given on p. 102 of the fractions used; while  $\frac{3}{2}$  is presumably a misprint for  $\frac{2}{3}$  on pp. 287 and 290. The histology has been revised and brought up to date by Mr. A. W. Bennett, who has also entirely recast the account of the Alge, a like service for the physiological portion having been effected by the Editor. The description of the fig. 578 of the development of the pollen tube of the Spruce Fir does not seem to correspond with the text—an error in the previous edition. Several valuable additions have been made to the illustrations, notably those showing the development of flowers on pp. 546-548, borrowed from Luerssen. Space will not allow of further notice, but comparing this edition with the last we can safely put it in the hands of students as placing before them the science of botany in its present aspect.

The object in publishing an English translation of Dr. Behrens' work, which has "rapidly attained wide circulation and usefulness throughout the schools and colleges of the German-speaking countries" is, the reviser tells us, twofold—(1), "to explain in the simplest language the elementary facts of botany;" and (2), "to awaken the interest and enthusiasm of the student . . . by introducing him to the fresher fields of the science." He particularly alludes to fertilisation, to which no less than sixty pages (out of 353, 8vo) are devoted. Admitting the subject as a most attractive one to beginners, we regret that the significance of "self-fertilisation" is thoroughly misrepresented; thus, the author states categorically (p. 169),

Usually fertilisation is only effective when the

pollen is brought to the ovule from another flower of the same species." Again: "Cross-fertilisation produces the greatest number of seeds capable of germinating, while self-fertilisation tends to produce few or no seeds capable of germinating;" then follows further extension of these statements. It is now well known that it is only now and then relatively true of plants normally requiring intercrossing, but the rule breaks down even with them under repeated self-fertilisation, as Darwin showed in the cases of *Ipomæa*, *Mimulus*, and *Dianthus*—a fact familiar to all florists, in the case of self-fertilising *Primulas* and *Auriculas*. H. Müller, after a long discussion on the relative importance of the two, points out that the supposed great importance of inter-crossing is over-rated, and concludes with the very limited "question"—"There is good foundation, therefore, for the demand that the explanation of floral mechanisms shall rest only on the sufficient and demonstrable assumption that cross-fertilisation yields more vigorous offspring than self-fertilisation." Let us hear Mr. Darwin. In cultivating *Mimulus luteus* a self-fertilised form appeared. "It prevailed in all the later self-fertilised generations, to the exclusion of every other variety . . . The self-fertilised plants belonging to this variety were not only taller but more fertile than the intercrossed plants (*Cross and Self-Fertilisation of Plants*, p. 348), so that this last resource for evidence in favour of cross-fertilisation breaks down. With reference to details there are unfortunately numerous inaccuracies, e.g., rhizome of Scabiosa is called a root; the diagrams of a centrifugal inflorescence, and of a scorpioid cyme are quite wrong—the latter repeating the old mistakes. Anthodium is distinguished from capitulum on p. 64, but the figure of the latter is used as descriptive of the former on p. 67. Similarly winged nut is distinguished from a samara, yet the same figure of Elm fruit is described by each term. There is a similar confusion between achene grain and Caryopsis and Schizocarp; Cruciferae are said to have four short stamens and two long. A foot-note to "Cucurbitaceæ" says:—"New lat. Pepo, a Gourd; fero, I bear." We fail to see the significance of the note. With regard to classification, that usually adopted in this country is De Candolle's, and it is of the utmost importance that students should learn by degrees to localise the sequence of orders in their minds. To put before them a totally different arrangement from that with which they will have to become familiar in all our Floras and the *Genera Plantarum* is not only inconvenient, but positively harmful. Thus, to find "Cucurbitaceæ" standing between Boraginææ and Campanulacæ is somewhat startling. Four elaborate tables or keys are given, each description terminating in a floral formula; and this illustrates what probably the author may think a great merit, but which we would designate a grave error—that it tends to "artificialise," if we may coin the word, instead of leading a student to become familiar with the principles of natural classification; and any young student who tries to study botany by this book alone will have to rearrange in his mind a great deal when he tries to use the standard Floras of this country. The descriptions of the orders, too, are often inaccurate, while the terms "family," "genus," and "species," are used for one another in a very loose way.

The little work by Dr. Vines and Professor Bower is an invaluable one of its kind. It is, as Mr. Dyer says in the preface, the outcome of the methods of instruction adopted at South Kensington, which had for their object to "embrace the leading morphological facts of every important type in the vegetable kingdom." A succession of types are treated exhaustively, the student being thoroughly instructed how to make his preparations, what micro-chemical reagents are required, and how to use them, how to dissect and describe his observations correctly; and any student who will patiently and conscientiously work by means of it, will acquire a large mass of knowledge on anatomy. The only danger that we see in advocating this system of practical botany is that it tends to lay too little stress on the necessity of a preliminary study of morphology proper. It is an opinion based on long experience of tuition, that beginners should thoroughly master the characteristic features of types of the leading families of plants, and be able to describe them accurately, in botanical terms, before such an elaborate system of examination is attempted as is proposed in this work. To say the least of it, a knowledge of floral structure, the processes for fertilisation, the variety of forms and uses of stipules, various methods

of climbing, and a variety of other things excite an interest in the study of morphology which renders that branch of the science by far the most attractive to beginners, and at the same time lays a solid foundation for deeper researches such as are aimed at in this work. //

### Orchids, a Review of their Structure and History.

Under this title Mr. Lewis Castle, of the *Journal of Horticulture*, has published a little treatise giving a popular account of the conformation and other peculiarities of these now favourite plants. It is a useful little book, which will give many readers an insight into Orchid structure which they would not trouble themselves to get from more pretentious works. Mr. Castle is, however, hardly sufficiently clear in his exposition of Orchid structure, and his definition of "homology" is one against which we must protest. The chapter on "Orchid mysteries" is left mysterious still, though Darwin, whom Mr. Castle so frequently quotes on other points, has done much to clear up what was before obscure. The *History of Orchids* comprises a compact and serviceable account of their importation into this country from 1763 to the present time. Altogether Mr. Castle has contrived to compress into a few pages information which the class of readers for whom he caters would otherwise have a difficulty in procuring.

### INDIAN NOTES.

THE LUCKNOW HORTICULTURAL GARDEN.—On December 27, 1860, the Agri-Horticultural Society of Oudh was set on foot. The local Government gave a piece of land for experimental and acclimatising purposes, and subsidised the Society with a donation and a monthly allowance. I was asked to undertake the uphill task of making a garden from a treeless waste; not the least unpromising part of the task was, that there was not a single well on the whole ground. It had to be terraced and levelled, and wells had to be sunk.

I began by making experiments with all sorts of plants. Soon after the American Civil War was on, and the Government at home were directing their attention to India as a field for Cotton growing. I experimented with various kinds. I tried to cross the New Orleans with the native Cotton, but did not succeed. I succeeded, however, in obtaining a cross between the New Orleans and Egyptian Cotton. The first pod of the crossed plants I watched with great interest. When it burst, great was my disappointment to find that, instead of white Cotton, there was nothing but smooth black seeds, without a trace of Cotton on them! This was hardly encouraging, and I only mention it as one of the curiosities of hybridising. All other pods, however, gave a very good fibre, which was favourably reported on by Calcutta experts. Further sowing of this crossed seed was not productive of better Cotton than that of pure New Orleans grown on the same ground. The conclusion all my own experiments led to, as well as others made elsewhere, was that the soil and climate of Oudh were not favourable to foreign Cotton growing on an extensive scale.

Another curiosity of hybridising was a cross which I effected between the American Squash and the native Pumpkin (*Cucurbita moscata*), using the pollen of the Squash. The Pumpkin grew and ripened, but when I cut it there was not a single seed in it.

Soon after the garden was started I introduced the Casuarina tree by seed. Then there were no Casuarina trees in Lucknow, now many are to be seen in various places.

The Mulberry tree and silkworms were tried for a long time, and with great care and patience, both with the monthly and annual varieties of worms. Although valuable silk was easily produced it was found that the crop was too troublesome for natives of Upper India, who could raise other crops with much less labour and expense.

Flax seed was procured from Riga and Belgium. It grew very well, but always produced too much luxuriance of plant and coarseness of fibre. Probably this was owing, to a great extent, to the amount of sunlight the plant got. I find stated in my report for 1864, "In Europe, at the season in which Flax is grown, the weather is, to a great extent, cloudy. The immediate effect of this condition would probably be to make the Flax plant grow thin and tall. On the contrary, in Oudh, in the winter, the only time in which Flax could be grown,



the sky is cloudless, so that the amount of light which the plant gets is very great. Native Flax, grown solely for its seed, however, is much more slender than the foreign kinds, in spite of the light; but it will take years of cultivation and selection till we can produce it of the necessary length."

In 1863 I introduced, by seed, the Inga dulcis, from Madras. This thrived wonderfully. It was found useful, not only for hedges and firewood, but also for the sweet arillus which its screw-like pods contained, and which natives ate greedily. Hundreds of pounds of its seed were afterwards distributed, with a view of introducing it among native villages as a plant useful in famine times.

In this same year I obtained a few seeds of the Cuzco Maize of the Andes—a large white variety. I managed to obtain a cross between this and the native Maize—a very small grained yellow variety. The result of the first crossed seed was encouraging. It produced a Maize of large size of a light yellow colour. Further experiments with it produced curious varieties. Some plants threw out branches where the ears or cobs should have formed; others, among the head of male flowers, on the summit of the stem, produced grains resembling those of Sorghum, but larger. This phenomenon led me to believe that the relationship between the Maize (which is monoecious) and the Sorghum is more intimate than one would have at first supposed. I had proposed to myself to make some further interesting, and probably useful, experiments with this hybrid; but a few months' absence from Lucknow put an end to them. On my return I could not find the seeds, and the native gardener could not account for their having been lost. Lately I perceive that Mr. Duthie of the Saharunpore Botanic Garden has effected a similar cross. I hope he may be more successful than I was, and that he may be able perhaps to prove that the Zea and the Sorghum are not, after all, distinct genera! With regard to the original Cuzco Maize nothing could be made of it. It was evidently not suited to the plains of India, its habitat being in the Andes.

In November, 1863, I imported some plants of various kinds of Oranges from Malta, as well as the Malta Lemon. The latter is identical with the Portugal and Sicilian Lemons (*Citrus limonum vulgaris* of Risso). The Lemon plants thrived wonderfully, and produced as fine trees and as good fruit as in their own country, and are now to be found disseminated all over Oudh, the North-Western Provinces, and the Central Provinces. Not so the Oranges. With the exception of a large round Orange the soil and climate did not appear to suit them. The Blood Orange lost its blood, and some of the others their original fine flavour. The origin of the Seville Orange in Lucknow (*Citrus Bigarodia* of Risso) is rather curious. In Malta they bud on the Seville stock. One of the original plants imported died, and the stock on which it was budded threw out a few branches, from which buds were taken and inserted into the common native stock. Hence the origin of the true Seville in Lucknow. The Orange produced by the native stock is probably a variety of the Seville. Its pulp is very acid, but it wants the bitterness of the true Seville. Its leaves also have not the sweet scent of the latter.

A little after the importation of the above I introduced the Nagpore Orange, a good loose skinned sort, and having obtained some seeds of the Sylhet Orange from Calcutta, I sowed them. The latter eventually fruited and proved to be very good, and equal to those procured in Calcutta, under the name of Sylhet Oranges.

Most of the flowering trees and shrubs of India were introduced into this garden, besides many exotic ones. In 1863 I obtained some seeds of the wonderful Poinciana regia, a tree which astonishes by its blaze of colour. The seeds germinated and the trees thrived, and from these many of the Poinciana regias found in Oudh and the North-Western Provinces have descended. Properly speaking this fine tree belongs to a more southern climate, but by sowing the seed grown in Lucknow it has now become acclimatised also in Upper India. *E. Bonavia, M.D., Etawah.*

(To be continued.)

NEWCASTLE-UNDER-LYNE.—This town will this year hold its first annual exhibition of Roses, flowers generally, fruits, and vegetables at the Town Hall on July 21. There are altogether forty-one classes of competitions, but of which only four classes, two for amateurs and two for nurserymen, are open to all.

## TACSONIA ANDERSONI ×.

A CORRESPONDENT, signing himself "Y. Z.," sends us flowers of a hybrid raised by him out of *T. insignis* by *T. Volxemii*. We cannot judge of the habit from the flowers sent, but they have the long flower-stalks of *T. Volxemii*.

Singularly enough the same cross was produced some few years since by Mr. Anderson, whose account, as given in the *Gardeners' Chronicle* of August 7, 1875, we reproduce, with an illustration (fig. 165). It is most interesting to find that the same peculiarities that marked Mr. Anderson's plant are reproduced in that now before us. Apart from the great botanical interest, there is the probability of a double-flowered race, which would be valuable for horticultural purposes:—"Tacsonia insignis never seeds with me unless it be artificially impregnated, and then not freely with its own pollen, but more so with that of *Van Volxemii*. The colour is intermediate between the two parents, more a scarlet than either; the size from 5 to 6 inches in diameter. The internal formation of all the flowers is the same as in the one I sent. Out of forty plants raised from two seed-pods all, with one exception, have the divided leaf of the male parent, while one seems in every respect a true *insignis*. Only one plant has flowered thus far. I have *insignis* growing freely on a south

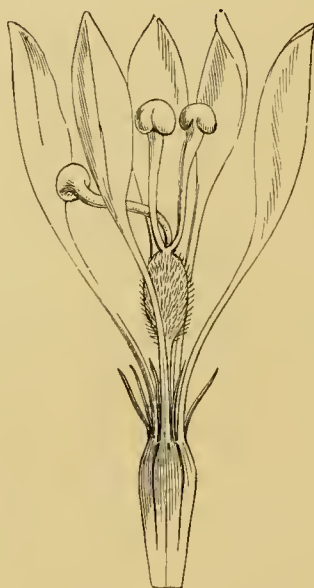


FIG. 165.—TACSONIA ANDERSONI ×: THE PETALS REMOVED TO SHOW THE PETALOID STAMENS.

wall out-of-doors; should it prove hardy I will let you know."

Mr. Anderson's note is interesting as confirming the fact that *Passifloras* often set better with foreign pollen than with their own. The internal conformation of the hybrid flower is very curious, and affords the first stage towards a double flower. The calyx, corolla, and corona are all normal, but the stamens, instead of bearing anthers, are surrounded by petals, as shown in the illustration. Beneath the filaments, previous to their separation one from another, form a tube, from whose edge springs an additional corona, just as the corona springs from the flower-tube at the base of the petals in ordinary cases. We have here, then, not only a very interesting malformation, but the germ of a double Tacsonia. "Y. Z.'s" flowers present exactly the same peculiarities as those of Mr. Anderson.

## ROSEMARY.

ROSEMARY is still used at funerals in many parts of South Wales, together with Southerwood, there called "Hên-dyn" (Old Man)—a local name it still bears in many parts of England, but I never heard the Rosemary spoken of in the Welsh language except as the "Rhosmair," which I then imagined to be a corruption of Rosemary. It was one of the examples which my father, an Englishman, used to cite when

he wished to provoke me by saying that the Welsh had not a language of their own, and only Welshified English words. This was only, of course, said in fun, to tease me, I being at that time intensely Cambrian in my feelings.

I think that Rosemary is used at funerals because it is said to represent fidelity in love, as well as remembrance after death. Gay evidently was of this opinion, for he says, in his "Shepherd's Week":—

"To show their love, the neighbours far and near  
Followed with waitful looks the damsel's bier:  
Sprigged Rosemary the lads and lasses bore."

Shakespeare, too, in several of his plays alludes to this idea, for he makes Ophelia say—

"There's Rosemary for you, that's for Remembrance;  
pray you, love, remember."

And Perdita gives Polixenes and Camillo, Rosemary and Rue, as significant of grace and remembrance; so I believe that your American correspondent, who writes so agreeably, may depend on it that the use of the Rosemary at funerals (as at weddings) originated in its being emblematical of remembrance.

The generic name is a combination of *ros*, dew, and *marinus*, of the sea, but I cannot throw any light on other derivations, though I have looked through many botanical works, and in one of them I find the old tale, that this plant never thrives well in any garden where the husband is master of his castle—alluded to as being a Gloucestershire superstition. What curious notions some people possess with regard to various plants. A Berkshire lady came to me in sad trouble one day. "How could you," she asked, "bring that horrid House Leek here? It is going to bloom, and Mr. B. will surely die." I found on inquiry that it was believed in her county that whenever the House Leek flowered the head of the house died within the year, and as I had brought a fine root back from Petersfield and planted it on the sloping roof a lady, who was, like myself, a guest at the old house scolded me well when my pet blossomed. This was six years ago, and I am happy to say the head of the establishment is still alive. The Welsh say that Thyme never grows when planted by certain people. You must be what they term "born to luck," in order to insure this herb thriving after your planting it. *Helen Watney.*

## THE PROPAGATOR.

### THE PROPAGATION AND CULTURE OF DRACÆNAS.

(Continued from p. 677.)

*DRACÆNA GOLDIEANA* is truly a distinct and noble plant, which well deserves a place in every collection; but if a little extra care and attention is given in propagating it, a good result could almost be guaranteed.

For a cutting, 6 inches of the top of a shoot must be taken, being very careful that the centre leaf is fully developed and hard. It should be pointed out in regard to the length of the cutting that it is not safe to have it less than six inches because the base of the centre leaf growth is some distance, down the stem, and if this is not long enough the cuttings will be lost. To return to the shoots that have been selected for cuttings, the bottom of each stem should be levelled with a sharp knife which should also be gently drawn across it twice so as to form an X. It will be found that this operation has the good effect of producing a larger and more equal quantity of roots. Long thumb-pots should be used in potting and the soil should be very firmly pressed around each cutting, the main stem of which should also be tied to a stick. After having given them a good watering with a fine-rose pot they should be allowed to stand out for half-an-hour before they are put into the cutting case. In the cutting case or frame, which should be placed over a gentle bottom-heat, the pots should be plunged into cocoa-nut fibre or other similar material, and this must be so done that not only the leaves of one cutting do not touch the leaves of another, but also that the tops of the cuttings may be as near the glass as possible.

While the cuttings are in the case they should never be watered over the foliage, but water must be given them with care through a small-spout pot as they become dry; they must be shaded from all sun, and for ventilation the lights or glasses should be taken off for an hour both night and morning. But as soon as they have well rooted the lights can be raised an inch, and left so day and night, in order to harden



the plants a little, that they may not suffer when they are turned out upon the open bottom-heat, which should be done as soon as the plants are strong enough. After having stood four or five days upon the open bottom-heat they should be potted into large 60-pots, and watered with a fine-rose pot, and placed upon the open bottom-heat. When they have well rooted through this size pot they should be potted into large 48's, and again replaced upon the bottom-heat, where they must now be carefully watered as they become dry, as well as lightly syringed morning and evening; they must still be shaded from the sun, and well ventilated on every fine day. When the plants have well rooted through the 48-pots they can be moved into another warm house and placed upon a cold bottom. If larger plants are required they must be potted into larger pots, and put on the open bottom-heat, from whence they should not be removed to the cold bottom until they have attained the requisite size.

#### D. GRACILIS AND D. G. MARGINATA.

In small pots these are elegant varieties for decorative purposes. They cannot be propagated from roots, like most *Dracenas*; this must, therefore, be done from the top growths of the plants. The tops of the plants should be taken off, having about 3 inches of the main stem attached; and after making the bottom of the stem level, they can be potted each into a thumb-pot. The soil should be firmly pressed around each cutting, the leaves of which should be tied up to a stick provided for the purpose. When they have been watered they can be placed in the cutting case, where they can be treated in the same way as *D. Goldieana*. It is a good plan to save a few of the plants which have been cut back for cutting purposes if they are varieties which will not form plants from the roots.

#### D. ARBOREA

is a free-growing green variety, but can only be propagated from top-growth. It can be treated in the same manner as *D. gracilis*. The soil for the cuttings should be composed of one half good peat, one quarter loam, and one quarter sand, to which small quantities of finely broken charcoal and finely broken potsherds should be added. The whole should be well mixed together, and sifted and rubbed through a  $\frac{1}{4}$ -inch sieve before it is used. When the plants are potted into 60-sized pots, and subsequently, the following should be the component parts of the soil used, viz., one half good turfy loam, one quarter peat, and one quarter river sand, a small quantity of charcoal broken up into pieces of Hazel-nut size, and a few finely broken oyster-shells. If the soil is very dry it should be sprinkled with water before it is used. T. O. B.

(To be continued.)

### ORCHID PRUNING.

IN speaking of *Dendrobiums* which should not be pruned I take, by way of contrast, *D. moschatum*, and in this case also will only give my own experience and practice. Other growers who may have different accommodation, who may be in a different position of altitude, or have different local surroundings, may be favourably or unfavourably affected to a greater or less degree, and therefore may not find my description agree with their experience; but something on this head may be said another time.

*Dendrobium moschatum* is a strong grower, and retains its foliage for two or three years. If the growths are thoroughly matured bloom will be produced on them the second year, but if not, several years may elapse before they bloom, as I will show. On one plant we have a growth made six years ago which only bloomed last year, but there is every appearance of its pushing out spikes again this year; while another growth made four years ago produced its first spike last year, and has two strong ones appearing this year; and another growth made two years ago flowered last year, and has still every leaf perfect its whole length. And yet one other made nine years ago commenced to bloom the third year, and has produced a spike annually for six years, and is now as plump and fresh as ever to all appearance. The whole plant has nineteen growths from 2½ to 6 feet in height, and produced thirteen spikes of bloom last year. I have thus described this plant and its manner of flowering to lead up to the interesting question of pruning, and what

can be said in its favour? Why, when I have cut away the old flower-spikes I put my knife in my pocket, for since we grow Orchids for the sake of their flowers, and this species seems to be almost an everlasting bloomer, we must not cut away the back growths till they are very old—how old I know not; it may be twenty years.

Now having given this plant as a type of *Dendrobies* that should not be pruned, and *D. nobile* as a type of a class that may be, I have left the whole intermediate species for the present; but before leaving the subject I may as well state my manner of dealing with them, and that is to ascertain, if possible, whether the back growths are of any further service to the health, value, or beauty of the plant; and if I see nothing to encourage the opinion that they are still required then I cut them out. I would, however, advise the inexperienced in Orchid culture to be cautious of a too free use of the knife, and thus keep on the safe side; and in practice "be not the first to cast the old aside;" while to those who are head and shoulders above myself in skill and experience I would give the other half of the adage—"be not the last by whom the new is tried."

I believe that we have a great deal yet to learn



FIG. 1'6.—SEED-VESSEL OF *LYCASTE SKINNERI*.

respecting the nature and requirements of this great and beautiful family of plants, and having struck out an independent line of culture for myself some years ago, I am, from the results accomplished, more strongly convinced of the fact. I will, in concluding this note, give a case. I have a special desire to get this very *Dendrobium moschatum* to produce a spike of bloom on every growth, old and young, at the same time. If this is not attained I believe my treatment will be at fault. Last year thirteen out of sixteen had a fine spike; but I cannot hope to see the feat accomplished this year, as it is four years since the plant was shifted, and must now be repotted; and do this as careful as we may, some disarrangement in Nature is sure to follow, but I shall keep a record of its behaviour every year; the results in some other cases shall form the subject another time.

I beg to thank Mr. J. Child for his answer of April 4, and apologise for the apparent indifference. His forty puts our thirty-eight in the shade. N. Blandford.

### FRUIT OF *LYCASTE SKINNERI*.

IN continuation of the series of illustrations of seed-vessels of Orchids we now add that of *Lycaste skinneri*. After the explanations that have already been given it is needless to add description to the illustration (fig. 166). We may, however, call attention to the singular manner in which the "column" not only

remains attached but becomes thickened as the fruit ripens, and remains attached to it. We may here also take note of the similar phenomenon which occurs in some species of *Phalenopsis*, as pointed out to us lately by Mr. Harry Veitch, and in which, after fertilisation, the sepals and petals, instead of withering, become thick, and green in colour, just as happens in some of the *Hellebores*. The species pointed out to us in a recent visit were *Phalenopsis violacea*, *Luddemanniana*, and *Cornu cervi*. The seeds of these plants are exceedingly small, and the swelling and succulence of the fruit and of the persistent perianth may be connected with the necessity for adequate supply of water during the ripening of the seed which otherwise might not obtain sufficient moisture; but this is mere surmise.

### NEPENTHES UNDER COOL TREATMENT.

HEREWITH I send you a photograph of a basket of *Nepenthes distillatoria*, which has been grown in a comparatively cool house since it was a small seedling, and now forms a more picturesque object than *N. distillatoria* often presents. Its history is as follows:—Some years ago I received it from the late Dr. Moore of Glasnevin. It was then a seedling about 2 or 3 inches high, and has since been grown in an intermediate temperature, often falling under 50° in winter. It made two stems a couple of feet long, and flowered several times. As it then showed considerable inclination to break from below and to form pitchers there, when several were formed we cut off the two main branches, and the result has been the formation of a cluster of healthy, ruddy pitchers, not very large, but well formed and much nicer to look at than the straggly plants commonly seen in this species. The house it is in is a very small one, and contains a miscellaneous collection of Ferns, intermediate Orchids and soft-wooded plants. I have just counted twenty-five fully formed (*i.e.*, open-lidded) pitchers, and about a dozen more in various degrees of development. The largest is about 4 inches long. Greenwood Pim

### HOME CORRESPONDENCE.

*Gentiana verna*.—This grand floral gem is now in excellent condition in several parts of the Royal Botanic Garden, Edinburgh. As this used to be considered very difficult to cultivate, it is a pleasure to see large clumps flowering freely and looking so healthy and well. The white variety, *Gentiana verna alba*, was in flower the other week; this will make a good contrast when more plentiful. Another Teesdale gem, *Myosotis alpestris*, is also flowering here; this is worth while going to Teesdale to see. I remember seeing it very grand on Micklefell, in company with my late lamented friend, Mr. J. C. Niven, in 1853—the date I have taken from my dried specimen gathered on that occasion. W. E. D.

*Habrothamnus Newellii* and *Magnolia*.—Mr. R. T. Wilkins is the fortunate possessor of one of the largest plants we know on an outdoor wall of the *Cestrum* (*Habrothamnus*) *Newellii*. It is flourishing vigorously at his place at the mouth of the Dart, in Devonshire, and is a beautiful picture just now, reflecting much credit on the gardener, Mr. Allen, who must have taken considerable trouble to train such a beauty. Every growth is neatly fastened to the wall, and nearly every shoot carries a large dense terminal cluster of brilliant crimson flowers. This fine example covers a space of some 12 feet by 9 feet, and is exposed to the south-west gales of the English Channel. Within gunshot is a grand tree of the true Exmouth *Magnolia*, of some antiquity, and its deliciously perfumed flowers are beginning to open; 35 feet is about its entire height, and it is well branched from the bottom, being about forty paces around. The trunk at 3 feet from the ground is 39 inches in circumference. It is truly a noble specimen. W. Napper.

White of Chavigny Cabbage Lettuce.—I sent you a note concerning this fine Cabbage Lettuce last year, and its merits again deserve notice. It is one of those admirable novelties introduced by Messrs. Vilmorin, of Paris, and does not seem yet to have found a place in English seed lists, unless it has unhappily been renamed. A very fine solid hearting white form, it is a remarkably long-standing sort,



refraining from bolting to seed longer than any other kind, and in that respect alone it is most valuable, especially in hot dry summers. It is tender, crisp, and sweet, and contains almost as much material as do many much larger looking Cos Lettuces. It has the merit, too, of being very hardy, and in that respect deserves the attention of market growers. I think this Lettuce will be found a really useful and desirable novelty or improvement upon older kinds. *A. D.*

*Rosa rugosa*.—Have any of your readers tried budding Roses on *Rosa rugosa*, the Japanese Rose, as a stock? It will have, I think, many advantages. I have stocks prepared, and mean to try it this season. *G. F. Wilson.*

The "Widow," or "Snake's-head" Iris (p. 703).—I am afraid I got a little off the track in calling *Iris tuberosa* the "mourning" Iris, seeing that the latter name belongs to *Iris susiana*, but that it is the "Widow" Iris of Florence is, as I imagined, a well-known fact. If "J. S. W." will turn to that classical little volume, *Days and Hours in a Garden*, p. 112, he will find proof of what I have said. I will quote "E. V. B.," however, in case the book is not handy to other of your readers. Speaking of *Iris tuberosa*, "E. V. B." says:—"On the 7th (April) appeared, as I knew she would sooner or later, the little 'Vedova' Iris of Florence. Under the south wall, where we did not think to seek, there she was for the first time after these eight years' seclusion, and still she wears her 'weeds of green and black!'" Old Parkinson (1629), who figures and describes *I. susiana*, notices its resemblance to a "ginnie hen," and when I saw clumps of *Iris iberica* blooming in Professor M. Foster's Cambridge garden the other morning, they somehow reminded me of little partridges sanding their wings in a sunny place. *Iris florentina*, the pale lilac-tinted white, is now most lovely, its satin-like petals shimmering in the soft warm wind. Its rhizome dug and dried equals the "Orris root" of the shops, and is a welcome addition to home-grown or garden perfumes. "J. S. W." must be careful to add *Iris* after his English name "Snake's head" as applied to *Iris tuberosa*, as the term "snake's head" alone refers to the chequered Fritillary (*F. meleagris*) of the meadows near Pinner and Oxford. I think the "Widow Iris" or "Vedova" is by far the prettier name as used by the Florentines to-day. *F. W. B.*

—"F. W. B." is quite correct in naming *Iris tuberosa*, or the Snake's-head Iris, "The Widow." It is popularly known as the Vedova (Widow) in Italy, where it grows wild with yellow Tulips about the vineyard trenches near Florence and elsewhere. *E. J. B.* [We do not wish to use strong language, but this use, or misuse, of popular names is very provoking. What has this elegant Iris done to be associated with widows or snake's-heads, what a cruel insult to the bereaved one to bracket her with snake's-heads! *Ed.*]

"Queen's Prize" *Mimulus* from Seed.—On February 22 last, I sowed a box of this brilliant strain on a tan bed, under a frame. There was little heat, and owing to the persistent low temperature almost up to the present, vegetation was very slow, so much so that, like Auriculas, tuberous Begonias, and other similar small seeds, one begins to doubt ever seeing the tiny seedlings. Now after three months they are coming in quantity and vigorously. I mention this so that any of your readers who may not see such seeds coming up rapidly may be induced to have patience and not hastily blame their seedsmen. *W. J. Murphy, Clonmel.*

*Saxifraga Macnabiana*.—In your issue for May 30 I noticed that *Saxifraga Macnabiana* received an award from the Floral Committee of the Horticultural Society (p. 705), and that a Mr. Rees obtained a First-class Certificate for it at the Crystal Palace (p. 708). Can any of your readers give the history of this form? I suspect it is a garden hybrid; but it is not mentioned either in Engler's *Monograph*, Focke's *Mischlinge*, or Nyman's *Conspectus*. *G. C. Churchill.*

*Daphne encorom*.—This appears to be one of those unaccountable plants that only succeed here and there, as it is seldom one meets with it in good condition, and I have been told by several that they entirely fail with it, and yet here, where no trouble whatever is taken with it, it grows luxuriantly and

spreads in such a way as to form dense masses, more than a yard across, and all these are now covered with its lovely pink sweet-scented bloom. If it were only in one position where this *Daphne* does so well, we should come to the conclusion that it was the soil or situation of the particular spot that suited it, but the plants are equally good in full sun or shade, and on raised banks among pieces of rock as they are on the flat in the borders. The only difference I can see in them is, as might be expected, that those which are in the sun are first in flower; but with that exception it does not appear to affect them, as those on a bank at the north end of a span-roofed house have nearly every shoot terminated with a truss, or trusses, of blossom. Our soil is naturally sharp and light, and we planted the *Daphne* in all the places they occupy without any preparation, and their dying off with us is a thing quite unknown. The way we increase them is by layering any of the outside branches, which we do by just digging out a little of the soil and dropping the whole of that part of the plant down and covering the stems, which, after a year or so, root freely, and are then taken off, if wanted, or left to go on as they are. *J. S.*

The Gardener's Friend.—The above is the very appropriate name, as results of a trial of it here fully testify, of a preparation in a perfectly liquid form for destroying weeds of every description on garden walks, carriage drives, &c., also for the destruction of Plantains on lawns, &c. This "celebrated weed-killer" was first brought under my notice by a gentleman visiting these gardens a short time since, who remarked respecting it "that paved stable yards which he knew involved a considerable expense annually in keeping free from weeds by hand-weeding prior to 'Weed Killer' being used, are kept perfectly free from weeds at a trifling annual cost." This good news led to an order for a 16-gallon cask (which cost £1 8s.) being given; and the results of a trial are so thoroughly satisfactory, that I feel I cannot well say too much in its favour, nor make the fact too widely known among gardeners, amateurs, &c. One pint of the "weed-killing" liquid—which is perfectly clear—mixed with 3 gallons of cold water, and applied with a watering-can and rose to walks, &c., infested with weeds and moss, when the ground is tolerably dry, and in sufficient quantity to allow of its reaching the roots of the weeds, will not only kill the latter and their fallen seed, but renders the ground most unfavourable for the germination of any seeds blown thither from uncut grass lawns and untrimmed walk-margins. The effect of this preparation when applied to the weeds is not, however, immediate, but is complete ten or twelve days after its application, in which care must be taken not to allow it to come in contact with grass verges, nor other living edgings of any description. To destroy Plantains and Dandelions we fill a champagne bottle or blacking jar with the "Weed Killer" (unadulterated), and place it in a small box in such a position that it is not likely to get upset through the box being moved, and into this bottle or jar a piece of thick wire about 15 inches long, pointed at one end, and having a couple of inches turned to form a handle at the other, is dipped prior to thrusting it through the "crowns" of the individual plants in a perpendicular direction to the depth of 6 or 9 inches. In order to facilitate the application of the "Weed Killer," I find it is best to have, exclusively for this special purpose, a 3-gallon watering-pot, labelled "Poison," and having an oblong rose, so that the liquid can be applied to weedy walks almost close to, but without touching the grass verges or other live edgings. For the information of your readers I may be allowed to say that the "Weed Killer" is in iron drums and casks, each containing 4, 8, 16, and 40 gallons, and that 1 gallon, when mixed, will cover an area of about 12½ square yards. *H. W. Ward, Longford Castle Gardens, Salisbury.*

Perennial Candytufts.—These are a most useful and highly ornamental class of plants during the spring and early summer months. The following species are now in flower in the York Nurseries, viz., *Iberis semperflorens*, which forms a compact bush 12 to 18 or more inches high, the whole covered with pure white flowers. This species continues to flower for many months. *I. gibraltarica* has large thick fleshy leaves and handsome heads of white or lilac-coloured flowers. There is a variety of this, *I. gibraltarica* "hybrida," with smaller leaves and deeper

coloured flowers. *I. petraea* is another valuable kind, very dwarf and pretty. The same may be said of *I. granatensis*, *I. saxatilis vera*, *I. Bubanii*, *I. Pruiti*, *I. coraeifolia* and *I. sempervirens* are well known garden plants—the former is decidedly the more beautiful of the two. There is a variety of *I. sempervirens* named "superba," which is a decided improvement on the type. There is also a variety with double flowers, but I have not yet seen it, so cannot speak of its merits. There is another very beautiful species of Candytuft, but which I believe is now lost to our English gardens—*I. carnosa*; it is a native of the Pyrenees, and is I believe biennial. *I. linifolia*, another biennial, is also very showy when grown in dry, rather poor soil. I have met with it in abundance in the South of France, near the sea. *R. Potter, Holgate, York.*

*Clianthus puniceus*.—Enclosed please find a small flowering piece of the Glory Pea of New Zealand, taken from a large plant, some three years old, growing in the front of a house here, and which is blooming so superbly, as to be the wonder and admiration of passers-by. The plant covers an area, of some 5 feet high, and the same in width, and though so richly flowering is also making new growth which is showing large numbers of bud racemes which will probably produce luxuriant bloom in a few weeks hence. The aspect is south-west, the soil common garden and gravelly. The plant was raised by its lady owner from seed sent here direct from New Zealand, and it is greatly to her credit that she should thus have in her little garden, having wintered it without protection, something so beautiful and so uncommon in gardens. *A. D., Bedford.* [A nicely bloomed shoot of this fine plant, the hot weather of last season having developed the flower-buds to a greater extent than usual. *Ed.*]

Plant Nomenclature. — Dr. Wallace's note on this important subject (p. 671) sets forth what most people interested have felt to be necessary for a long time, viz., that all garden plants, whether hybrids or seedlings, should have popular names applied to them, and not scientific or Latin ones. If we could once for all settle this question it would be a step in advance of incalculable importance. I originally drew attention to this question in the *Garden* for April 19, 1884, p. 318, and in a subsequent number (May 17, p. 401) Mr. J. G. Baker, of Kew, clearly pointed out that all questions of nomenclature must be discussed and settled on general grounds. What I would propose is that a general Conference be held in London next year to consider, arrange, draw up and pass a set of simple rules on which all future plant-naming shall depend. The question is such a broad and many-sided one that we must face it in a thorough manner, and to this end the principal botanists and horticulturists, not only of Britain but of Europe, should be invited to attend. Trade dealings and amateur enterprise is now so varied and reaches so widely that this question of nomenclature should be threshed out from a broadly international point of view, and not merely from an insular standpoint. I trust that other botanists and amateurs will give attention to this matter, and state their views in these pages. *F. W. Burbidge.*

*Kalmias*.—I am much disappointed to find that my *Kalmias* have turned out such a light pink. As I have been told that soil and aspect have a deal to do with colour, I should be obliged if some one would tell what is the best soil and aspect to grow *Kalmias* in so as to get them of a darker hue. *Fanshawe.*

Flowering Shrubs at Gunnersbury Park.—In addition to the fine forms of *Berberis* lately to be seen in flower, foremost, and unequalled for the marvellous plenteousness of bloom, is the white Portugal bloom, the *Cytisus albus* of some, *Spartium album* or *multiflorum* of others. This is a hardy shrub, to be grown by every one. Mr. Roberts has it in a front line of shrubbery, with *Rhododendrons* behind it, and an emerald lawn before and below it, and its beauty and floriferousness attract the eye at a considerable distance from it. Close by are seen the bright red buds and pale coloured expanded flowers of *Pyrus malus floribundus*, and, like all its congeners, flowering this season with extraordinary prolificacy. It rises from out of a mass of varied coloured *Rhododendrons* just bursting into blossom. Not far distant is Waterer's Cherry, with clusters of large double flowers produced in threes; it is at the back of dwarf shrubs and every



year increases in size and beauty. Then there is the pretty *Lithospermum prostratum*, with its rich blue flowers striped with red; it is an occupant of a bed of other dwarf things: no blue flower in the open ground can touch it for its brilliant hue. These are but the forerunners of many things of equal value hastening on to furnish their quota of flower in due time. *R. D.*

**Cytisus Adami.**—In the pleasure grounds at the Royal Château of Laeken this curious plant is unusually plentiful on two Laburnums standing side by side. Some of the tufts are more than a foot in diameter, and flowering in a most profuse manner. On the two Laburnum trees there will be more than twenty tufts, large and small, and they do not seem to be anything the worse for the close embrace of their relative, judging from the profusion of yellow and purple flowers they are bearing and their general health. It is, moreover, remarkable that the Laburnum branches beyond the tufts are as healthy and floriferous as any of the other parts of the tree. This sport, moreover, is increasing yearly. It may also be mentioned that the Laburnums are standing in the midst of a mass of Lilacs and other flowering shrubs, with a Larch or two, and an Acacia and a Spruce Fir as close companions on the east side; while buildings and plantations surround the whole within a distance of 100 feet, so that this curious plant is well protected and sheltered from harsh winds during summer, but in winter it is fully exposed to north winds and blasts. *H. K., May 24.*

**Early Potatoes Becoming Frost-Proof.**—The May frosts, resulting from a general lowering of the temperature over Europe, has played sad havoc among early Potatoes. Owing to our insular position we suffered less than any other country of the same latitude, or even 20° more south. It is certainly remarkable to find it recorded that six people were frozen to death in the streets of Vienna in the middle of May, and the Vine crop destroyed. I brought some gardening friends to see recently two borders of early Potatoes, 8 and 9 inches high, some showing signs of dower, perfectly unscathed, and which had no protection whatever. "Protection is a humbug," said one of them; "I lifted straw on and off every evening for the past fortnight off mine, but forgot it in the hurry last night, and they are ruined." This always happens. We arrived at the conclusion that mine escaped because they were hardened and strong, and able to resist a few degrees of frost. The varieties were Pride of America, Eight Weeks, Myatt's Ashleaf, and a few of Eureka. *W. J. Murphy, Colonel.*

## THE INSULAR DISTRIBUTION OF ORCHIDS.

THE vegetation of oceanic islands presents many striking peculiarities, not the least remarkable of which is the great rarity or total absence of Orchids, and, indeed, of petaliferous monocotyledons generally. I allude especially to the more remote islands, though this peculiarity is common, in a less degree, to islands and groups of islands comparatively near to the great continents. This fact forced itself more strongly on my mind during the preparation of my now just completed *Botany of the "Challenger" Expedition*, and I was led to extend my investigations of the subject beyond the scope of that work, the results of which I will briefly summarise, first giving some figures and following with some observations thereon:—

### Orchids in Insular Floras.

	Number of Species.	Number of Specie.
<b>I. Arctic Ocean:</b>		
Nova Zembla ..	0	
Spitzbergen ..	0	
<b>II. North Atlantic Ocean:</b>		
Iceland ..	13?	
Azores ..	3	
Bermudas ..	1	
Madagascar ..	4	
Canaries ..	6	
Cape Verde group ..	1	
<b>III. South Atlantic Ocean:</b>		
Fernando Noronha ..	0	
Ascension ..	0	
St. Helena ..	0	
South Trinidad ..	0	
Tristan da Cunha group ..	0	
South Georgia ..	0	
South Orkney ..	0	
Falklands ..	4	
<b>IV. Indian Ocean:</b>		
Socotra ..	1	
Seychelles ..	13	
Rodriguez ..	5	
Keeling ..	0	
Marion ..	0	
Crozet ..	0	
Kerguelen ..	0	
Heard ..	0	
Amsterdam ..	0	
St. Paul ..	0	
<b>V. North Pacific Ocean:</b>		
Sandwich ..	3	
Guadalupe ..	0	
<b>VI. South Pacific Ocean:</b>		
Galapagos ..	2	
Tahiti ..	19	
Juan Fernandez ..	0	
Masafuera ..	0	
Norfolk Island ..	5	
Kermadec ..	1	
Chatham ..	10	
Auckland ..	9	
Campbell ..	2	
Macquarie ..	0	

The foregoing selection of islands and islets covers a wide area of the globe, and embraces as great a variety of climate and physical conditions as oceanic islands offer. Beginning with Nova Zembla and Spitzbergen, it may seem probable at first that their climate is too severe for Orchids; yet when we remember that *Platanthera hyperborea*, *Habenaria alba*, and *Listera cordata* are abundant and luxuriant on Disco Island, Davis Straits, in about 69° 15' N. lat., climate does not adequately explain the absence of Orchids from the islands in question, because the warm northward currents in the Atlantic would more than counterbalance the slight difference in latitude, in Spitzbergen at least. Coming to Iceland, the number recorded is just about double of what are known, on indisputable authority, to occur, and it appears that the only common species is the otherwise arctic *Platanthera hyperborea*. All the species recorded, except two, are British. The question arises, are Orchids disappearing from the Icelandic flora? Judging from the fact that formerly the vegetation was much more luxuriant than the present and therefore afforded more shelter both for Orchids and the insects probably necessary to effect their fertilisation, the answer would be in the affirmative. I may mention in passing that seven species are recorded from the Faroes, seven from the Shetlands, and eight from the Orkneys. The Azorean Orchids are *Serapias cordigera*, a South European species, and two endemic species of *Habenaria*. The solitary one found in the Bermudas is *Spiranthes tortilis*, a West Indian species. Altogether there are only eight species in Madeira and the Canaries, whereof three are endemic and the rest Mediterranean; and there is one species of *Habenaria* in the Cape Verde Islands. Not one Orchid has been collected in Fernando Noronha, Ascension, St. Helena, South Trinidad, or any of the southern islands, from the Tristan da Cunha group eastward to Amsterdam, St. Paul, and the Macdonald group. Dr. Bayley Balfour discovered only five in Rodriguez, and one in Socotra, during his recent tolerably thorough exploration of these islands, and out of ten known to grow in the Seychelles two are endemic. Of the four found in the Falkland Islands one is endemic, and the others also inhabit Fuegia, Chili, &c. It is remarkable that Juan Fernandez does not possess a single species. Turning to the small islands in the New Zealand region, we find that ten are recorded from the Chatham, and nine from the Auckland, while only two have been collected in Campbell Island, one in the Kermadec group, and none in Macquarie Island. With one exception, the Orchids found in these islands also occur in New Zealand itself, a fact pointing, as I think, to a former land connection. In some of the larger islands of Eastern Polynesia Orchids are not uncommon, though endemic genera are almost unknown, but none has been found, I believe, in the extreme eastern islands, such as Pitcairn, Elizabeth, and Easter. The three inhabiting the Sandwich Islands are endemic; they are all three terrestrial, and two of them belong to the genera peculiar to the Malay Archipelago and Polynesia, while the third is a species of the widely-spread *Liparis*, and described as intermediate between the American *L. lilifolia* and the European *L. Loeselii*. Guadalupe, off the coast of Lower California, is not known to support a single Orchid; and the Galapagos, on the equator, and opposite the richest Orchid region in the world, have hitherto only yielded two species, an endemic *Epidendrum* and a doubtful species of *Govenia*. I have now produced sufficient evidence of the great rarity or absence of Orchids in oceanic islands, and one naturally turns to examine the probable causes. It is not because the physical conditions are in all cases unfavourable, and it is not because possible means for the dispersal of Orchids are wanting. If the seed of any flowering plants are adapted for transport long distances by winds it is those of Orchids, for they are, as a whole, perhaps lighter than those of any other plants, not greatly exceeding the weight of the spores of some Ferns [They would dry up very rapidly. Ed.]. Darwin calculated that a single capsule of *Orchis maculata* contained 6200 seeds, and a single plant 186,300; so that after deducting 12,000 as bad there would remain sufficient to cover an acre of ground 6 inches apart. By the same computation the next generation would cover a space larger than the Isle of Anglesea; and the fourth generation would yield sufficient seed to carpet the whole surface of

the land in the world. But these numbers are infinitely exceeded by some Orchids. Fritz Mueller, by carefully weighing and counting, estimated the number of seeds in the capsule of a species of *Maxillaria* at 1,756,440, and as the species in question often matured six capsules, we have the astonishing total of ten millions and a half from one plant [A very large proportion would probably not be perfect. Ed.]. Yet, in spite of this wonderful production of seed, light enough to be conveyed by winds, to say nothing of other means of dispersal, few Orchids have a very wide geographical area. I only remember one that is found in both the Northern and Southern hemispheres, namely, *Spiranthes australis*, which ranges from Afghanistan to Sachalin and Japan, and southward to Australia, New Caledonia, and New Zealand. The only reason that I can suggest why Orchids are so rare in oceanic islands is the probable absence of the insects necessary to effect their fertilisation. Darwin, Delpino, Fritz and Hermann Mueller, and others, have proved beyond all doubt that fertilisation does not take place unassisted in very many Orchids, whilst in some few self-fertilisation is either occasional or usual. To the latter category belongs *Platanthera hyperborea*, which, as I mentioned before, is apparently the only Orchid now at all common in Iceland. It is almost superfluous to add that there is still a wide field for research in the direction indicated by the facts I now bring forward. *W. B. Hemsley.*

## RUSCUS HYPOPHYLLUM VAR. LATIFOLIUS.

THIS used to be the name of a very interesting plant, the broad-leaved Butcher's Broom. In the South of Italy, and especially in Malta, it is used in pots for decorating halls, &c., under the name of *Belladonna*. I have seen it in halls which were almost dark, and only lighted when the street door was opened. Under such circumstances it not only lived but thrived, and its mature foliage, or pseudo-foliage, was always of a dark green, and the stems grew 3 feet high and upwards. It requires no attention, little water, and remains green for years. Knowing all its fine qualities for indoor decoration, many years ago I imported some of this *Ruscus* into the Lucknow Horticultural Garden from the South of Europe, with the view of using it for verandah gardening. It took a little time to get acclimatised, but now it appears to feel quite at home, and grows plentifully in the shade of trees and bushes. I have now in my verandah fourteen pots of it. There is, in my opinion, no plant more suitable for verandah gardening in India than this interesting *Ruscus*. Every year towards the approach of winter it throws up a number of shoots, like those of *Asparagus*, of a delicate shiny pale green colour. On one occasion a "Padre Reverendo" told me that these young shoots, in Sicily, were used as *Asparagus*, and were very good: this, however, I have never tried. As the shoot matures its colour passes into a pistachio-green, and finally into the deepest green ever seen in foliage. The leaves are of the consistence of thick and tough paper. They are alternate, oval, and pointed at both ends, with a very short petiole. In the centre of this leaf, and usually on its underside, there is a small tuft of flower-buds, hence, I fancy, its specific name of *hypophyllum*. This of course botanically is no "phyllum" at all, although it acts the part of one. It is merely an expansion of the peduncle on both its sides and beyond it, leaving the inflorescence as if it were sessile, in the centre of the pseudo-leaf, which is often several inches long. The real leaf is a minute thing, narrow and pointed, varying from one-half to a quarter of an inch long and only visible in the young shoots, as it drops off later on leaving only a minute scar. The pseudo-leaves come out of the axillæ of the true and temporary leaves; all the young pseudo-leaves have to show that they are expanded peduncles is a minute bract in the centre of their lower or upper surface, from the axilla of which a small tuft of minute flowers, opening usually one at a time, grows. The flower is very insignificant, and consists of a whorl of six minute green petals, in the midst of which is a purple club-like column tipped with pollen. The ovary appears rudimentary, and is enclosed at the bottom of this hollow column. Some of the pseudo-leaves are barren, that is, have no inflorescence; and the terminal ones are generally so. I have



never seen the fruit of this *Ruscus* in India, but in the South of Europe one of the flowers is sometimes followed by a vermillion-coloured little oval berry about the size of a small marble, and containing one seed surrounded by a whitish pulp. I have never seen it propagated by seed, but always by division of the roots or underground stems. The whole world is often ransacked for some plants that will thrive indoors, and yet here is one which appears to possess all the necessary qualifications for admittance into ballrooms, drawing-rooms, and other indoor places, and no one seems to care about it. I should say for the darkest corners of rooms it is admirably suited, and, as I said, it scarcely requires any attention, rarely any water, and, even when much neglected, it does not seem to mind it. Its pseudo-foliage is so coriaceous that it can stand the hottest wind of India. Of course if suitable soil and conditions are given, like everything else, it grows luxuriantly; bad soil, however, and neglect will not kill it, but only make it stunted. For these reasons I should say it is admirably suited to the heated rooms of England, where fires and gas in winter render the air very dry. I think this interesting *Ruscus hypophyllum* certainly deserves attention for the purposes above indicated.

While discussing the subject of indoor gardening I certainly think that a more æsthetic form of pot might be devised than the ordinary conical one, which, while being prettier in outline, would meet the necessity for ease in shifting. I have in my verandah a form of pot with the above *Ruscus* which has a much prettier outline than the ordinary conical pot, and plants look much more elegant in it. On one occasion the potter here had none of the ordinary pots, which in India might usually be called "frights." He had ready, however, a number of earthen pots used by sweetmeat sellers for keeping curds in, and other similar things. They have a pretty outline. So, making a virtue of necessity, I took some of these, bored holes in their bottoms, and used them as flower-pots. Afterwards I found that the *tout ensemble* of pot and plant (especially when *Dracæna*, *Ruscus*, *Canna*, and *Calamus* were planted in them) was far more pleasing to the eye than when the old-fashioned pot was used.

By allowing the ball of earth to dry before shifting, it shrinks sufficiently to enable it by a little management to come out by a half revolution. If the interior is spherical, this half revolution will be more easily effected. The ingenuity of English potters, however, might devise a somewhat conical interior, while the external outline remained "æsthetic." Glazed and decorated vases of this shape for drawing-rooms and halls might be made very picturesque. The ordinary pot is very convenient for nurserymen, and for raising plants in quantity, but for verandah and indoor gardening, something with a more elegant outline might, I think, be easily devised, so as to please the eye and not bother the gardener. *E. Bonavia, M.D., Etawah.*

## Reports of Societies.

### ROYAL NATIONAL TULIP: May 30.

This annual exhibition took place in the Botanical Gardens, Old Trafford, Manchester, on the above date, and it may be said to have made the ninth day of Mr. Findlay's great horticultural carnival. The large show-house, bereft of its inhabitants, which made so much of the great Whitsun show, was now handed over to the Tulip-men, who placed their flowers on the tables running along the centre of the spacious conservatory. As many as twenty-two exhibitors staged their flowers, and they covered a considerable space of tabling. The show was scarcely so large as usual, and the quality, with but few exceptions, was not nearly so apparent as on previous occasions; the fixture was too early to suit some growers, and notably the worthy President of the Society, Samuel Barlow, Esq., who was scarcely able to cut a flower from his famous Tulip garden at Stakehill. He will this season bloom some 5000 flowers, and his beds are full of promise, but they will not be at their best for a week or ten days. What flowers Mr. Barlow was able to show came from Shim, his new place at Llandudno. The Rev. Mr. Horner was in strong force, and he brought from his northern home at Burton-in-Lonsdale some remarkable flowers of the highest quality; he took a high position in the leading classes, and was the fortunate possessor of the three premier flowers.

A few new flowers were staged, but they could not be regarded in their present form as superior to the leading varieties of the past few years. Some of the rectified flowers were in excellent character, and the breeders were as usual most attractive in their unbroken rich and delicate self colours. A selection of the finest flowers

taken from the entire exhibition would show the following result:—Feathered bizarres: Commander, Masterpiece, Royal Sovereign, William Wilson, and Hepworth's Seedling, the latter very fine, and like a seedling of the Sir Joseph Paxton type. Flamed bizarres: Sir J. Paxton, Polyphemus, Dr. Hardy, and Orion. Feathered roses: Heroine, Charnier, which does not appear to differ from Mabel; Industry and Modesty. Flamed rose: Annie McGregor, Old Aglaia, so ancient as to possess an almost prehistoric reputation; Triomphe Royale, also a very old variety, and Mabel, the last named of a kind of slated-scarlet colour. Feathered bybloemens: Mrs. Cooper, extra fine; Friar Tuck, King of the Universe, Alice Grey, May Queen, and the new John Hart. Flamed bybloemens: Talisman, Chancellor, May Queen, and Walker's Duchess of Sutherland. A grower having the foregoing varieties might aspire to the highest honours in Tulip showing.

### BROKEN OR RECTIFIED TULIPS.

The principal class was for twelve dissimilar Tulips, two feathered and two flowered in each class of bizarres, roses, and bybloemens. Six stands were staged, and the Rev. F. D. Horner, of Burton-in-Lonsdale, appeared to be as invincible as with Auriculas, as he set up an excellent stand, to which the judges had no hesitation in awarding the 1st prize, consisting of feathered bizarres Hepworth's Seedling and William Wilson (Hardy); flowered bizarres Polyphemus (Barlow) and Sir Joseph Paxton; flowered roses Heroine and Charnier; flowered roses Aglaia and Annie McGregor; feathered bybloemens Mrs. Cooper, a charming flower, and Friar Tuck; flowered bybloemens Talisman and Walker's Duchess of Sutherland, William Wilson, Mrs. Cooper, Friar Tuck, Hepworth's Seedling, which is very fine both in form and colour; Annie McGregor, very rich; Barlow's break of Polyphemus, Sir J. Paxton, finely flamed, and Heroine, were very fine indeed, and seen in their best form. 2d, Mr. D. Woolley, druggist, Stockport, with feathered bizarres Masterpiece and Photo; flowered bizarres Sir J. Paxton and Masterpiece; feathered roses Mrs. Lea and Julia Farnese; flowered roses Mabel and Aglaia; feathered bybloemens Bessie and King of the Universe; flowered bybloemens Duchess of Sutherland and Chancellor. 3d, Mr. Thomas Haynes, Church Street, Warwick, with a good lot; 4th, Mr. William Whittaker, Peru Street, Salford; 5th, Mr. James Thurstan, Wolverhampton.

Class 2, for six Tulips, one feathered and one flamed of each class, brought eight competitors, and the Rev. F. D. Horner was placed 1st, with beautiful blooms of feathered bizarre Masterpiece, feathered bizarre Sir J. Paxton, feathered rose Mabel, and flamed rose Annie McGregor, feathered bizarre Mrs. Cooper, and flamed bybloemen Talisman. 2d, S. Barlow, Esq., Stakehill House, Castleton, was 2d, showing smaller but charming flowers of feathered bizarre Dr. Dalton, flamed bizarre William Lea, feathered rose Hepworth's Seedling, flamed rose Mabel, feathered bybloemen Talisman—shown also in a flamed character. 3d, Mr. D. Woolley; 4th, Mr. T. Haynes; 5th, Mr. J. H. Wood, Royton; 6th, Mr. James, Thurstan.

Class 3 was for the same number of Tulips, but the competition was confined to those who subscribe half-a-guinea only, on the ground that they represent the small growers, and should be encouraged. Four stands of flowers were staged, and Mr. H. Housley, Edward Street, Stockport, was 1st, with feathered bizarre Royal Sovereign, flamed bizarre Sir J. Paxton, feathered rose Mrs. Lea, flamed rose Lady Catherine Gordon, feathered bybloemen Adonis, flamed bybloemen Duchess of Sutherland. 2d, Mr. Wright Prescott, Bedford Leigh, Lancashire, with feathered bizarre Royal Gem, flamed bizarre Sir J. Paxton, feathered rose Lady Lylford, flamed rose Mrs. Woollar, feathered bybloemen Guido, flamed bybloemen Adonis. 3d, Mr. R. Wolfenden, Thorpe, Royton; 4th, Mr. A. Fearnley.

Class 4, for three feathered Tulips, brought five competitors, and here the Rev. F. D. Horner was 1st, with charming flowers of bizarre Commander, rose Modesty, and bybloemen Mrs. Cooper; 2d, Mr. W. Dymock, Warren Street, Stockport, with bizarre Mr. Mill, rose Alice, and bybloemen King of the Universe; 3d, Mr. D. Woolley, with bizarre Magnum Bonum, rose Kate Connor, and bybloemen Bessie; 4th, Mr. T. Haynes; 5th, Mr. James Boydell. In the class for three flamed flowers, always more numerously represented than the feathered varieties, there being on this occasion thirteen competitors, the Rev. F. D. Horner was again 1st, with bizarre Orion, rose Annie McGregor, and bybloemen Talisman; 2d, S. Barlow, Esq., with bizarre Dr. Hardy, rose Mabel, and bybloemen May Queen; 3d, Mr. T. Haynes, with bizarre Sir J. Paxton, rose Triomphe Royale, and bybloemen Walker's Duchess of Sutherland; 4th, Mr. D. Woolley; 5th, Mr. A. Fearnley; 6th, Mr. H. Housley.

Then came a class for two Tulips, one feathered and one flamed, reserved for maiden growers, but there was only one entry, from Mr. Thomas Boydell, who had feathered bizarre Duke of Rutland, and flamed bizarre Sir J. Paxton. But in the open class for the same there were fourteen competitors, and Mr. H. Housley was placed 1st, with feathered bizarre Royal Sovereign and flamed bizarre Sir Joseph Paxton; 2d, the Rev. F. D. Horner, with flamed rose Triomphe Royale and feathered bybloemen Mrs. Cooper; 3d, Mr. Thomas Haynes, with feathered bizarre Ajax and flamed rose Aglaia; 4th, Mr. John Morris; 5th, S. Barlow, Esq.; 6th, Mr. W. Whittaker.

Then followed prizes for single blooms in each of the six classes, viz., feathered and flamed bizarres, feathered and flamed roses, and feathered and flamed bybloemen; from sixty to seventy flowers being staged in each.

In the class for feathered bizarres Mr. T. Baker was 1st, with Masterpiece; 3d, with Captain Winslow; and

5th, with Duke of Devonshire; Mr. H. Housley 2d, with Royal Sovereign; the Rev. F. D. Horner 4th, with Hardwick's Seedling; and 6th, with Masterpiece. With flamed bizarre the Rev. F. D. Horner was 1st, with Sir J. Paxton; and 3d, with Orion; S. Barlow, Esq., 2d, with Excelsior; Mr. T. Baker 4th, with Overshaw; the Rev. F. Tynons, Baskin Hill, Drumconna, Dublin, 5th, with Sir J. Paxton, a flower that should certainly have been nearer the 1st place; 6th, Mr. T. Haynes, with William Lea.

The Rev. F. D. Horner was very strong in the class for feathered roses, for he was 1st, with Heroine; 2d, with Charnier; 3d, with Industry; and 6th, with Modesty; S. Barlow, Esq., 4th, with Modesty; and Mr. D. Woolley, 5th, with Heroine.

In the class for flamed roses Mr. D. Woolley was 1st, with Aglaia; and 4th, with Mabel; Mr. T. Haynes 2d, with Aglaia; and 3d, with Industry; S. Barlow, Esq., 5th, with Lady Sefton; and 6th, with Anastasia. With feathered bybloemen Mr. W. Dymock was 1st and 2d, with John Hart; 3d, with a seedling; and 4th, with Lord Denman; Mr. D. Woolley 5th, with King of the Universe; and the Rev. F. D. Horner 6th, with Mrs. Jackson.

In the class for flamed bybloemens the Rev. F. D. Horner was 1st, with Talisman; Mr. T. Haynes 2d, with Queen of the Universe; 3d, with Alice Maud; and 5th, with Duchess of Sutherland; and Mr. T. Baker 6th, with Bessie.

### BREEDER TULIPS.

Of these there were, as is usual, a large number, many of them self flowers of great beauty. In the class for six flowers, two of each, Mr. James Thurstan, who has during the past few years obtained a fine lot of seedlings, was 1st, with medium sized but excellent blooms of bizarre Sir J. Paxton and a seedling rose, Annie McGregor and a seedling, and two seedling bybloemens; 2d, the Rev. F. D. Horner, with a fine lot of flowers of large size and great beauty, having bizarre Sir J. Paxton and Dr. Dalton, rose Lady Burdett Coutts and Lady C. Grosvenor, bybloemen Talisman and Glory of Stakehill; 3d, S. Barlow, Esq., with beautiful blooms of bizarre William Lea and Sir J. Paxton, roses Annie McGregor and Mr. Barlow, bybloemen Nimbus, and a seedling; 4th, Mr. T. Haynes; 5th, Mr. T. Whittaker.

In the class for three breeders the Rev. F. D. Horner was again 1st, with bizarre Dr. Dalton, rose Lady Burdett Coutts, and bybloemen Glory of Stakehill; 2d, S. Barlow, Esq., with bizarre Lord Denman, rose Annie McGregor, and bybloemen Glory of Stakehill; 3d, Mr. W. Whittaker, with bizarre Sir J. Paxton, rose Mabel, and bybloemen Delicata; 4th, Mr. H. Housley; 5th, Mr. A. Fearnley; 6th, Mr. John H. Wood.

In the classes for single blooms of breeder Tulips a large number were staged. In the class for bizarres the results were—1st, Mr. T. Haynes, with Sir J. Paxton; 2d, the Rev. F. D. Horner, with Dr. Dalton, and 3d with Excelsior; 4th, Mr. W. Whittaker, with Sir J. Paxton; 5th, S. Barlow, Esq., with Lee's No. 9, and 6th with Lord Delamere.

### ROSE BREEDERS.

1st, the Rev. F. D. Horner, with Mrs. Barlow, and 2d with Lady Burdett Coutts; 3d, Mr. D. Woolley, with Mabel, and 4th with Lord Derby; 5th and 6th, S. Barlow, Esq., with seedlings.

### BYBLOEMEN BREEDERS.

1st, the Rev. F. D. Horner, with Miss Harding, 2d with Ashmole's seedling, and 6th with Alice Grey; 3d, S. Barlow, Esq., with Nimbus, and 4th and 5th with seedlings.

### PREMIER FLOWERS.

It is customary to offer prizes for the best feathered, flamed, and breeder flowers, selected from the whole show. On this occasion the Rev. F. D. Horner supplied the flowers for all three awards. The best feathered bloom was Mrs. Cooper, bybloemen, in his 1st prize stand of twelve varieties; the best flamed flower Sir J. Paxton, in his 1st prize stand of six varieties; and the best breeder, Glory of Stakehill, in his 2d prize stand of six flowers.

A First-class Certificate of Merit was awarded to Mr. W. Dymock for feathered bybloemen John Hart, a seedling of much promise, raised from Adonis.

### EDINBURGH BOTANICAL: May 14.

THE Society met in the class-room, Royal Botanic Garden, Professor Dickson in the chair.

The following communications were read:—

I. "Note on *Strophanthus hispidus* from Mr. John Buchanan, with Exhibition of Specimens." By Professor T. R. Fraser, M.D., F.R.S.E.

Professor Fraser announced that he had discovered how the active principle of this plant, used by the natives on the Shire, East Africa, as well as many other districts of that continent, for poisoning their arrows, is of incalculable benefit in cardiac diseases. Though acting in the same manner, it far surpasses the principle of digitalis in intensity.

II. "Notes on the Vegetation and Vegetable Products of Blantyre and Zomba Districts, Africa." By John Buchanan.

Mr. Buchanan gave many details as to the trees, fruits, and economic plants of these districts. The Baobab is conspicuous in districts lower than 2000 feet in elevation; while the *Muska*, *Napala* *Kirkii*, is characteristic of the highlands. This latter tree, which is usually 12 feet or so high, and about a foot in diameter, yielding a wood not unlike mahogany, is the most important one of the Zomba district. Its fruit is much eaten by the natives.



A native substitute for the Mangosteen—a species of *Garcinia*—is also fairly edible, while the native *Damson* is the fruit of *Ximenia americana*; *Rubus rigidus* is now extensively sold by the natives. Amongst the native representatives of the Leguminosae are many well worthy of a place in our home greenhouses, such as *Tephrosia Vogeli* and *purpurea*, several *Crotalaris*, and *Clematis Kirkii*, as well as *Hibiscus*, *Abutilons*, *Convolvuli* are characteristic features of the forest scenery; *Liliaceae* are sparse, though there is a fine *Crinum*, and twenty or thirty species of ground *Orchids*. The top of *Zomba* is rich in *Heliochrysums* and *Alyssums*, as well as in a tall *Polygala*, whose flowers, distinct in colour from the surrounding vegetation, stand out in fine contrast with it. There are also many Tree Ferns on this high mountain summit; *Adiantum*, *Asplenium*, and *Pteris* abound in the district, while a species of *Scaginella* may be found almost everywhere in damp shady places. Mr. Buchanan, who is enjoying a furlough at his native village of Muthill, Perthshire, purposes returning to Mount Zomba early in July.

III. "Preliminary Note on the Evolution of Oxygen by Seaweeds." By J. Rattray, M.A., B.Sc., F.R.S.E.

IV. "Exhibition of a new arrangement for demonstrating Botanical Microscopical Objects by aid of the Lantern." By Dr. Foulis, F.R.C.S.E.

V. "Register of spring-flowering plants, showing the dates when the first flowers opened, of forty selected plants at the Royal Botanic Garden, Edinburgh, during the years 1884 and 1885."—

	First Flowers Opened.	
	1884.	1885.
1. <i>Adonis vernalis</i> .. .. .	March 26	April 8
2. <i>Arabis albidus</i> .. .. .	Jan. 23	Feb. 28
3. <i>Aubrietia grandiflora</i> .. .. .	Feb. 10	March 8
4. <i>Bulbocodium vernum</i> .. .. .	Jan. 26	Feb. 23
5. <i>Corydalis solida</i> .. .. .	March 13	April 3
6. <i>Corylus Avellana</i> .. .. .	Jan. 14	Feb. 4
7. <i>Crocus susianus</i> .. .. .	" 19	" 18
8. " <i>vernus</i> .. .. .	" 28	" 23
9. <i>Daphne Mezereum</i> .. .. .	" 20	" 11
10. <i>Dondia epipactis</i> .. .. .	Dec. 29	Jan. 13
1883.		
11. <i>Draba aizoides</i> .. .. .	Feb. 12	March 30
12. <i>Erauthus hyemalis</i> .. .. .	Jan. 21	Feb. 14
13. <i>Erythrorium Deos-cacis</i> .. .. .	March 12	March 22
14. <i>Fritillaria imperialis</i> .. .. .	" 27	April 15
15. <i>Galaunthus nivalis</i> .. .. .	Jan. 19	Feb. 6
16. " <i>plicatus</i> .. .. .	" 26	" 8
17. <i>Hyoscyamus scopolia</i> .. .. .	March 20	April 1
18. <i>Iris reticulata</i> .. .. .	Feb. 28	March 6
19. <i>Leucojum vernum</i> .. .. .	Jan. 26	Feb. 12
20. <i>Mandragora officinalis</i> .. .. .	Feb. 9	March 17
21. <i>Narcissus Pseudo-Narcissus</i> .. .. .	March 18	April 8
22. " <i>pumilus</i> .. .. .	Feb. 28	March 15
23. <i>Nordmannia cordifolia</i> .. .. .	" 15	" 1
24. <i>Omphalodes verna</i> .. .. .	" 12	" 31
1884.		
25. <i>Orobanchis verna</i> .. .. .	Feb. 9	" 15
26. <i>Rhododendron atrovirens</i> .. .. .	Jan. 10	Feb. 13
27. " <i>Nobleanum</i> .. .. .	Feb. 2	March 5
28. <i>Ribes sanguineum</i> .. .. .	" 20	" 28
29. <i>Scilla bifolia</i> .. .. .	" 14	" 10
30. " <i>alba</i> .. .. .	" 21	" 12
31. " <i>præcox</i> .. .. .	Jan. 20	Feb. 25
32. " <i>sibirica</i> .. .. .	" 20	March 1
33. " <i>taurica</i> .. .. .	Feb. 24	" 14
34. <i>Sisyrinchium grandiflorum</i> .. .. .	" 14	" 9
35. " <i>album</i> .. .. .	" 12	" 7
36. <i>Symphitum caucasicum</i> .. .. .	" 15	April 12
37. <i>Symplocarpus fœtidus</i> .. .. .	" 4	Feb. 20
38. <i>Tus-silago alba</i> .. .. .	Jan. 18	" 10
39. " <i>fragrans</i> .. .. .	Dec. 26	Jan. 7
1883.		
40. " <i>nivea</i> .. .. .	Feb. 14	April 2

"Report on the Progress of Vegetation at the Royal Botanic Garden, Edinburgh, for April, 1885." By Robert Lindsay, Curator:—

During the month of April vegetation generally made good progress. The weather during the latter half of the month was mild and genial, frequent light showers of rain and bright sunshine alternated, and these conditions, combined with southerly winds, caused vegetation to make rapid progress. Many deciduous trees had their leaves well developed at the end of the month. Pear, Cherry, and Currant were in full flower and well laden, Apple blossom being also well advanced. Although a good deal of frost occurred little or no damage was done, owing chiefly to the lateness of the season. The thermometer was at the freezing-point on ten occasions, indicating 27° of frost collectively, as against 37° for the corresponding month last year. The lowest readings were on the 2d, 29°, 4th, 25°, 9th, 28°, 14th, 28°, 15th, 27°. The highest morning readings were on the 19th, 61°; 20th, 53°; 21st, 55°; 27th, 54°;

30th, 55°. The lowest day temperature was 42°, which occurred on the 8th, and the highest 68°, on the 19th.

The aggregate amount of frost registered this season up till the end of April is 466°, while for the same period last season 163° only were registered. The lowest point reached this season was 18° Fabr., or 14° of frost, which occurred on January 23. The following are the amounts of frost registered for each month, viz.:—October, 7°; November, 64°; December, 86°; January, 70°; February, 67°; March, 82°; April, 27°.

The rock garden was very gay during the month; 182 species and varieties of alpine plants came into bloom, making a total of 280 since January 1, as compared with 225 for the same period last year. Amongst the most conspicuous plants which flowered were:—

<i>Adonis vernalis</i>	<i>Narcissus rupicola</i>
<i>Androsace carnea</i>	<i>Lithospermum prostratum</i>
" <i>coronopifolia</i>	<i>Petrocallis eyreana</i>
" <i>Laggeri</i>	<i>Primula ciliata purpurata</i>
" <i>foliosa</i>	" <i>longiflora</i>
<i>Aubrietia Hendersoni</i>	" <i>Clusiana</i>
<i>Anemone fulgens</i>	" <i>cashmiriana</i>
" <i>Robinsoniana</i>	" <i>rosea</i>
" <i>pulsatilla</i>	" <i>Sieboldi</i>
<i>Draba Maweana</i>	" <i>viscosa</i>
<i>Deutaria eueaphylla</i>	<i>Polyga chamæbuxus</i>
<i>Corbularia Graelsi</i>	" <i>purpurea</i>
<i>Epigaea repens</i>	<i>Menziesia corulea</i>
<i>Gentiana verna</i>	" <i>empetriformis</i>
<i>Helonias bullata</i>	<i>Rhododendron ciliatum</i>
<i>Iberis petraea</i>	<i>Soldanella montana</i>
<i>Narcissus bulbocodium minor</i>	<i>Podophyllum Emodi</i>
" <i>Emperor</i>	<i>Tulipa pulchella</i>
" <i>Empress, &amp;c.</i>	<i>Ranunculus amplexicaulis</i>
" <i>incomparabilis</i>	<i>Trifolium uniflorum</i>
" <i>Watkin</i> "	<i>Muscari Arzai</i>

A large number of interesting plants in flower was laid on the table for exhibition, among which was a pure white variety of *Gentiana verna*, found by Professor Dickson, at Teesdale, while with the Scottish Alpine Botanical Club's excursion to that district last autumn.

Mr. Lindsay drew attention to a fine large specimen of *Morehella esculenta*, which was sent to the meeting by Mr. Dunn, Dalkeith Palace Gardens, who found it growing under a Gooseberry bush in the kitchen garden there.

VI. "Report on Temperature, Vegetation, &c., in the Botanic Garden, Glasgow, April 1885." By Robert Bullen, Curator.—The thermometer has been at or below the freezing point nine times, the lowest reading being 26° during the night of the 8th. No frost has been registered since the morning of the 18th. During the latter part of the month the temperature has been higher than is usual, weather often sunless, and showers frequent, but generally light; this has had a marked effect on vegetation, the growth developed in a few days being wonderful. Like the corresponding month last year, the rainfall has been light, and favourable for seed sowing, which important operation had in many instances to be deferred owing to the frequent slight frosts.

#### MANCHESTER BOTANICAL AND HORTICULTURAL.

The Whitsun show of this Society closed in a manner highly satisfactory to the Council and Mr. B. Findlay, for it left them with a gain of something like £700. Whit Monday, which was so wet about London, was gloriously fine at Manchester, and the largest numbers with but one exception, which had attended this show on a Whit Monday was present, and over £800 were taken at the gates. Though only the Tulips were on view on Saturday last, and there was the counter attraction of a high-class county cricket-match close by, a large number of persons were at the Botanical Gardens, and the sum of over £67 was taken in sixteen admissions. The gardens are now being seen to the best advantage; the spring tints are on the trees, the green-sward is in the best condition, and many shrubs and plants are in bloom. Everywhere the admirable care bestowed in keeping the grounds is apparent. The entrance walk is greatly improved by the addition on the left-hand of a fringe of rockwork, planted with many choice hardy subjects. The houses are attractive with flowering plants, and such specimens of *Schizanthus* as one seldom sees in the show-house. Manchester has once more come to the fore in a decided and successful manner. A spirited policy on the part of the Council commands and receives a generous public support.

KLUGIA NOTONIANA. — This is an old introduction from the East Indies, probably lost, and re-introduced last year to Kew, where it is now flowering in the Begonia-house. The flowers are small, but of a beautiful intense blue, and singularly interesting on account of the curious conformation of the corolla. The upper lip is small, the lower one large and pouched, but much flattened vertically, and completely enclosing the organs of the flower. At first sight one would imagine the flower was self-fertilising, but its deep colour and singular development preclude this idea. A more plausible theory is that the flower is specialised for certain large insects which are able to open the lip and effect an entrance, to the exclusion of small ones. The plant is figured in the *Botanical Magazine*, t. 4620, and rejoices in several synonyms, such as *Wullenia Notoniaea*, *Glossanthus Notoniaea*, and *G. malabarica*.

#### LEUCOIUM HERNANDEZII.

*LEUCOIUM Hernandezii* of Cambessides has for many years been one of our botanical puzzles. Nobody could tell you, with any degree of certainty, which of the summer Snowflakes it was. In my notes on the *Leucoiums*, published last year in your columns (*Gardeners' Chronicle*, March 15, 1884, p. 341), I stated that I had not been able to find any illustration of this flower, and I do not believe that any has ever been published. I afterwards searched through the specimens in the Kew herbarium, with the kind assistance of Mr. Baker, but it was not to be found there. Mr. Baker was anxious to have the matter cleared up, believing it would be found to be the same as *L. pulchellum*, and there appeared to be no other way open than that of obtaining bulbs from its native habitat. Dean Herbert made it the third of the *Leucoiums*, and described it carefully; so I suppose he had seen it under that name. Oddly enough, he describes *pulchellum* from the plate in Salisbury's *Paradisus*, and he adds: "I have never seen the plants." He states that *L. Hernandezianum* differs from *æstivum* in having flowers about half the size, and a more oblong germen, which is quite correct; and he states that it was found by Dr. Hernandez in Majorca, on the mountains near Lluch. I, therefore, sent a sketch of the plant as I expected to find it to Señor M. Juan Rodriguez, of Malion, Minorca, an excellent botanist, for whose name I was indebted to Mr. Baker, and I stated the case as above, and asked if he would be so good as to endeavour to procure bulbs of the plants in the locality indicated by Dean Herbert. M. Rodriguez very kindly did so, and succeeded in procuring twenty bulbs, which in due time reached me in England. Several of these have flowered and are now in flower, and they have been seen by many botanists, and carefully compared with the other *Leucoiums*—*æstivum* and *pulchellum*. The conclusion arrived at has been that *L. Hernandezii* is the same as *pulchellum*.

Salisbury appears to have named *L. pulchellum* in his note of 1807, whereas Cambessides' paper, in which it was afresh introduced and named after its finder, Dr. Hernandez, was published in 1827, so that the name *pulchellum* has priority over *Hernandezii*, or *Hernandezianum*, as Dean Herbert has it, by twenty years. The latter names will, therefore, have to be dropped for the future, except as synonyms, and the name *pulchellum* will stand. There are thus but two summer Snowflakes—*æstivum* and *pulchellum*. I have been surprised to find how rare the true form of *L. æstivum* is in the North of England, whereas *L. pulchellum* abounds. I had but one clump of it in my garden, whereas we have at least fifty of *pulchellum*, and, oddly enough, that single clump of *æstivum* was marked *Hernandezii* by a very leading authority, and the various clumps of *pulchellum* were divided by fancied differences into *æstivum* and *pulchellum*. There are slight differences just as there are in the spring Snowflakes—some have yellower green spots, but beyond this there is no real difference. The best plate of the true form of *L. æstivum* is to be found in Jacquin's *Flora Austriaca*, vol. iii., pl. 263, and the only two I know of for *L. pulchellum* are in Salisbury's *Paradisus*, pl. 74, and Loddiges' *Cabinet*, 1478. *W. Brockbank, Brockhurst, Didsbury, May 29.*

#### THE CABBAGE APHIS.

MOST persons are familiar with the swarms of blueish aphides that in some seasons affect the common Shepherd's Purse. It occurs commonly on the Turnip, Radish, field Cress (*Isatis tinctoria*), Shepherd's Purse (*Capsella bursa-pastoris*), and Charlock (*Brassica arvensis*), in addition to Cabbage, and upon this last plant, according to Buckton, "It often crowds both the upper and under sides of the foliage in such numbers that the leaves become hidden by the living mass. Indeed, sometimes, weight for weight, there is more animal than vegetable substance present. The leaves then become putrid, offensive in odour, and quite disgusting to the eye. Frequently whole fields of Cabbage are rendered unfit for the market by the work of this species."

"The remedy of fumigation with tobacco smoke, as recommended by Fitch, Curtis, Thomas, and others, is," says Prof. Riley in his report of the State Entomologist, "impracticable on a large scale, and applications of soot, ashes, lime, and washes of tobacco-



water and other materials seem ineffectual. Strong whale-oil soap solution, indeed, seems to be the only remedy so far tried which affords any satisfaction. This is highly recommended by Prof. W. R. Lazenby, formerly of the Horticultural Department of Cornell University. Saschenberg recommends sprinkling with soap-suds treated with quassia, and also the use of a decoction of fresh Walnut leaves. The Pyrethrum infusion will destroy a large number of the insects, which work in such exposed situations that they can be easily reached by a spray, while the waxy material which they excrete is not sufficiently abundant to perfectly shield a watery solution, as is the case with many allied species. But the kerosene emulsion will prove more satisfactory than any of the insecticides mentioned." (See vol. xxii., 1884, p. 304.)

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, JUNE 3, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 48 Years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 48 Years.	Dew Point.	Degree of Humidity, Sat. = 100.		
May 28	In. 29.74	-0.04	75.8	54.3	21.5	63.4	+7.8	54.0	74	S.W.	0.00
29	29.83	+0.01	70.3	53.0	17.3	58.2	+2.4	52.7	82	S.W.	0.35
30	29.83	+0.10	68.0	46.1	21.9	55.7	-0.3	47.4	73	W. S.W.	0.00
31	29.93	+0.13	67.3	50.4	16.9	56.7	+0.4	45.5	64	W. S.W.	0.00
June 1	32.03	+0.20	68.9	47.0	21.9	56.0	-0.45	45.6	68	N.W.	0.00
2	30.06	+0.26	78.8	45.8	33.0	61.0	+5.3	49.6	67	W.	0.00
3	29.87	+0.07	81.5	49.4	32.1	64.1	+7.2	48.0	56	W. S.W.	1.00
Mean	29.91	+0.12	72.9	49.4	23.5	59.3	+3.2	49.0	69	W. S.W.	0.35

May 28.—Very fine day.  
— 29.—Rain in early morning. Very fine day.  
— 30.—Very fine day.  
— 31.—Fine day, dull at times.  
June 1.—Fine day.  
— 2.—Very fine day and night.  
— 3.—Very fine day and night.

LONDON: Atmospheric Pressure.—During the week ending May 30, the reading of the barometer at the level of the sea increased from 29.79 inches at the beginning of the week to 30.07 inches by 9 A.M. on the 25th, decreased to 29.96 inches by 9 A.M. on the 26th, increased to 29.99 inches by 1 P.M. on the same day, increased to 30.02 inches by 9 A.M. on the 27th, decreased to 29.91 inches by 9 A.M. on the 28th, increased to 29.99 inches by 1 P.M. on the 29th, decreased to 29.96 inches by 5 P.M. on the same day, increased to 30.10 inches by 9 A.M. on the 30th, and was 30.04 inches by the end of the week.

The mean reading of the barometer for the week at the level of the sea was 29.99 inches, being 0.34 inch higher than last week, and 0.04 inch above the average of the week.

Temperature.—The highest temperature in the shade in the week was 75.8 on the 28th; the highest on the 25th was 62.5. The mean of the seven high day temperatures was 68.2.

The lowest temperature in the shade in the week was 42°, on the 25th; on the 28th the lowest temperature was 54.5. The mean of the seven low night temperatures was 47.8.

The greatest range of temperature in one day was 21.9, on the 30th; the smallest was 17.3°, on the 29th. The mean of the seven daily ranges was 20.4.

The mean temperatures were—on the 24th, 51°; on the 25th, 48.3°; on the 26th, 54.7°; on the 27th, 50°; on the 28th, 63.4°; on the 29th, 58.2°; and on the 30th, 55.7°; of these the 24th, 25th, 26th, and 30th were below their averages by 3° 6', 6° 7', 0° 5', and 0° 3' respectively; the 27th, 28th, and 29th being above by 3° 6', 7° 8', and 2° 4', respectively.

The mean temperature of the week was 55.8, being 6.8 higher than last week, and 0.4 higher than the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 131.5, on the 28th. The mean of the seven readings was 111.8.

The lowest reading of a minimum thermometer placed on grass was 34.2, on the 25th. The mean of the seven readings was 42.7.

Rain.—Rain fell on two days, to the amount of 0.46 inch.

ENGLAND: Temperature.—During the week ending May 30, the highest temperatures were 75.8 at Blackheath, 74.6 at Cambridge, 72° at Sheffield; the highest at Plymouth was 60.6, at Truro 62°, at Bolton 63.7. The general mean was 67.9.

The lowest temperatures were 35° at Hull, 37° at Leeds, 37.2 at Wolverhampton; the lowest at Truro was 47°, at Plymouth 46.5, at Brighton 46°. The general mean was 41.2.

The greatest ranges were 34.8, at Cambridge, 34° at Hull and Leeds, 33.8 at Blackheath. The smallest ranges were 14.1 at Plymouth, 15° at Truro, 20.5 at Bristol and Liverpool. The general mean was 26.7.

The mean of the seven high day temperatures was highest at Blackheath, 68.2, at Cambridge 66.8, at Brighton 63.8, and was lowest at Plymouth 57.4, at Bolton 58.5, at Sunderland 59.5. The general mean was 61.7.

The mean of the seven low night temperatures was highest at Brighton, 49.3, at Truro 49.1, at Plymouth 48.9; and was lowest at Bolton, 43°, at Wolverhampton 43.4, at Hull 44.1. The general mean was 46.4.

The mean daily range was greatest at Cambridge, 20.6, at Blackheath 20.4, at Hull 19.6; and was least at Plymouth, 8.5, at Liverpool 12.7, at Bristol 12.9. The general mean was 15.3.

The mean temperature was highest at Liverpool, 57.5, at Blackheath 55.8, at Brighton and Cambridge 54.8; and was lowest at Bolton, 49°, at Wolverhampton 50.2, at Sunderland 50.3. The general mean was 52.6.

Rain.—The largest falls were 1.54 inch at Sunderland, 0.57 inch at Plymouth, 0.55 inch at Cambridge; the smallest falls were 0.06 inch at Liverpool, 0.07 inch at Hull, 0.09 inch at Bradford. The general mean fall was 0.37 inch.

SCOTLAND: Temperature.—During the week ending May 30, the highest temperature was 64.9, at Leith, at Aberdeen the highest temperature was 61.5. The general mean was 63°.

The lowest temperature in the week was 28°, at Glasgow; at Leith the lowest temperature was 43.4. The general mean was 39.2.

The mean temperature was highest at Leith, 53.7; and lowest at Glasgow, 50.1. The general mean was 52.2.

Rain.—The largest fall was 0.62 inch at Aberdeen; the smallest fall was 0.24 inch, at Glasgow. The general mean fall was 0.41 inch.

JAMES GLAISHER F.R.S.

AN AUSTRALIAN FERN PARADISE.—The Blue Mountain Range, in New South Wales, is much frequented by Fern-hunters, especially in the vicinity of Mount Wilson, where the summit of the ridge is largely covered with a dense growth of Eucalypti, the mere trunks of which almost obscure the horizon, and in the undergrowth it is no exaggeration to say that thousands of Tree Ferns, ranging up to 30 feet in height, are visible in every direction. It is on the southern slopes that the Sassafras jungle is found, in which mosses and Orchids luxuriate, and festoons of lianes hang from the topmost branches. There are two peculiarities in this vegetation which are worthy of notice; first, that the Tree Ferns (*Alsophila australis*) frequently bifurcate at a short distance from the ground, and in many cases divide into three or four, and sometimes into five and six stems, from one root; second, that Tree Ferns (which must be of very ancient date) are frequently almost entirely absorbed by the growth of forest trees (*Quintetia Sieberii*), which, germinating in the axils of their fronds, send down suckers to the ground, and enclose within their solid timber the Fern-stems from which they derived their first support. In some cases are seen Ferns which, having attained a growth of 20 feet in height, have been laid low by the wind, and where some portions of their heads have touched the ground a second growth of equal altitude has succeeded, which in its turn has been subsequently enclosed by a *Quintetia* of large diameter, while the roots of the original Tree Fern still retain their vitality. *Sydney Paper.*

## Answers to Correspondents.

ASPECT FOR GREENHOUSE: W. W. We think span-houses, with low-pitched roofs, standing north and south, would suit such plants as you mention, and would render unnecessary the turning round of the plants, an operation often required in houses with a southerly aspect only.

DAISY: A. S. W. The Hen-and-chicken Daisy, owing its appearance to a formation of secondary flower-stalks in the axils of the bracts (axillary proliferation).

JUDGING AT RECENT SHOWS: J. C. & Co. We forwarded your letter to our reporter, and having received his reply, cannot admit that you have any just cause for complaint.

NAMES OF PLANTS: D. H. 1. *Limnanthes Douglasii*; 2. *Coronilla Emerus*.—D. W. H. 1. *Leucocium vernum*; 2. *Narcissus poeticus*; 3. *Primula Sieboldi*.—F. J. H. 1. a *Casuarina*; 2. *Escallonia macrantha*; 3. *Epimedium alpinum*; 4. *Ribes aureum*.—R. J. H. *Ulmus montana*.—F. T. *Epipendrum rhizophorum*.—C. W. *Cochlearia officinalis*.—R. G. I. *Polygala vulgaris*.

ORCHIDS: T. D. The variety you send is a fine one as regards size, form, and substance, but the colour is not so rich as in some we have seen. The *Amaryliss* is *Sprekella formosissima*.—A. J. We do not quite gather whether you allude to the photographs or the plants.

SULPHATE OF AMMONIA: A Reader. 1 cwt. per acre, mixed with some fine ashes or sand.

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## Markets.

COVENT GARDEN, June 4.

[The subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. Ed.]

BUSINESS has much improved, and prices all round are firm. *James Webber, Wholesale Apple Market.*

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 6-5 0	Lemons, per case	9 0-15 0
— Nova Scotia and	1 6-5 0	Melons, each	2 6-4 0
— Canadian, barrel	12 0-21 0	Peaches, per doz.	21 0-21 0
Figs, per dozen	6 0-10 0	Pine-apples, Eng. lb.	1 0-2 0
Gooseberries, ½-sieve	4 0-5 0	— St. Michael, each	2 6-8 0
Grapes, new, per lb.	2 0-5 0	Strawberries, per lb.	2 0-4 0

VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,	4 0-6 0	Lettuces, Cab., doz.	1 0-1 0
— per dozen	4 0-6 0	— English Cos, doz.	1 6-1 0
Asparagus, English,	1 6-6 0	Mint, green, bunch.	0 4-1 0
— per bundle	1 6-6 0	Mushrooms, basket.	1 0-1 6
— French, bundle	1 0-5 0	Onions, per bushel.	6 0-6 0
Beans, Eng., per 100	2 0-2 0	— Spring, per bun.	0 6-6 0
Beet, per dozen	1 0-1 0	Parsley, per bunch.	0 4-1 0
Cabbages, per dozen	1 6-2 0	Pears, per quart	2 0-2 0
Carrots, per bunch.	0 6-6 0	Potatoes, new, per lb.	0 3-1 0
Cauliflowers, Eng.	4 0-9 0	Radishes, per lb.	0 1-2 0
— lish, spring, per doz.	4 0-9 0	Rhubarb, bundle	0 6-1 0
Celery, per bundle.	1 6-2 0	Small salad, per	—
Cucumbers, each	0 6-1 0	— punnet	0 4-1 0
Endive, per dozen	2 0-1 0	Spinach, per bushel	1 6-2 0
Garlic, per lb.	0 6-1 0	Tomatoes, per lb.	2 0-2 0
Herbs, per bunch	0 2-0 4	Turnips, new, bunch	1 0-1 0
Horse Radish, bun.	3 0-4 0		

POTATOES.—*Magnum Bonum*, 60s. to 70s.; *Champions*, 40s. to 45s. per ton. New: *Jersey kidneys*, 14s. to 16s. per cwt.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-24 0	Foliage Plants, vari-	—
Arbor-vitæ (golden),	—	ous, each	2 0-10 0
— per dozen	6 0-18 0	Fuchsia, per dozen	6 0-12 0
— (common), dozen	6 0-12 0	Gestaria, 12 pots	6 0-9 0
Arim Lilies, dozen.	9 0-15 0	Hydrangeas, dozen.	12 0-18 0
Begonias, per dozen	6 0-12 0	Lilium anatolicum, per	—
Bouvardia, dozen	9 0-18 0	— dozen	30 0-40 0
Calceolarias, doz.	6 0-9 0	— longifolium, doz.	24 0-60 0
Cypripis, per dozen.	4 0-12 0	Marguerite Daisy,	—
Dracena terminalis,	—	— per dozen	8 0-15 0
— per dozen	30 0-60 0	Musk, per dozen	3 0-4 0
— viridis, per doz.	12 0-24 0	Myrtles, per dozen.	6 0-12 0
Erica, various, doz.	9 0-18 0	Palms in variety,	—
— Cavendishii, doz.	20 0-48 0	— each	2 6-21 0
— ventricosa, doz.	18 0-60 0	Pelargoniums, per	—
Euonymus, in var., doz.	6 0-18 0	— dozen	9 0-18 0
Evergreens, in var.,	—	— scarlet, dozen	4 0-9 0
— per dozen	6 0-24 0	Rhodanthus, per doz.	6 0-8 0
Ficus elastica, each.	1 6-7 0	Spirea, per dozen	9 0-18 0
Ferns, in var., dozen	4 0-18 0		



## CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Abutilon, 12 bunches 2 0-4 0	Marguerites, 12 bun. 3 0-6 0
Anemone, 12 bunch. 1 6-3 0	Mignonette, 12 bun. 3 0-9 0
Arum Lilies, 12 blms. 3 0-6 0	Myos tis, 12 bun. .. 2 0-4 0
Azalea, 12 sprays .. 0 6-1 0	Narcissus, various, 12 bunches .. 2 0-6 0
Bluebells, 12 bunch. 1 0-1 6	Pelargoniums, per 12 trusses .. 0 9-1 0
Bouvardias, per bun. 1 0-2 0	— scarlet, 12 trusses 0 4-0 6
Carnations, 12 blms. 1 0-2 0	Primula, double, bun. 0 9-1 0
Cinerarias, per bun. 0 6-1 0	Rhodante, 12 bun. 6 0-9 0
Eucharis, per doren 4 0-6 0	Roses (indoor), doz. 1 0-3 0
Gardenias, 12 blooms 1 6-4 0	— coloured, dozen 2 0-4 0
Heliotropes, 12 sprs. 0 6-1 0	— French, per doz. 0 4-0 6
Lapageria, white, 12 blooms .. 2 0-3 0	Spiraea, 12 bunches.. 6 0-9 0
— red, 12 blooms .. 1 0-2 0	Stephanotis, 12 spr. 2 6-4 0
Lily-of-Val., 12 bun. 3 0-9 0	Tropeolum, 12 bun. 1 0-1 6
Lilium longiflorum, 12 blooms .. 6 0-8 0	White Jasmine, bun. 0 6-1 0
Lilium candidum, 12 blooms .. 1 6-2 0	Woodroffe, 12 bun. 3 0-6 0

## SEEDS.

LONDON: June 3.—There is scarcely any business now doing in farm seeds. The prospects for red Clover seed for next season are not considered good, either in this country or America. Meantime, however, there is but little speculative inquiry for the small stocks left over. The prices asked for new French Trifolium are apparently too high for buyers on this side. For Mustard and Rape seed there is a good sowing demand; values keep steady. Other articles at this quiet season offer no subject for remark. *John Shru & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

## CORN.

At Mark Lane on Monday the reduction on both English and foreign Wheat was quoted 1s. to 2s. The latter shows good quality. Flour was even more unsaleable than Wheat, and fully 1s. per sack lower. Grinding Barley was dull of sale, at 6d. reduction. Beans and Peas were down 6d. to 1s. and Oats 3d. to 6d. per quarter. On Wednesday the fine weather and the Epsom races tended to check the already very limited business passing in the grain trade, and the tendency was adverse for both Wheat and flour. Maize engaged little attention. Barley remained unchanged, and Beans, Peas, and Oats were nominally the same as on Monday.—Average prices of corn for the week ending May 30:—Wheat, 34s. 11d.; Barley, 28s. 8d.; Oats, 22s. 9d. For the corresponding period last year:—Wheat, 37s. 7d.; Barley, 28s. 9d.; Oats, 21s. 2d.

## CATTLE.

At Copenhagen Fields on Monday the good finish up in the beef trade at the Central Market on Saturday induced hopes of a better demand for cattle here; but the result was disappointing, and although the previous Monday's extreme rates were obtained in exceptional instances, the current trade was against the seller. Sheep sold fairly well, and quite up to late value, but the lamb trade was decidedly worse, and prices much lower. Calves sold badly, though supply was lighter. No pigs were on offer, and quotations are nominal.—Quotations:—Beasts, 4s. to 4s. 8d., and 4s. 10d. to 5s. 4d.; calves, 4s. to 5s. 4d.; sheep, 4s. 8d. to 5s., and 5s. 4d. to 6s.; lambs, 6s. 4d. to 7s.; pigs, 4s. to 4s. 6d.—On Thursday trade was quiet. Supplies were ample for the demand. Beasts moved off very slowly, and were lower to sell. Sheep were in quiet request, and were weak in value. Lambs were a shade steadier, but no higher; calves lower to sell, pigs dull.

## HAY.

Tuesday's Whitechapel Market report states that trade was fair and supplies moderate. Quotations:—Clover, prime, 85s. to 108s.; prime second cut, 85s. to 100s.; inferior, 60s. to 75s.; hay, prime, 70s. to 98s.; inferior, 40s. to 60s.; and straw 26s. to 36s. per load.—On Thursday there was a moderate supply. Trade was quiet, except for best Clover, which was again dearer. Cumberland Market quotations:—Clover, best, 85s. to 105s.; other qualities, 60s. to 80s.; hay, best, 84s. to 95s.; other qualities, 40s. to 70s.; and straw, 28s. to 35s. per load.

## POTATOS.

The Borough and Spitalfields Markets reports state that of old Potatoes there is a short supply, dearer for good qualities. New Potatoes from abroad are coming in, fairly good. Quotations:—Scotch Regents, 8s. to 11s.; Kent ditto, 70s. to 100s.; Champions, 50s. to 60s.; Magnum Bonums, 70s. to 110s.; Victorias, 80s. to 110s. per ton; Jersey Kidneys, 18s. to 20s.; Lisbon and Malta Rounds, 8s. to 10s. per cwt.—The imports into London last week consisted of 288 boxes 2992 packages 5 cases from Malta, 5004 packages 4117 half-boxes Lisbon, 15 boxes Lyttelton, 157 cases 26 half-cases Salonica, and 390 baskets from St. Nazaire.

**Government Stock.**—Consols closed on Monday at 101½ for delivery, and 99½ to 100, x.d., for the account. The figures of Tuesday and Wednesday were 99½ to 99½, x.d., for both delivery and the account. Thursday's closing quotations were 99½ to 99½, x.d., for both the account and delivery.

## ROYAL HORTICULTURAL SOCIETY.

## ORCHID CONFERENCE

AT SOUTH KENSINGTON, MAY 12-13.

TWO

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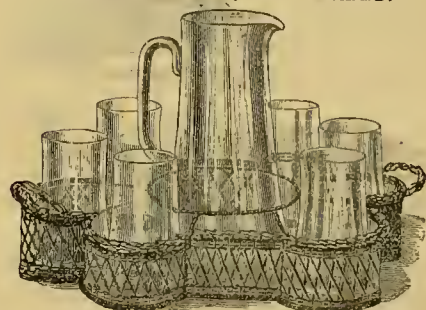
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In Amber Glass, in Blue Glass, and  
In Amber Glass with blue handles.

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Ladies' .. 2/6 Ladies' .. 3/11  
Gents' .. 3/8 Gents' .. 4/9  
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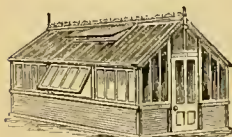
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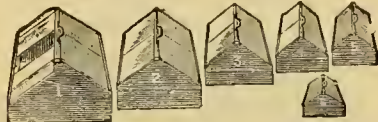
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Glazed with 21-oz. glass and Painted 3 coats.

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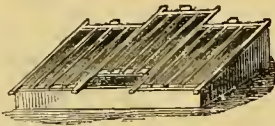
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8 ft. by 6 ft. ... 3 4 6  
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Cases, 5s.



**Cheap Cucum-**

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4 ft. x 4 ft.,

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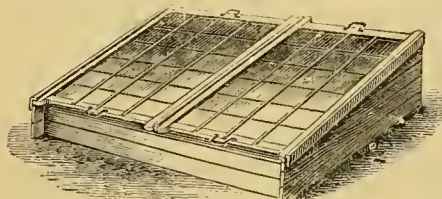
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10 0 0

The glass is nailed and puttied in. Lights and framing for brick pits at proportionately low prices.

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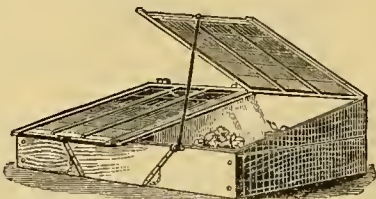
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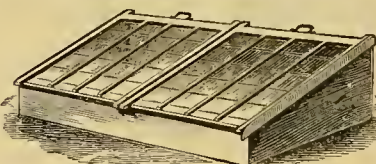
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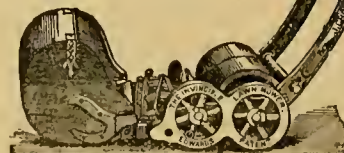
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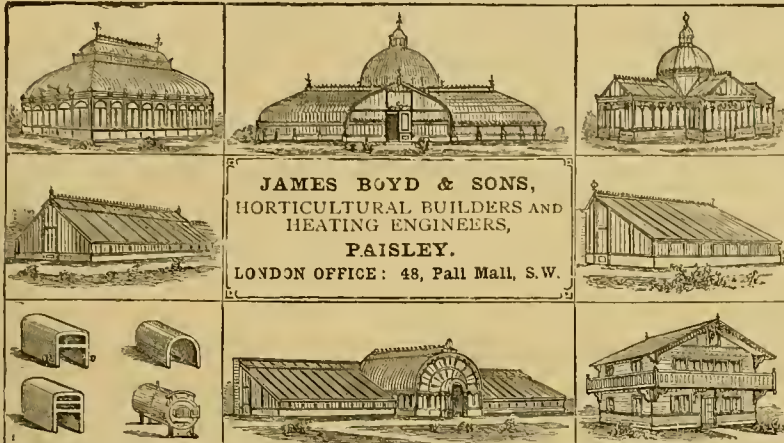


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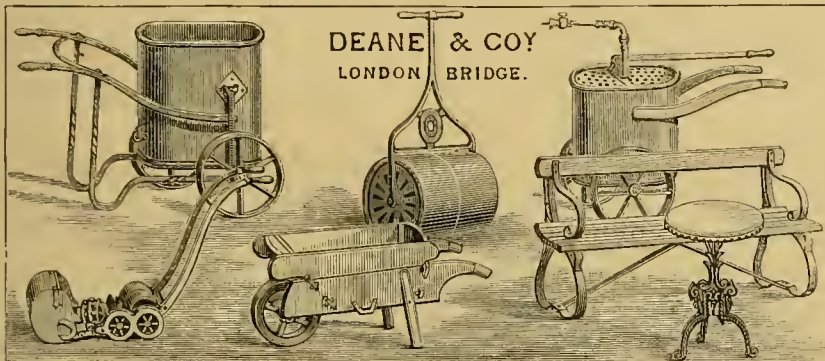
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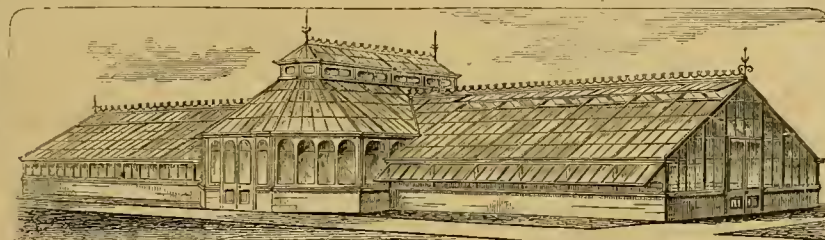
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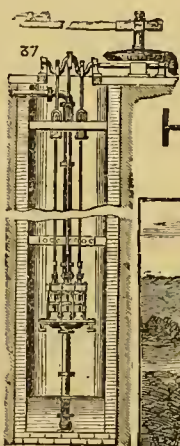
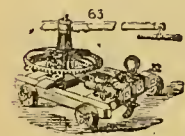
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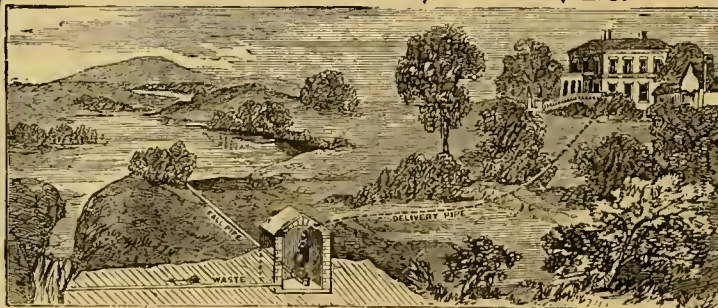
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The ANNUAL EXHIBITION will be held in the Town Hall, Huddersfield, on FRIDAY and SATURDAY, November 13 and 14. Schedules and Entry Forms are now ready, and may be had on application to

Mr. JOHN BELL, Hon. Sec.

Marsh, Huddersfield.

## For Present Sowing. SUTTON'S FLOKISTS' FLOWER SEEDS, post-free.

**SUTTON'S CALCEOLARIA. THE BEST.**  
"Some plants from your Calceolaria seed took first prize here last week. I never saw anything to equal them."—Sir A. RAMSAY.  
Price, 2s. 6d. and 5s. per Packet, post-free.

**SUTTON'S CINERARIA. THE BEST.**  
"We have a most splendid display of Cinerarias from your strain; as many as 345 blooms on one plant, some 2½ inches across, and all perfect in shape."—Mr. J. WATSON.  
Price, 2s. 6d. and 5s. per Packet, post-free.

**SUTTON'S PRIMULA. THE BEST.**  
"The strain of Primula you sent me is the best I have ever seen; they are beautifully fringed."—Mr. S. PEARCE.  
Price, 2s. 6d., 3s. 6d., and 5s. per Packet, post-free.

**SUTTON'S BEGONIA. THE BEST.**  
"The Begonias are perfection. I have a small conservatory entirely filled with them, which are the admiration of all my friends."—J. DARLINGTON, Esq., Netherwood.  
Price, 2s. 6d. and 5s. per Packet, post-free.

**SUTTON'S GLOXINIA. THE BEST.**  
"Allow me to congratulate you on your success in having obtained such a splendid strain of Gloxinias. From the packet of seed I had hundreds of plants, which cannot be equalled."—Mr. A. SMETS, Gardener to G. Taylor, Esq., Stourbridge.  
Price, 2s. 6d. and 5s. per Packet, post-free.

**SUTTON AND SONS, SEEDSMEN, by Royal**  
Warrant, to H.M. the Queen, and H.R.H. the Prince of Wales, Reading.

## JOHN LAING AND CO. BEGONIA PLANTS.

Collections, unnamed, our selection.—Singles: G, 21s.; H, 18s.; J, 18s.; K, 12s.; L, 9s. per dozen. Doubles: W, 30s.; X, 24s.; Z, 18s. per dozen. Singles, for Bedding, 4s. and 6s. per dozen—all free by Parcel Post. The immense demand prevents our executing further orders till July. Orders now booked.  
Forest Hill, S.E.

**Special Trade Offer.**  
**IVY-LEAVED PELARGONIUMS.**—Extra strong Plants, in large 60's, ready for 48's, best Double varieties, only 25s. per 100; £10 per 1000.  
K. OWEN, Floral Nurseries, Maidenhead.

**Now Ready.**  
**TEA and NOISETTE ROSES, of best sorts**  
only, in great quantity, and of best possible quality. Priced CATALOGUES gratis. A sample dozen (sorts left to ourselves), carefully packed for travelling, will be put on Railway on receipt of 12s. 6d.

EWING AND CO., See View Nurseries, Havant, Hants (late of Eaton, near Norwich).

**General Roberts.**  
**NEW SINGLE FUCHSIA.**—A splendid dark variety, blooms 4 inches in length, borne in large clusters. Strong plants in 5-inch pots, 2s. 6d. each, 24s. per dozen. Also HARDY AQUATIC PLANTS.

J. VANDER REES, Exotic Nursery, Tooting

**Primulas.—Primulas.**  
**PRIMULAS.**—Large strong Plants, white or mixed, 2s. per dozen, post-free. The best strain in the world.—JAMES GILL, Spring Place, Bradford, Yorkshire.

**GLADIOLI, PYRETHRUMS, and DAHLIAS, the largest collections in Europe. CATALOGUES gratis.**—KELWAY and SON, Langport, Somerset.

**BULBS TO BE SOLD**  
at low prices:—  
Double White NARCISSUS, Pheasant's Eye NARCIS-SUS, and DAFFODILS. A large Assortment of these superior Bulbs are offered to the Trade for the Season 1885. Apply to W. A. BARKER, East Sheen, Surrey.

"YE NARCISSUS or DAFFODIL,"  
containing its History, Poetry, and Culture, with Notes on Hybridisation, and Illustrated with many Woodcuts. Price 1s. BARR and SON, King Street, Covent Garden, W.C.

**SQUELCH AND BARNHAM**  
Lung Market, Covent Garden, London, W.C., REQUIRE a quantity of fine Muscats, for which they can offer good prices, also fine Black Grapes, Tomatos, Cucumbers, choice Flowers, &c.

**SQUELCH AND BARNHAM,**  
giving personal attention to all consignments, they are thus enabled to obtain the HIGHEST MARKET PRICE.

**SQUELCH AND BARNHAM.**  
ACCOUNT SALES sent daily, and CHEQUES forwarded weekly.  
BANKERS and TRADE REFERENCES.  
BASKETS and LABELS supplied.

**WISE AND RIDES, Covent Garden, W.C.,**  
are open to RECEIVE CONSIGNMENTS of Choice FRUIT and FLOWERS.

**WANTED, Large PALMS, such as SEA-FORTHIA, ARECAS, KENTIAS, &c.** Size and price to NIEMAN and CORNISH, 29, Orchard Street, Portman Square, London, W.

**CARTER'S FIRST PRIZE CALCEOLARIA.**—Best evidence of superiority. Awarded: First Prize, open to England, 1883; Banksian Medal, Royal Hort. Soc., 1883; Large Bronze Medal, Royal Bot. Soc., 1883; Bronze Medal, Royal Bot. Soc., 1884. The Extra Prize, Crystal Palace, 1884. Price, in Sealed Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s., Post-free.

**CARTER'S FIRST PRIZE CINERARIA.**  
—Best evidence of superiority. Awarded: Two Large Bronze Medals, Royal Bot. Soc.; Two Banksian Medals, Royal Hort. Soc.; Silver Medal, Royal Bot. Soc., 1883; Banksian Medal, Royal Hort. Soc., 1883; also Two Extra Prizes. Price, in Sealed Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s., Post-free.

**CARTER'S FIRST PRIZE PRIMULA.**  
—Best evidence of superiority. Awarded: First Prize, open to England, 1884; Banksian Medal, Royal Hort. Soc., 1884. Price, in Sealed Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s., Post-free.

**CARTERS, SEEDSMEN by Royal Warrant to**  
H.R.H. the Prince of Wales, 237 and 238, High Holborn, London, W.C.

**Twenty Years'**  
**GARDENERS' CHRONICLE (1846—1866),**  
for SALE: what offers, or EXCHANGE.—T. H.,  
Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

**STEPHANOTIS FLORIBUNDA.**  
A few dozen strong Plants of the above to offer, of the free flowering variety, p. 102 2d. to 5s. each.

E. P. DIXON, Nurseries, Hull.

**PALMS.**—Specially hardy grown, for Cool Greenhouses and Dwelling-houses. Latania borbonica and Scaevola elegans, splendidly foliaged, 20 inches high, 12s. per dozen; sample plants, 1s. 3d. Same kinds, 12 inches high, 25s. per 100; sample twelve for 4s. All packages and parcels post-free. Postal Orders to GARDENER, Holly Lodge, Stamford Hill, London, N.

**Roses and Clematis.**  
**THE ROYAL NORFOLK NURSERIES**  
COMPANY (late Ewing's), Eaton, near Norwich, can supply fine Plants of MARECHAL NIEL, and best varieties of TEA and NOISETTES, CLEMATIS JACKMANNI, and others, 12s., 18s., and 24s. per dozen.

**GILBERT'S PRIMROSE HARBINGER**  
has won the heart of the R.H.S. Floral Committee, beat all the Critics, and solved the great problem at last. More valuable for cutting than White Azaleas. Pure white, very large flowers; no myth, but a Sampson in strength. Firm young offshoots, well-rooted, 5s. per dozen. Cash with order. Carriage paid. Apply to K. GILBERT, High Park Gardens, Stamford.

**HERBACEOUS and ALPINE PLANTS.**  
A splendid collection, from 25s. per 100, 4s. per dozen, and upwards. Priced and fully descriptive CATALOGUE (No. 296), gratis and post-free on application.

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

**PRIMULAS.—PRIMULAS.—PRIMULAS.**  
Sixteenth year of distribution. WILLIAMS' SUPERB STRAIN, 1s. 6d. per doz., 10s. per 100. CINERARIAS same price. Package and carriage free for cash with order. Above are strong, and fit for potting into 3-inch pots.

JOHN STEVENS, The Nurseries, Coventry.

**Now in Full Bloom.**  
**BEGONIAS.**—Gold Medal Prize Plants, presenting an unrivalled floral display. Visitors are cordially invited. Frequent trains from the City and from the West End to Catford and Forest Hill Stations.

LAING and CO., Nurseries, Forest Hill, S.E.

**Hydrangeas and Kalosantes.**  
**HUGH LOW and CO. offer HYDRAN-GEAS,** white and pink, in flower, 6s., 7s. per 100. KALOSANTHES, showing colour, fine, in 48-pots, 12s. per dozen, 90s. per 100.

Clapton Nursery, London, E.

**To the Trade.**  
**ADIANTUM CUNEATUM.**—Good strong plants, from small 60 pots, 18s. per 100; samples, not less than 25, sent for 5s. 6d., cash with order.

G ADCOCK, Florist, Rokeby Road, Brockley, S.E.

**Dahlias.**  
**FRANCIS R. KINGHORN** offers the following, in strong plants, in large 60's:—Juarez, White Cactus (Constance), Fire King, Guiding Star; also the best Single and Pompon kinds, at low prices, to the Trade and others. Sheen Nurseries, Richmond, Surrey.

**HERBACEOUS and ALPINE PLANTS.**  
Now is the season to plant and insure success. Write for R. H. VERTEGANS' Pocket CATALOGUE, and make your choice from his unrivalled Collection.

Chad Valley Nurseries, Edgbaston, Birmingham.

**To the Trade.**  
**SWEDS and other TURNIP SEEDS.**  
H. AND F. SHARPE invite the attention of the Trade to their fine selected Stocks of home-grown SWEDS and other TURNIP SEEDS of 1884 growth, and raised from transplanted Bulbs. Prices and further particulars may be had on application.

Seed Growing Establishment, Wisbech.



## SALES BY AUCTION.

Monday Next.—(Sale No. 6925.)

GRAND IMPORTATION OF ORCHIDS from MEXICO, &c.  
**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 15, at half-past 12 o'clock precisely, a grand importation of ORCHIDS from Mexico, including *Lælia anceps*, *Chysis* of sorts, *Oncidium*, *Lycastes*, *Cattleya citrina*, *Epidendrum*, *Mormodes*, *Trichopilia*, *Odontoglossum Rossi majus*, *O. maculatum*, &c.; also an importation of ORCHIDS from Brazil, received direct; a consignment of TREE and other FERNS from New Zealand, 24 *Zamia villosa* from the Cape, &c.  
 On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6927.)

NEW AND RARE ORCHIDS.

**MR. J. C. STEVENS** will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, June 17, the remaining portion of the ORCHIDS collected in the Comoro Islands by Mons. Leo Humbolt, comprising splendid plants of *Aeranthus Leonii* (Rehb. f.), *Angraecum fuscum* (Rehb. f.), *Orchis* (Rehb. f.), *Vanilla Humboldtii* (new species), *Eulophia mestophylla*, *E. stricta*, *E. pulchra*, *Lissoclinis julia*, *L. stylus*, &c.  
 On view morning of Sale, and Catalogues had.

Wednesday Next.—(Sale No. 6927.)

GRAND CATTLEYAS—A NEW MASDEVALLIA.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY NEXT, June 17, at half-past 12 o'clock precisely, the splendid Collection of Plants brought over by Mr. Edward Wallace, including a new *MASDEVALLIA*, very pretty, spotted red, very difficult to import; grand varieties of *CATTLEYA TRIANE* and *MOSSIE*, including the beautiful *C. WAGNERI* and *REINECKIANA*, with large flowers and the best varieties; the new *EPIDENDRUM PAYTENSE*, in flower, *E. HUMBLDTII*, in grand masses, and others; *RESTREPIA TAURICA*, *MASDEVALLIA WAGNERI*, *TOYARENSE*, and the beautiful new *M. PICTURATA*; also about 100 lots of ESTABLISHED ORCHIDS, including a plant of the rare *Dendrobium nobile* Cooksonianum, *Cattleya Mendelii* Wallacei, with striped petals; *Cattleya labiata*, *Odontoglossum polyanthum*, with strong spike; some plants of *Odontoglossum vexillarium* of the richly coloured strain, and other good things, and a few *AMARVILIS* from Columbia. Mr. Edward Wallace will attend the Sale.  
 On view morning of Sale, and Catalogues had.

Thursday Next.—(Sale No. 6928.)

SPLENDID IMPORTATIONS.

**MR. J. C. STEVENS** will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 18, at half-past 12 o'clock precisely, by order of Mr. F. Sander, a grand importation of *PHALENOPSIS GRANDIFLORA*, the large-flowered Java variety; *P. AMABILIS*; also a splendid lot of *DENDROBIUM DEAREI*, and three new *EPIDENDRUM*, *ONCIDIUM PAPILLO MAJUS*, and many other rare and fine ORCHIDS.  
 On view morning of Sale, and Catalogues had.

Farnborough, Hants.

A few minutes' walk from North Camp Station.

By order of the Trustees of the late Mr. E. Smith.  
**MESSRS. PROTHEROE AND MORRIS** are instructed to SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY, June 15, at 2 o'clock precisely, a valuable FREEHOLD ESTATE, known as The North Camp Nursery, Farnborough, Hants, containing an area of 17 Acres or thereabouts, with a detached brick-built Residence, containing 4 Bed-rooms, Bath-room, 3 Reception-rooms and Offices, Conservatory, and Cart-shed. The land has for many years been cultivated as a Nursery by the late proprietor, but possesses frontages of over 2000 feet to two roads, which render it eligible for Building. Possession on completion of purchase.  
 Particulars and Plans had at the Mart; of R. EYE, Esq., Solicitor, Aldershot; and of the Auctioneers and Surveyors, 67 and 68, Cheapside, London, E.C.

Tuesday Next.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. F. Sander, to SELL by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on TUESDAY NEXT, June 16, at half-past 12 o'clock precisely, a splendid importation of the lovely *SACCOLABUM HARRISIANUM*, *S. MINIATUM CITRINUM*, *DENDROBIUM AUREUM*, *D. LITUIFLORUM*, *D. CAMBRIDGEANUM*, *D. HETEROCARPUM*, and *D. NOBILE*, and many other valuable ORCHIDS.  
 On view morning of Sale, and Catalogues had.

Wednesday Next.

IMPORTANT SALE OF CARNATIONS and PICOTEES, PLANTS in FLOWER, FERNS, &amp;c.

**MESSRS. PROTHEROE AND MORRIS** will SELL by AUCTION at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on WEDNESDAY NEXT, June 17, at half-past 12 o'clock precisely, 4000 of the best named CARNATIONS and PICOTEES, including the latest new varieties, and specially lotted to suit the Trade and other large buyers, from the well-known Collection of the late Mr. Charles Turner, Slough; English-grown *CANDIDIAS* and *TEA ROSES*, fine plant *PANSIES*, *MALDI*, *HAIR* FERNS, a variety of GREENHOUSE PLANTS in flower, and 400 GOLD FISH.  
 On view morning of Sale, and Catalogues had.

Friday Next.

*ODONTOGLOSSUM CRISPUM* (ALEXANDRAE), *O. CITROSUM*, *O. CERVANSISII*, *O. MADRENSE*; *MASDEVALLIA RACEMOSA* CROSSI, *M. MACRURA*, *M. TROCHILUS*, &c.

**MESSRS. PROTHEROE AND MORRIS** will SELL the above by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, June 19, at half-past 12 o'clock precisely, by order of Messrs. Shuttleworth, Carder & Co., at exceptionally low reserves.  
 On view morning of Sale, and Catalogues had.

Friday Next.

*ONCIDIUM JONESIANUM*.—By order of Messrs. F. Horsman & Co., Colchester.

**MESSRS. PROTHEROE AND MORRIS** will include in their sale at the Central Auction Rooms, 67 and 68, Cheapside, E.C., on FRIDAY NEXT, June 19, a grand lot of *ONCIDIUM JONESIANUM*, collected by Mr. St. Leger, in flower; also some very fine species of *O. MARSHALLII*, *EPIDENDRUM VITELLINUM MAJUS*, *CATTLEYA CITRINA*.  
 On view morning of Sale, and Catalogues had.

Flowering Orchids.

**MESSRS. PROTHEROE AND MORRIS** beg to announce that their NEXT SPECIAL SALE OF FLOWERING ORCHIDS will take place on TUESDAY, June 30, for which they will be glad to receive entries as early as possible.

Important Sale of Valuable, Rare, and Choice

Established SPECIMEN ORCHIDS, comprising over 2000 plants, and including the whole of the fine Collection purchased from Oskar Scheide, Esq., previous to his departure from England, amongst which may be named *Cattleya Dowiana*, *exoniensis*, *Mossie*, *Mendellii*, *Sanderiana*, *Triane*, and *Walshii*; *Dendrobium Ainsworthii*, *decsiflorum album*, *crassioide*, *findleyanum*, *Falconeri*, *thyriflorum*, and *nobile intermedium*; *Cypripedium caudatum*, *Domioianum*, *Sedeti*, *Swanianum*, *Spicerianum*, and *Veitchii*; *Cymbidium eburneum* and *C. Lowianum*; *Coleogyne cristata*, *Chatsworthii*, *Lemoiana*, and *Trentham* varieties; *Lælia anceps Dawsoni*; *Phalaenopsis Schilleriana*; *Odontoglossum Alexandrae*, *Halli*, *xanthoglossum*, *Pescatorei*, and *vexillarium*; *Yanda suavis*, *Gottschalkii*, and others.

MESSRS. ARTINGSTALL AND HIND

beg to announce that they are favoured with the receipt of instructions from Mr. Benjamin Arting, of Sower Bank, Pendleton, near Manchester, to SELL by AUCTION, on WEDNESDAY and THURSDAY, June 17 and 18, commencing at 12 o'clock each day, at their spacious Central Sale Rooms, 45, Princess Street, Manchester, a large and valuable COLLECTION OF ESTABLISHED ORCHIDACEOUS PLANTS.

May be inspected on the day prior to Sale, when Catalogues may then be had, or earlier on application to the Auctioneers, 45, Princess Street, Manchester.

ESTATE BADHOEVE in HAARLEMMEER, HOLLAND.

FOR SALE, on WEDNESDAY, July 15, at 10 A.M., in the riding-house on the said estate, and in the presence of the Notary Mr. J. L. VAN DER MOER. This Estate is to be Publicly Sold. It consists of Residence, carefully and comfortably constructed and strongly stone-built, large Coach-house, Riding-school, Ice-house, several Lodges and Houses for keepers and workmen, Dairy, Forge, Carpenters' and Painters' Workshops, Baking-shop, Stores, Warehouse, Stables for Horses and Horned Cattle, Sheep-folds, Barns, Granaries, Hay-ricks, further Structures and Buildings, Yards, Grounds, Walking Grounds, Kitchen Gardens, Orchards planted with fine Shrubs and other Plants and Fruit Trees, Roads, Alleys, Canals, Woodland and Moor Grounds, fertile and well drained Meadows and arable Lands, altogether situated side by side and near one another, in the community and polder of Haarlemmeer section Rijk, and limited by the north-east side partly by the land-road, partly by the Ringdijk of the Ringvaart, opposite the village of Sloten, near Amsterdam, by the south-west side by the Spaarwouderweg, at the north-west side by the Slotweg, and at the south-east side by the Doornweg. This Estate, measuring about

TWO HUNDRED HECTARES,

is to be sold in Sixteen Lots, and in several combinations of these lots, and in mass.

The situation and extension of these lots has been described in printed notices about the sale. These notices, containing the principal conditions of sale and a chart of the whole estate, are to be had, price 6d. each, at Messrs. J. H. and G. VAN HETEREN, Booksellers, 21, Hartenstraat, Amsterdam.

The lots may be seen from June 15 every week-day between 10 A.M. and 4 P.M., upon application at the Surveyor's house on the Estate.

To Gentlemen, Gardeners, Florists, and Others.

TO BE DISPOSED OF, with Immediate Possession, a genuine SEED, FLORIST, and JOBBING BUSINESS, in a good neighbourhood; main Road. Rent £32, with long lease.

Address, C., *Gardeners' Chronicle* Office, 41, Wellington Street, Strand, W.C.

Malda Vale, W.—(5758.)

Must be Sold, owing to ill health,

HALF AN ACRE of LAND, with frontage of 125 feet to road, eight-roomed DWELLING-HOUSE, and SEED SHOP, eleven GREENHOUSES, and three FITS. Nominal rent, only £25. Lease 24 years unexpired. Price for Lease and Goodwill on application. A capital opening. Apply to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C.

To Gardeners and Others.

TO BE DISPOSED OF, a SMALL FLORISTS' BUSINESS. Houses are Planted with Cucumbers, Tomatoes, and Vines.

Apply to J. H., 10, Farnham Road, Saverford Grove, Tottenham, London.

Kent.

One of the most charming moderate-sized abodes, on Shooter's Hill, as for 20 years occupied by the owner, and as held by lessee from the Crown at a ground rent.

TO BE SOLD, for £1300, STABLING, GRASS LAWNS, and GROUNDS of 3½ Acres, containing grand old Timber and commanding views of the intervening country, with Chislehurst and Sevenoaks in the distance. Particulars of Messrs. DEBENHAM, TEWSON, FARMER and BRIDGEWATER, 80 Cheapside, E.C. (39,143.)

To Florists, Gardeners, and Others.

TO BE SOLD, Two Large FORCING HOUSES, fitted complete, and Large GREENHOUSE; also Handsome SUMMER-HOUSE, GARDEN TILES, TURF, &c. Must be cleared quickly for building purposes. For particulars apply by letter to J. ROYCROFT, 91, Somerleyton Road, Brixton, S.W.

Southampton.—(6209.)

About a mile from this important town.—To Market Gardeners and Others.

TO BE LET on LEASE, 25 Acres of Land, in a high state of cultivation. Rent, £150 per annum. Open to offer. Crops and Tillages at valuation, under £400. Full particulars and orders to view of Messrs. PROTHEROE AND MORRIS, Market Garden Valuers, 67 and 68, Cheapside, E.C. Personally inspected.

T. HARPAM, PRACTICAL ROCK BUILDER, and GENERAL HORTICULTURAL DECORATOR for Caves, Waterfalls, Fountains, &c., 107, Church Street, Edgware Road, London, W.

To Landed Proprietors, &amp;c.

A. MCINTYRE (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS. Plans prepared. 115, Listeria Park, Stamford Hill, N.

JOHN KENNARD'S HORTICULTURAL

SUNDRIES, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

To Nurserymen, Seedsmen, and Florists.

DUTCH BULBS—Season 1885.

WHY pay freight from Holland to London on Dutch Bulbs, when you can buy at a cheaper rate the same quality and get them brought over free by ordering from LEWIS ISAACS, WHOLESALE IMPORTER OF DUTCH BULBS, at 3, Victoria Warehouse, Mansell Street, Aldgate, E.C.? Established since 1856. Wholesale Catalogue sent post-free on application. An immense stock of all kinds of Bulbs is kept at the above address from August up to the end of Dec. in each year.

Oncidium Jonesianum, &amp;c.

MESSRS. FRED. HORSMAN AND CO. beg to inform the Public that THE ENTIRE STOCK OF THIS PLANT IS IN THEIR HANDS. Should any other Firm dare to say that they have any coming, please do not believe it, as it is impossible for them to get it. Ours were collected in flower, and are guaranteed true to name. CATALOGUES on application, free by post. FRED. HORSMAN AND CO., Colchester.

NEW CACTUS SINGLE and POMPON

DAHLIAS, and SELECT PLANTS, by parcel post or rail. Plants sent, Gratis for carriage. NEW CACTUS DAHLIA, picta formosissima, 9d. each, two for 1s. 3d.

Mr. Tait, 1s. 3d. each, two for 2s.  
 White Constance, 3s. per dozen.  
 Scarlet Juarez, 3s. per dozen.

The finest SINGLE and POMPON DAHLIAS, 3s. per dozen. Terms cash with order.

JAMES HUNT, Nurseryman and Florist, Great Yarmouth.

Roses and Ficus.

H. B. MAY offers fine strong Plants of NIPHETOS and other TEA ROSES, clean and full of buds. Price per dozen or 100 on application. FIGUS ELIOTIUS, well furnished plants, 20 to 24 inches high, 18s. per dozen. Dyson's Lane Nursery, Upper Edmonton, Middlesex.

Orchids—Orchids.

THE LIVERPOOL HORTICULTURAL COMPANY (JOHN COWAN), Limited, beg to announce the arrival of a fine consignment of EAST INDIAN ORCHIDS, including a grand lot of *DENDROBIUM BENSONI*, and many other fine varieties. Full particulars on application to The COMPANY, The Vineyard, Garston.

Ferns—Ferns—Ferns.

H. B. MAY offers the following varieties, clean, established Plants:—*ADIANTUM PUBESCENS*, A. PACCOITI, A. DECORUM, A. GRANDICEPS, *PTERIS ARGYREA*, P. HASTATA, *NEPHRODIUM COMPLANATUM*, *CYTIDIUM EUCALATUM*, *LASTREA ARISTATA VARIEGATA*, *GYMNODIADENIA WETTERHALLIANA*, 2s. per dozen. *PTERIS ALBO LINEATA CRISTATA*, *LYGODIUM SCANDENS*, and *ASPIDIUM TRIFOLIATUM*, 4s. per dozen. Packing free. Cash with order.

Dyson's Lane Nursery, Upper Edmonton, Middlesex.

PELARGONIUMS, best Regal and Market

sorts, fine plants coming into bloom, in 4½ and 5 inch pots, 40s. per 100. Strong FUCHSIAS, coming into bloom, 20s. per 100.—W. JACKSON, Blakedown, Kidderminster.

To the Trade—Roses in Pots.

GARAWAY AND CO. offer:—WHITE PET, full of flower, in 48-pots, 8s. per dozen 50s. per 100.

Tea Roses.

DEVONJENSIS  
 ETOILE DE LYON  
 FIANCAILLES DE LA PRINCESS  
 STEPHANIE  
 CLOIRE DE DIJON  
 JEAN DUCHER  
 HOMERE  
 MDME. CHARLES  
 FALCOT  
 MARECHAL NIEL  
 NIPHETOS  
 SUNSET  
 GRACE DARLING  
 NEW H. P. ROSES of 1885, our selection, 9s. per dozen.  
 GARAWAY AND CO., Durdham Down, Clifton, Bristol.

All in 48's, 9s.  
 per dozen, 70s.  
 per 100

15s. per dozen.

CHOICE SEEDS.

CINERARIA (Dixon's Superb Giant)—This splendid strain is unsurpassed for form, size, and colour. The plants are very dwarf and compact. The flowers are rich in colour and produced in massive heads. The dimensions of some of the flowers are an enormous size. 1s., 2s. 6d., and 5s. per packet.  
 CALCEOLARIA.—Extra choice strain of dwarf robust habit, producing immense trusses of beautifully shaped flowers, large, and colours rich and well varied. 1s., 2s. 6d., and 5s. per packet.  
 CYCLAMEN (persicum and giganteum).—Splendid mixed varieties, 1s. and 2s. 6d. per packet.  
 PRIMULA.—Superb strain, the plants being dwarf, compact, and vigorous habit, with large, stout, and beautifully fringed flowers, well above the foliage. Crimson, white, or mixed, 1s., 2s. 6d., and 5s. per packet.  
 PETUNIAS.—Splendid strain of single varieties, very large, distinctly coloured; robust in habit. 1s. and 2s. 6d. per packet.  
 EDMUND PHILIP DIXON, The Yorkshire Seed Establishment, Hull.

HERMAN BUDDENBORG, BULB

GROWER, Hillegom, near Harlem, Holland (formerly BUDDENBORG BROS.), begs to inform his numerous Friends in Great Britain that he has established himself under his own name, and for his own account, as BULB GROWER, NURSERYMAN and SEEDSMAN; and kindly solicits the continuance of the same protection and confidence as was entrusted to him for so many years. He will be pleased to receive the Wholesale Price LISTS of his Commercial Friends, and will mail his free on demand.



## SHEPPERTON AND DISTRICT FLOWER SHOW.

Including all places within a radius of 6 Miles from Shepperton Church.

The SECOND ANNUAL SHOW will be held on THURSDAY, July 2, in the Grounds of Sunbury Court, Sunbury, by kind permission of Lieut.-Col. W. H. Harfield. EXHIBITION OF ROSES and other FLOWERS, ORCHIDS, FOLIAGE PLANTS, FRUIT, and VEGETABLES. Special Classes open to All England. Third Prizes will be given where considered worthy. The Band of Her Majesty's Royal Horse Guards (by kind permission of Colonel Milne-Home, M.P.) will attend, conducted by Mr. Charles Godfrey. Further particulars, Schedules of Prizes, and Entrance Forms to be obtained from ARTHUR E. STEARNS, Hon. Sec. The Lodge, Upper Halliford, Walton-on-Thames.

## WIRRAL ROSE SOCIETY.

President.—The Duke of Westminster, K.G.  
The ANNUAL SHOW will be held on SATURDAY, July 18, in the Gardens, Hamilton Square, Birkenhead, when Prizes amounting to ONE HUNDRED and TWELVE POUNDS will be offered. Schedules may be obtained from

E. CLAXTON, The Rosery, Allerton }  
Liverpool: } Hon. Secs.  
T. W. CROWTHER, 8, Tower Buildings, Water Street, Liverpool; }  
Hamilton Square is close to the Station.

## CALNE HORTICULTURAL SOCIETY.

Under the Patronage of HER MOST GRACIOUS MAJESTY.  
The TWENTY-FIRST ANNUAL EXHIBITION will be held in Binwood Park, Calne, Wilts, on TUESDAY, July 28.

Special Prizes, open to all England:—  
12 vars. STOVE and GREENHOUSE PLANTS, £15, £10, £5.  
14 vars. ORNAMENTAL FOLIAGE, " £10, £5, £2 10s.  
35 vars. ROSES, Cup or £5, £2 10s, £1 10s.  
For Schedules and other particulars apply to

FRED. C. HENLY, }  
HERBERT HARRIS, } Hon. Secs.

## FINE ART EXHIBITION BUILDING,

York, NOVEMBER 25, 26, and 27.  
The SIXTH GRAND EXHIBITION of CHRYSANTHEMUMS, FRUITS, and VEGETABLES. Group of Chrysanthemums, arranged for effect, in space of 8 square feet, 1st prize a Silver Cup, given by the Rt. Hon. the Lord Mayor of York. Thirty-six Chrysanthemums (cut), 1st prize, a Silver Cup, or £4, given by the Sheriff of York. Six bunches of Grapes, three varieties, 1st prize, a Silver Cup, or £5, given by the Vice-President and Stewards. Other special and liberal Prizes offered. Schedules, &c., to be obtained of

8, Spurrearegate, York. J. LAZENBY, Secretary.

Berlin Lily of the Valley, finest Single blooming Crowns; HELLEBORUS NIGER, &c., &c.

A. RIEMSCHEIDER, NURSERYMAN, Brandenburg-on-Havel, by Berlin, Germany, has just published his Wholesale CATALOGUE of the above, which may be obtained post-free from his Agents, Messrs. R. SILBERRAD and SON, 25, Savage Gardens, London, E.C.

EIGHTY THOUSAND CLEMATIS in Pots, of all the finest double and single varieties (some of the flowers of which become to inches across, and are of every shade, from pure white to the darkest purple), for climbing and bedding, from 12s. to 24s. per dozen, strong plants. Descriptive LIST on application.

RICHARD SMITH and CO., Nurserymen and Seed Merchants, Worcester.

## Grand New Fuchsia.

GENERAL GORDON.—The largest single Fuchsia known; good habit, free bloomer and grower, extra large blooms; corolla plum, veined scarlet; sepals and tube scarlet.

"The Fuchsia sent was a large single variety, without any coarseness. The corolla of a rich purple with scarlet lines on the upper portion, sepals bright red and much reflexed."—*Gardener's Chronicle*, May 23, 1885.

Plants, 2s. 6d. and 3s. 6d. each, by post 6d. extra.  
ROBT. OWEN, Floral Nurseries, Maidenhead.

## CHEAP BEDDING PLANTS.

Reduced prices, to clear out.

GERANIUMS, strong autumn-struck plants.  
" Vesuvius (scarlet), Jean Sisley, Dazzler (crimson), Master Christine, Madame Vaucher, Happy Thought, 1s. 6d. per dozen, 20s. per 100, from single pots.

LOBELIA (true), from cuttings, "Emperor William," 2s. per 100, 15s. per 1000.

DAHLIAS, Single, named sorts, of all shades of brilliant colours, including White Queen and Paragon, 2s. per dozen, 15s. per 100, from single pots.

" Double, best named show varieties, 2s. 6d. per dozen, 18s. per 100, from pots.

CHRYSANTHEMUMS, selection of finest named Show varieties, strong, and well-grown, 2s. per dozen, 15s. per 100, from single pots.

Package free. Plants allowed for carriage. Terms cash.

CATALOGUE gratis.  
H. I. HARDY, Stour Valley Florist Grounds, Bures, Suffolk.

ANTHONY WATERER begs to announce that the AMERICAN PLANTS at Knap Hill will be in their greatest beauty during June, and will afford unquestionably the finest display of its kind that can be seen in any Nursery in the World. May be seen daily, Sundays excepted.

The large Standard and other Rhododendrons and Azaleas in Rotten Row, Hyde Park, are supplied by Anthony Waterer. The Exhibition of American Plants in the Royal Botanic Gardens, Regent's Park, will be on view daily throughout June. Admission by order of Fellows of the Society, or from the Exhibitor.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

## DAFFODILS—TO THE TRADE

PRINCEPS, GRAND TRUMPETER.

One of the very earliest to bloom.  
May be had in large quantity. For park planting one of the best.

"Twenty other good sorts to offer the Trade, and 'Little Book' with Trade Prices, post-free.

WM. BAYLOR HARTLAND,

SEEDSMAN, &c., 24, PATRICK STREET, CORK.

A NEW GREENHOUSE FERN.  
ADIANTUM NEO-CALEDONIAE.

This most beautiful Fern, of which illustration and description may be had on application, is now being sent out by us. It has been awarded a FIRST-CLASS CERTIFICATE by the Royal Horticultural Society, at South Kensington; a CERTIFICATE of MERIT by the Royal Botanic Society, at Regent's Park; and a FIRST-CLASS CERTIFICATE by the Royal Manchester Horticultural Society. It is of easy cultivation, of free growth, and is undoubtedly a great acquisition. Price 10s. 6d. each.

W. & J. BIRKENHEAD,  
FERN NURSERY, SALE, MANCHESTER.

## CLEMATIS for Bedding.

CLEMATIS for the Rock Garden.

CLEMATIS for Walls.

CLEMATIS for Poles.

CLEMATIS for Everything Beautiful.

Above all have the 10 Clematis awarded First-class Certificates by the Royal Horticultural Society.

CATALOGUES sent on application to  
CHARLES NOBLE, BAGSHOT.

## ROSES

IN POTS; all the best New and Old English and Foreign sorts, from 18s. to 36s. per doz.

Descriptive LIST free on application.

RICHARD SMITH & CO.,  
WORCESTER.

## FERNS A SPECIALTY.

Hundreds of Thousands of  
FERNS and SELAGINELLAS,  
for Stove and Greenhouse Cultivation, and Outdoor Ferneries.  
ABRIDGED CATALOGUE  
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LARGE CATALOGUE (price 1s.), containing 75 Illustrations of Ferns and Selaginellas, valuable "Hints on Fern Culture," and other useful and interesting information.

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THE FINEST COLLECTION  
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*Splendid Seeds and Bulbs at low prices*  
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CUTBUSH'S MILL-  
TRACK MUSHROOM

SPAWN.—Two well known to require description. Price 6s. per bushel (1s. extra per bushel for package), or 6d. per cake; free by Parcel Post, 1s.

None genuine unless in sealed packages and printed cultural directions enclosed, with our signature attached.

WM. CUTBUSH and SON

(Limited), Nurserymen and Seed Merchants, Highbury Nurseries, N.

Humea elegans.

HUGH LOW and CO. offer the above-named summer Decorative plant in fine specimens, showing flowers, 5 to 6 feet high, 18s. in 30s. per dozen. Clapton Nursery, London, E.

PRIMULA, Double White (sinensis), strong plants, in 3-inch pots, ready for potting on, 50s. p. 100. Packing from 10s. Cash with order from unknown correspondents. TURNER BROS., Nurserymen and Florists, Green Hill Nursery, Allerton, Liverpool.

Helleborus niger (Christmas Rose). A. RIEMSCHEIDER, NURSERYMAN, Brandenburg-on-Havel, by Berlin, having an immense stock of these useful Plants, can offer them at prices, per 100 or 2000, which defy competition. See CATALOGUE, which may be obtained free of Messrs. R. SILBERRAD and SON, 25, Savage Gardens, London, E.C.

## OUR JAPANESE MAPLES

are now in full beauty; a visit of inspection is solicited.

## OUR JAPANESE LILIES

will be ready for view in about a fortnight.

NEW PLANT and BULB COMPANY,  
COLCHESTER.

## ALPINE and HARDY HERBACEOUS PLANTS.

## STANSFIELD BROTHERS

Invite special attention to their unrivalled collections. Descriptive CATALOGUE, with Cultural Notes, Free, on application.  
100 CHOICE PLANTS, our selection, 95s.  
100 SAXIFRAGES, 25s.; 200, 60s.; distinct species.  
25 PRIMULAS, 20s.; 50, 50s.; 70, 70s.  
25 ERYNGIUMS, 9s.  
SOUTHPORT.

## GENUINE GARDEN REQUISITES, as

supplied to the Royal Gardens.—Fresh Cocoa-Nut Fibre Refuse, 4 bushel bags, 1s. each; 30 for 25s.—bags included. Two-Ton Truck, free on Rail, 25s. Best Brown Fibrous Kent Peat, 5s. per sack; 5 for 22s. 6d.; 10 for 35s.; 20 for 60s. Best Black Fibrous Peat, 4s. 6d. per sack; 5 for 20s.; 10 for 30s. Coarse Bedford Sand, 1s. 6d. per bushel; 14s. per ½ ton; 25s. per ton. SPECIALITE TOBACCO PAPER, 100d. per lb.; 28 lb., 21s.; 40 lb., 25s. Second quality, 7d. per lb.; 28 lb., 16s. Finest Tobacco Cloth, 8d. per lb.; 28 lb. for 18s. Leaf-mould, 5s. per sack. Charcoal, 2s. 6d. per bushel. Bones, Guano, Sphagnum, &c. LIST free. Special prices to the Trade for cash. W. HERBERT and CO., HOP EXCHANGE WAREHOUSES, SOUTHWARK STREET, S.E. (near London Bridge).

Weeds. How to Destroy them.—Use SMITH'S Celebrated WEED KILLER, the cheapest and most effectual preparation ever invented. For testimonials and prices address MARK SMITH, Manufacturing Chemist, Louth, Lincolnshire.

EPPS'S SELECTED PEAT.—Forty sacks, 2s. 6d. per sack; 30 ditto, 2s. 6d.; 20 ditto, 3s. 6d.; 10 ditto, 4s. 6d.; sacks, 6d. each. In trucks of 14 cubic yards, 15s. per yard. For Rhododendrons and common purposes, 15s. per ton, not less than four tons; sample sack, 2s. 6d.

LOAM, SAND, LEAF-MOULD, SPHAGNUM, &c. See Special List, also for the Trade. Ringwood, Hants.

GARDEN REQUISITES.

TWO PRIZE MEDALS.

Quality, THE BEST in the Market. (All sacks included.) PEAT, best brown fibrous .. 4s. 6d. per sack; 5 sacks for 20s. PEAT, best black fibrous .. 3s. 6d. " 5 sacks for 15s. PEAT, extra selected Orchard 5s. 6d. " "

LOAM, best yellow fibrous .. 1s. per bush. (sacks included).

PREPARED COMPOST, best .. 1s. per bush. (sacks included).

LEAF MOULD, best only .. 1s. per bush. (sacks included).

PEAT MOULD, .. 1s. per bush. (sacks included).

SILVER SAND, coarse, 1s. 3d. per bush., 12s. half ton, 22s. 10s.

RAFFIA FIBRE, best only .. 1s. per bush.

TOBACCO CLOTH, finest imported .. 8d. lb., 28 lb. 13s.

TOBACCO PAPER .. (Specialite) 8d. lb., 28 lb. 18s.

MUSHROOM SPAWN, finest Milltrack .. 5s. per bushel.

SPHAGNUM MOSS, all selected, 2s. per bush., 6s. per sack.

COCOA-NUT FIBRE REFUSE (by Chubb's special process), sacks, 1s. each; 10 sacks, 9s.; 15 sacks, 13s.; 20 sacks, 17s.; 30 sacks, 25s.; 40 sacks, 30s. Truck-load, loose, free on rail, 25s. Limited quantities of G., special quality, granulated, in sacks only, 2s. each. Terms, strictly Cash with order.

CHUBB, ROUND & CO.,

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## MANURE

Is the best for all Horticultural Purposes.

Sold in Tins at 1s., 2s. 6d., and 10s. 6d. each; also in Sealed Air-tight Bags, containing 1 cwt., 13s.

The 10s. 6d. Tins serve as a strong substantial receptacle to refill from the 1 cwt. bags.

Supplies can be obtained through all respectable Nurserymen, Seedsmen, and Florists in the Kingdom; or, in districts where no Agents reside—Carriage Paid for Cash with Order—direct from the MANUFACTURER,

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Testimonials from the Rev. Canon Hole, and most of the leading Gardeners, free on application.

Pure Crusted Unboiled BONES, any size, for Vine Borders, &c. WHOLESALE AGENTS IN LONDON,

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**COCOA-NUT FIBRE REFUSE.**—Best and fresh only, 1s. per bag; 15 bags, 12s.; 30 bags, 22s., sent to all parts; trucks, 23s., free to Rail. PEAT and LOAM.—A. FOULON, 32, St. Mary Axe, London, E.C.

12-oz. Sample Packets, free by post, 12 Stamps.  
**FIBROUS PEAT FOR ORCHIDS.**—**BROWN FIBROUS PEAT**, best quality for Orchids, Siove Plants, &c., 46 6s. per Truck. **BLACK FIBROUS PEAT**, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample bag, 5s.; 5 Bags, 22s. 6d.; 10 Bags, 45s. Bags included. Fresh **SPHAGNUM**, 10s. 6d. per Bag. **SILVER SAND**, Coarse or Fine, 52s. per Truck of 4 Tons. **WALKER AND CO.**, Farnborough Station, Hants.

## The Gardeners' Friend.

**ELLIOTT'S FLORAL RESTORATIVE SHADING.** The cheapest and most effective shading in use for Greenhouses, Conservatories &c., combining appearance, convenience, and economy, and is very easily applied. Sold by all Florists, Seedsmen, and Nurserymen &c., in Boxes 1s. each. Sole Manufacturers and Proprietors, F. AND E. ELLIOTT, 70, Richmond Road, West Brompton, London, S.W. Ask for "Floral Restorative Shading." Beware of all spurious imitations. A Trial Box forwarded post-free on receipt of 1s. in stamps.

## HORTICULTURAL PREPARATIONS.

The best and most effectual yet introduced.

**FOWLER'S LAWN SAND**, for destroying Daisies, Dandelions, Plantains, Ribbed Grass, Thistles, and other Weeds on Lawns, Croquet Grounds, Bowling Greens, Parks, &c.; at the same time acting as a fertiliser and improving the growth and colour of the grass. Price in tins, 1s., 2s. 6d., and 5s. kegs, 20 lb., 10s.; 56 lb., 19s.; 112 lb., 36s.

**GARDENER'S INSECTICIDE**, for destroying all the various Insects infesting plants and trees. It is easily applied either by dipping, syringing, or sponging; will not injure the most delicate flower, fruit, foliage, or root. In jars, 1s. 6d., 3s., 5s. 6d., and 10s. each; and in kegs, 28 lb., 21s.; 56 lb., 42s.; 112 lb., 84s. each.

**FOWLER'S MEALY-BUG DESTROYER**, for the special eradication of this most troublesome of stovehouse plant pests. It is easily applied, is instant destruction to both insect and ova, and does not injure the foliage. In bottles, 1s., 2s. 6d., 5s. and 10s.; half-gallon, 21s.; one gallon, 42s. each.

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**EWING'S MILDEW COMPOSITION**, for the prevention or destruction of Mildew on all plants. In bottles, 1s. 6d. and 3s. each.

**ELLIOTT'S IMPROVED "SUMMER CLOUD"** Shading for Greenhouses, &c. For efficacy, economy and lasting effects this article remains unrivalled. In Packets, 1s.; 14 lb., 28s.; 28 lb., 50s. See that the Packets have the above Trade Mark, without which none are genuine.

CORRY, SOPER, FOWLER & CO., Limited.  
SOLE MANUFACTURERS, LONDON.

## NORWEGIAN FISH-POTASH GUANOS.

Composed of Pure Flesh and Bone of Cod and Herring and Refined Potash.

A Perfect Fertiliser for Garden and Greenhouse, Lawns and Tennis Courts, Vegetables, Flowers, Exotics and Fruit Trees.

Prices, carriage paid, on receipt of Post-office Order: 28 lb., 6s. 6d.; 56 lb., 10s. 6d.; 1½ cwt., 20s.; 2 cwt., 30s.; 5 cwt., 60s. Bags free.

Larger Quantities at Special Prices, for which, and for Analysis, &c., apply to

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BY THE USE OF

**JEYES' "GARDENER'S FRIEND."**

One Gallon of this Fluid, diluted with water according to directions, and applied with an ordinary watering-can,

Effectually Removes all Weeds, Moss, Worms, and Insects on Gravel Walks, Lawns, &c.

Price, 3s. 6d. per gallon, including drum; 40-gallon casks, £4 10s. Carriage paid.

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## COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 2-bushel bags, 4d. each.  
**LIGHT BROWN FIBROUS PEAT**, 5s. 6d. per sack; 5 sacks 25s.; sacks, 4d. each.  
**BLACK FIBROUS PEAT**, 5s. per sack, 5 sacks 22s.; sacks, 4d. each.  
**COARSE SILVER SAND**, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton in 2-bushel bags, 4d. each.  
**YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD**, 1s. per bushel.  
**SPHAGNUM MOSS**, 8s. 6d. per sack.  
**MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c.** Write for Price List.—**H. G. SMYTH**, 21, Goldsmith's Street, Drury Lane (late called 17A, Coal Yard), W.C.

## YOU CAN IMMEDIATELY

## Destroy all Insects

And PARASITES that infest Trees and Plants (whether at the roots or on the foliage) by using

## FIR TREE OIL INSECTICIDE (SOLUBLE IN WATER)

Green Fly From Garden, Greenhouse, Orchard, or Vineyard; these and all Insect pests are speedily cleared by the use of Fir Tree Oil. Effectual, Economical, and Safe. It does not injure Flowers, Foliage, or the bloom on Grapes, Stone Fruit, &c.  
Mealy Bug Thrip Red Spider Caterpillars Mildew Scale, &c.

**FIR TREE OIL** destroys Lice and Fleas on Animals; it will cure Ringworm and all Skin Diseases produced by Parasites, and is perfectly harmless to the Hands & Skin. Sold by Seedsman and Chemists, 1/6, 2/6, and 4/6 a Bottle. Per post 3d. extra. Per gallon 12/6, or less in larger quantities. A Treatise on FIR TREE OIL, as an INSECTICIDE, its application to Plants and Animals, sent Post Free, on receipt of address, by the Manufacturer,

**E. GRIFFITHS HUGHES, Manchester,**  
Wholesale:—HOOPER & CO.; CORRY, SOPER, FOWLER AND CO.; C. E. OSMAN & CO.; and from all the London Seed Merchants and Wholesale Patent Medicine Houses. New York:—ROLKER & SONS.

**GISHURST COMPOUND**, used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blight. 1 to 2 ounces to the gallon of soft water; 4 to 16 ounces as winter dressing for Vines and Orchard-house Trees; and in lather from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 12s. 6d.

**GISHURSTINE** keeps Boots dry and soft on wet ground. Boxes, 6d. and 1s. from the Trade. Wholesale from **PRICE'S PATENT CANDLE COMPANY (Limited)**, London.

## ROLL TOBACCO PAPER, Cloth, and Fibre for Fumigating.

The best and strongest it is possible to obtain. 6 lb., 4s. 6d.; 14 lb., 10s.; 28 lb., 20s. Good strong TOBACCO PAPER or CLOTH, 6 lb., 3s. 6d.; 14 lb., 8s.; 28 lb., 15s. Carriage paid to London or any Railway Station in Kent. All our articles contain the pure essence of Tobacco only. Used in Royal Nurseries, the Gardens of the Nobility, by Leading Men of the Profession, &c.

## PARCEL POST.

Our celebrated Best ROLL TOBACCO PAPER, CLOTH, and FIBRE, guaranteed same quality as above, delivered free to any address in the United Kingdom, at the following rates:—2½ lb., 2s. 6d.; 4½ lb., 4s.; 6 lb., 5s.; 6½ lb., 5s. 6d.

## Manufacturers,

**DARLINGTON BROS., CHATHAM.**  
Post-office Order and Cheques Darlington Bros., Chatham.

**SILVER SAND**, excellent coarse, 7s. and 8s. per ton. **PEAT**, excellent, 6s., 8s. and 20s. per cubic yard. **LOAM**, excellent, 10s. and 12s. per cubic yard. Free on rail by truckloads. In sacks at moderate prices.  
**W. SHORT**, Horticultural Company, Michurst, Sussex.

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Patronised by

**HER MAJESTY,**  
HIS ROYAL HIGHNESS THE PRINCE OF WALES,  
15,000 of THE NOBILITY, GENTRY, AND CLERGY.

Is extensively used for all kinds of  
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1 Cwt., and Oil Mixture, Free to all Stations. Non-Poisonous Paints for Inside Work, Conservatories, &c. Prices, Patterns, and Testimonials, Post-free.

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LA BELLE SAUVAGE YARD, LUDGATE HILL, LONDON, E.C.;  
21 and 22, BACHELOR'S WALK, DURLIN.  
Discount for Cash.

**EXTRA STOUT STRONG TANNED NET**, 2 yards wide, 1½d. per yard; 4 yards wide, 3d. per yard; or 2 yards wide 10s. per 100; 4 yards wide, 20s. per 100 yards. **NEW TWINE NETTING**, 1 yard wide, 2d. per yard; 2 yards wide, 4d. per yard; 4 yards wide, 8d. per yard; 12 yards wide, 2s. per yard. **COTTON NET**, nine meshes to square inch, 1½ yard wide, 7d. per yard run.  
**W. CULLINGFORD**, Forest Gate, S.E.

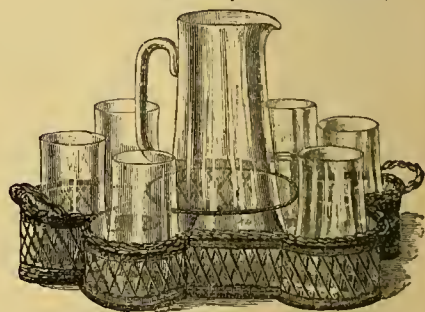
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In Amber Glass, in Blue Glass, and In Amber Glass with blue handles.

6s. 9d. the SET,

CONSISTING OF  
JUG, 6 GLASSES, and BASKET.



In Amber Glass, and in Blue Glass.

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CONSISTING OF  
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Sent to any address, packed in case, 1s. 6d. extra\*, upon receipt of remittance.

Delivered Free to any Railway Station in London.

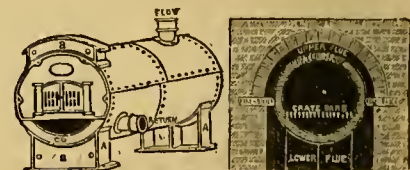
**HALLING, PEARCE & STONE,**

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\* Value of Case returned upon receipt back of same.

## The Original and only Genuine Trentham Riveted Boiler.

Recently Improved and Reduced in Price. Also Makers of all other kinds of Boilers for Heating.



**HOT-WATER PIPES AND FITTINGS** of every description for Heating Apparatus. THE LARGEST STOCK IN THE KINGDOM.



HIGH and LOW PRESSURE and HOT-AIR HEATING APPARATUS ERECTED and GUARANTEED.

**FRED. SILVESTER**, Castle Hill Foundry, Newcastle, Staffordshire.

Notice to Orchid Growers, &c.  
**TEAK-WOOD**, for Orchid Baskets; Teak-wood TUBS for Plants; Bamboo CANES, for Staking. P. B. HARKIN, Importer, Dutton Street, Liverpool.



WEDNESDAY NEXT, JUNE 17.

## MR. EDWARD WALLACE'S ORCHIDS

(Collected mostly in flower and true to name.)

CATTLEYA MOSSIÆ WAGNERII,  
CATTLEYA MOSSIÆ REINECKIANA,

The largest masses and finest flowers ever seen in Caraccas.

EPIDENDRUM HUMBOLDTII, enormous plants.

THE NEW EPIDENDRUM PAYTENSE (in flower). and others.

CATTLEYA MOSSIÆ, from Caraccas, collected in flower.

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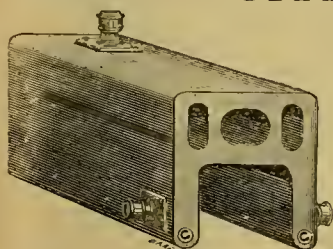
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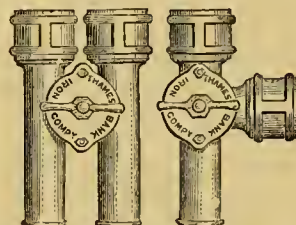
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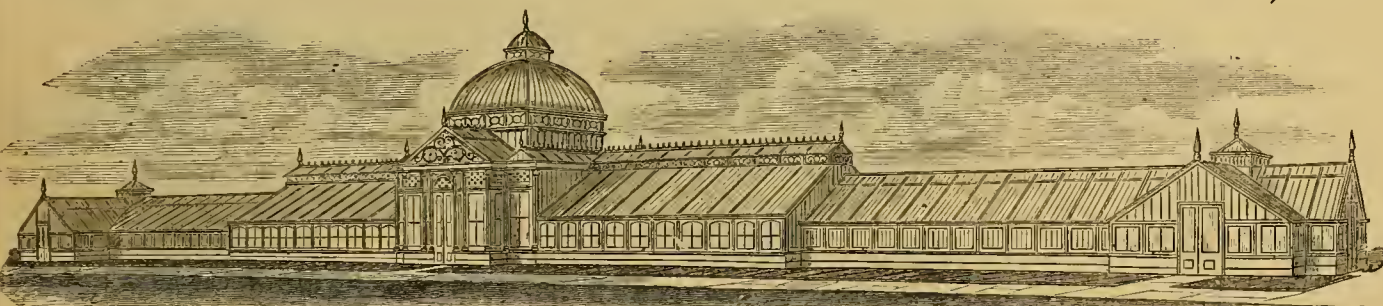
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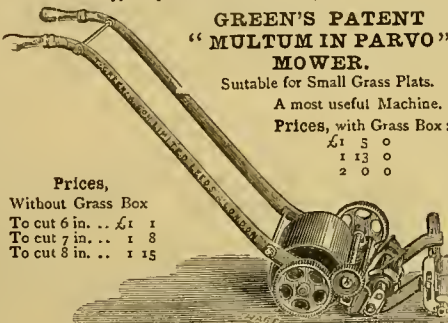
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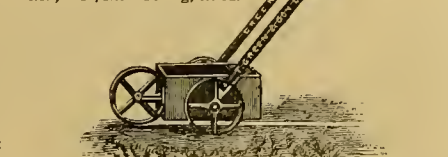
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THE

## Gardeners' Chronicle.

SATURDAY, JUNE 13, 1885.

### CHERKLEY COURT.

ABOUT two miles from Leatherhead, the approach being over the undulating and gradually rising ground towards Mickleham, stands Cherkley Court, the residence of Abraham Dixon, Esq. Not much more than ten years have elapsed since the mansion has been completed and the gardens formed, but during that time a great number of interesting matters connected with the growth and fruiting of tropical fruits and other things not usually met with in gardens, but which Mr. Dixon's intimate knowledge of tropical climates and vegetation have enabled him to manage successfully, have there been worked out. Unfortunately, as in other places where there is a master mind to suggest original ideas and direct their carrying out to a successful issue, too many of the triumphs about which we should have been glad to hear have passed unnoticed except by the friends and visitors who may have been present at the time. The mansion being situated on the further brow of the hill, the carriage drive from the Leatherhead entrance, in order to make it convenient, had to be made through a cutting in the chalk which with a thin surface of soil runs throughout the whole district. The banks on either hand are planted with shrubs, and an avenue of alternate Cedrus atlantica and Lime trees borders the road which leads up to the carriage entrance. On this side, the house is comfortably sheltered by the rising ground, that in close proximity being prettily clad with Cotoneaster microphylla, aglow with its bright berries in winter. In summer the brow of this hill is said to be conspicuous from a considerable distance with the bright-looking flowers of Silene pendula, which grows there luxuriantly.

From the drawing-room runs the long ornamental conservatory (fig. 169), about 25 feet in height, and containing many fine examples of tropical vegetation, Palms, Musas, Ferns, &c., brightened by a good display of flowering plants. So sturdily does the Musa ensata grow here that the force of the growing young leaves smashes the glass of the roof just over them every year. This at first sight, and considering the tender nature of the leaves, seems incredible, but nevertheless it is a fact, the pressure being exerted in the same manner as that which enables a Mushroom to lift a paving-stone. The right-hand wall of the conservatory is cased with lattice-work filled in with soil and planted with Maidenhair and other Ferns, Begonias, mosses, &c. This arrangement is an excellent one, as it gives that side of the house a charming appearance, clothing it from bottom to top with lovely foliage without encroaching on the walk beneath, as would be the case if the screening of the wall were ever so imperfectly done by plants in pots, or planted at its foot. On the sunny side of the house are interesting collections of Bromeliads and succulents, and a grand specimen of Agave mexicana, which produced a flower-spike over 20 feet in height in the open



air last year. The pillars and roof are furnished with a suitable selection of climbers and some models of Alhambra arches, near which the Bougainvillea profusely blooms, make a novel and pleasing change in this well arranged floral promenade.

Just the passage through a doorway here suffices to bring us into the tropics. Here we enter the Victoria-house, which produced such a grand specimen of that plant last year, and views of which we gave at p. 19, January 3 of this year. Notwithstanding the wonderful effort made by the plant last season it is in the most vigorous condition, and growing on so strongly as to lead to the supposition that it will be even better this year than last. The seedlings, too, which it produced of its own accord and without the artificial fertilisation supposed to be necessary, are in the most thriving condition. In this house the different varieties of Bananas and Plantains fruit well, the variety known here as *Musa dacca* being by far the most ornamental in foliage, and the best in the flavour of its fruits. *M. paradisiaca* is also highly spoken of for the good quality of its fruit, and *M. coccinea*, in flower, speaks for itself as showy plant. The *Monstera deliciosa* and many other tropical fruits are here in the greatest vigour; the *Nelumbiums* in the side tank, with their large umbrella-like leaves on stalks 7 feet in height, the other water and ornamental plants, and the profusion of arched and festooned climbers, rendering the house exceedingly beautiful, and very interesting by reason of its being quite out of the usual run of plant-houses now met with. *Passiflora laurifolia* (the Water Lemon), with its golden fruits, and the monster *Passiflora macrocarpa*, with its Gourd-like fruits, are very handsome, and also good for dessert. In the lean-to houses leading out from the Victoria-house is a fine collection of Water Lilies of all the varieties in cultivation, and an interesting lot of Citrons and other plants, the fine specimen of *Citrus medica* against the wall having a great quantity of its large fruits on it.

Conveniently away from the house is the compact and neatly walled-in kitchen garden, with ranges of fruit and plant-houses. All about them is so neat and orderly, and every detail seems to be attended to with such precision, that too great praise cannot be given to Mr. John Page, the energetic gardener who presides over the Cherkley Court gardens. In the houses almost every branch of plant and fruit growing is carried out, and with a never-failing good result. The long range divided into many compartments is devoted to Camellias, Oranges, and plants generally; three of the houses are vineries, one of them is devoted to pot Vines, and others to Peaches, Nectarines, Figs, Strawberries, &c., the whole of them being in the most perfect trim. At the end of the range is the Orchid-house, with its plants in such good condition that the collection may safely be enlarged. In bloom now or recently are many *Cypripediums*, including the rare *C. insigne* violaceo-punctatum, *Zygopetalum Mackayi*, *Lælia anceps*, *L. autumnalis*, some well bloomed *Calanthes* and *Cælogynes*, and a bright display of the scarlet spathes of the *Anthurium Scherzerianum*. In the stoves beyond are good, clean, useful, specimens of *Dracænas*, *Crotons*, *Marantas*, *Palms*, &c., which are so serviceable when needed for indoor decoration. The smaller ranges of houses have good batches of *Pelargoniums*, *Cinerarias*, *Cyclamens*, *Primulas*, pot *Mignonettes*, *Eucharis*, &c., besides the large lot of soft stuff necessary for bedding-out. The late Peach-house under the wall is also well arranged to bear a crop of Figs as well as Peaches.

Returning to the house through the shrubberies and rocky herbaceous garden, and past the geometrical garden, enclosed by straight cut banks of *Thuja Lobbi*, 8 or 10 feet in height, we come to the terraces, looking over the

Mickleham Downs (fig. 167). The lowest level is planted with fine specimens of *Cupressus Lawsoniana*, which together with most of the other coniferous plants thrive so well here. *Wellingtonia gigantea* is an exception to the rule, as it does not grow well here, no matter how carefully planted.

Tunnels and grottoes formed in the Yews that abound here make delightful retreats—cool in summer and warm in winter. The care bestowed upon the noble old trees therefore does not go unrewarded. They should be carefully guarded, for they greatly assist in making delightful views. Stored as Mr. Dixon's residence is with works of art, among which are many fine pictures of vegetation and scenery in the Tyrol, it is doubtful if he could find one which represents so lovely a scene with so few drawbacks as that which greets the eye from his own dwelling. His own efforts, too, have done much to improve the scenery on the estate which comprises some 350 acres, for in all his alterations he has had the general effect in mind, and introduced just art enough and not too much art, and thus avoided the marring effect of the artificial; indeed, the whole place is in such perfect keeping that it should be a great source of pleasure to him who has so well planned and carried out that great work which was begun in order to give occupation and pleasure to an active mind, which refused to be idle even when rest might fairly have been claimed for it.

The carriage drive leading to Mickleham is planted on either side with *Picea Pinsapo*, which will form a telling feature when the specimens get up, and the whole of the neighbourhood gives varied and pleasant drives and walks, the health-giving properties of which are well known.

## New Garden Plants.

NARCISSUS JONQUILLA, L., var. BURBIDGEI, Baker.

BESIDES the three varieties of the Jonquil described and named by Haworth (major, media, and minor), there is a fourth, well worthy of notice, characterised by having the corona divided down nearly to the base into six segments. In the character of the corona it resembles closely *Narcissus rupicola*, Dufour, figured in *Bot. Mag.*, tab. 6473, fig. 3, but that is a variety of *N. juncifolius*, and the present plant is a Jonquil. It was first brought to my notice several years ago by Mr. Burbidge, who sent me a drawing, which, with his letter, was laid into the Kew herbarium. I intended to have noticed it at the time, but omitted to do so, and now this year it has been sent to me in a living state by Mr. Barr, with a request that I should furnish him with a name for it. Where its original home is I do not know, as all the specimens I have seen are of garden origin.

General habit of leaf as in ordinary typical *Narcissus Jonquilla*. Flowers 2—3 to an umbel; pedicels 1—1½ inch long. Perianth with a greenish cylindrical tube an inch long, and an expanded bright yellow limb ½—1 inch in diameter, with oblong yellow segments. Corona a third or a quarter of the length of the perianth segments, cut into six segments nearly down to the base. *J. G. Baker.*

ONCIDIUM LUDENS, n. sp.\*

At first sight you might suppose this to be *Oncidium annulatum*, but the difference of the callus of the lip, the sharp angles at the base of (his, the lamellæ under the stigmatic hollow, as well as other features, soon show that it is not. The growth may be that of *Oncidium serratum* as Mr. H. Veitch compares it to that species, stating at once the curious circumstance,

\* *Oncidium ludens*, n. sp.—(Cytocilla appendiculata label; linguiformi); sepalis impari unguiculato transverse, elliptico; sepalis lateralibus longius unguiculatis oblongis acutis; tepalibus breviter unguiculatis hastato; oblongis crispis annulato convolutis, nunc liberis (?), nunc coalitis, labello basi utrinque angulato linguiformi-acuto apicem versus recurvo, callo basos cuneato quadrato, parte cuneata angulo parvulo utrinque supra partem quadratam obtusangulo quadrilobum, carina utrinque basi bicurvi de callo in apicem auriculæ excurrente; columnæ alis semihombes, lamellis apice libero acutis de margine foveæ in medium tabulam infrastigmaticam excurrentibus. *H. G. Rehb. f.*

that the annular petals occur both closed and open, whence I named it "ludens." The colours are rather fine. Sepals of a rich brown verging into a mixture of cinnamon with yellowish-brown, rather than to mere cinnamon. The upper sepal has a narrow yellow border. Petals finest yellow with cinnamon-brown lobed marbling. Lip very pale, yellowish-ochre coloured with brown. It has some mauve at the base of the callus. Column greenish with brown small stripes. Lamellæ under fovea orange with purple margin. Wings of column dark purple. As already stated, it was kindly sent by Mr. Harry Veitch. *H. G. Rehb. f.*

AERIDES BURBIDGEI SPLENDENS, n. var.

A very stately broad-leaved *Aerides*, with large flowers of a rich purple. The side-lacinia of the lip are ochre, spotted with brown, the apex of the spur ochre, mid-lacinia of lip fine dark purple, stalked ovary light purple. It has the inner characters of Mr. Burbidge's *Aerides*, but it is far superior to it, rivaling *Aerides Læcanum* in colour—at least, as so far as I retain its colours in memory. I have to thank Messrs. J. Veitch & Sons for it. *H. G. Rehb. f.*

CATTLEYA (LABIATA MOSSIE) NALDERIANA.

An astonishing beauty, a dangerous rival of *Cattleya Massangeana* herself, which I lately had in finest state from Sir Trevor Lawrence. Its general colour is a peculiar rose-purple, with what I would call a slightish grey hue. You may easily copy this colour by adding strong mineral white to lightish carmine. The sepals and petals have a much darker purple linear hus. In the sepals it is a border; in the petals the marking is quite distinct. There are two similar dark bands converging before the apex, leaving a purple-rosy disc and a similar margin at nearly equal distances. It came in my reach—a two-flowered inflorescence—from Mr. W. Bull. It is stated to belong to its name-bearer, Mr. H. F. Nalder, of Wrencote, Croydon. *H. G. Rehb. f.*

CYRTOPODIUM SAINTLEGERIANUM, n. sp.\*

"Bulbs 18 inches on the average." Inflorescence about 2 inches long. Sepals lightest yellow, with fine brown blotches. Petals of same colour, with a very few spots at the very base. Lip rather short, low. Side lacinia broad, oblong; mid lacinia small, obtriangular, retuse, very short, with the callose border as in the affinity. Central callus oblong, having some small lobes, but no mucronate surface. Colour sulphur, with a few brown spots, and the margins of side lacinia deep brown. Column yellow. Anther greenish, with some smallest spots. Its apiculus now retuse. All the other characters are as in *Cyrtopodium punctatum*. I hope, however, to have fresh materials next season to control my statements.

I learn it was sent from Central Paraguay by the same M. Saint Leger, whom I finally understood to have discovered *Ocoidium Jonesianum*. I feel much pleased to be able to render justice to the excellent French traveller. Messrs. J. Veitch & Sons kindly sent me the materials. *H. G. Rehb. f.*

## TULIPS.

MR. WARE sent us recently specimens of:—

*Tulipa Celseiana*, an elegant Tulip, with solitary erect flowers of medium size and orange-yellow colour; the flower segments are lanceolate, the outer ones narrower, finely marked with purplish-brown, and flushed with a tinge of red at the margins and tips. The base of the inner segments and of the filaments is hairy.

*Tulipa fulgens* is sent in two forms, one a self-crimson, the other crimson, with a yellow feather. Inner perianth segments and filaments alike glabrous.

*Tulipa retroflexa*.—A graceful Tulip, about 5 inches across, with oblong lanceolate acuminate lemon-yellow segments, the outer of which are more or less reflexed. The segments and filaments are alike glabrous.

*Tulipa Didieri*.—Flowers 4 inches across, glowing crimson with a yellow eye, segments oblong acute, like the stamens destitute of hairs.

\* *Cyrtopodium Saintlegerianum*, n. sp.—Omnia *Cyrtopodii punctati*, Lindl.; bracteis parvulis hene undulatis; labello transverso lacinis lateralibus ellipticis transversis, lacinia antica obtriangulara retusa, callosa marginata; callo disci ligulato obscure lobulato, non mucronato; sepalis tepalisque valde obtusis. *H. G. Rehb. f.*



*Tulipa elegans*.—Flowers solitary, 6 inches across, orange-crimson with a yellow eye. Segments oblong-lanceolate, acuminate, glabrous at the base, like the stamens. Anthers black, apiculate. The leaves are oblong-lanceolate, acuminate.

*Tulipa Haageri*.—Flowers solitary, 3 inches across, dull red, with a brownish eye margined with yellow. Segments oblong, and slightly acuminate. Anthers dark green.

*Tulipa florentina*.—An elegant yellow-flowered Tulip, like *T. silvestris*, but with erect flowers. The bases of the inner perianth-segments and of the filaments are provided with fine hairs. As these parts are in close opposition, the hairs form a close *chevaux-de-frise*, the purport of which is presumably to exclude marauding insects. The outer segments

description (p. 159), accompanied by a coloured figure (tab. 18, fig. 2). This is a very rare and little-known type, which, from its being confused by Duby in his Monograph of the Primulaceæ in De Candolle's *Prodromus* with the rare *Primula villosa* of Jacquin, and the widely spread *P. viscosa* and *P. hirsuta*, has been very much overlooked and misunderstood. It seems to have been first gathered in the Tyrol by Clusius, and by him to have been introduced into cultivation. It was gathered wild by Wulfen at the end of last century and was by him sent to Jacquin. But for something like seventy years no one seems to have found it in a wild state. It is kept up as a species and carefully characterised in Von Haussmann's *Flora of the Tyrol* (1852, vol. ii., p. 716), and is said to have been gathered by Wulfen

any Auricula show, with this *Primula pubescens* in memory, without feeling that Professor Kerner's paper is very far from having exhausted the whole subject. My own view is, that a very large proportion of our garden Auriculas are nearer to *Primula Auricula* than they are to *Primula pubescens*, and that the garden Auricula of the present day is the product of a complicated series of intercrossings of which *Primula Auricula* has been the main groundwork, and into which *P. Balbisii*, *P. venusta*, and *P. pubescens* have also entered. If we have a great Primula Conference and exhibition next year it will furnish an excellent opportunity for the comparison of the wild with the cultivated types. *Primula Auricula* is one of the most universally diffused plants of the alps of Central

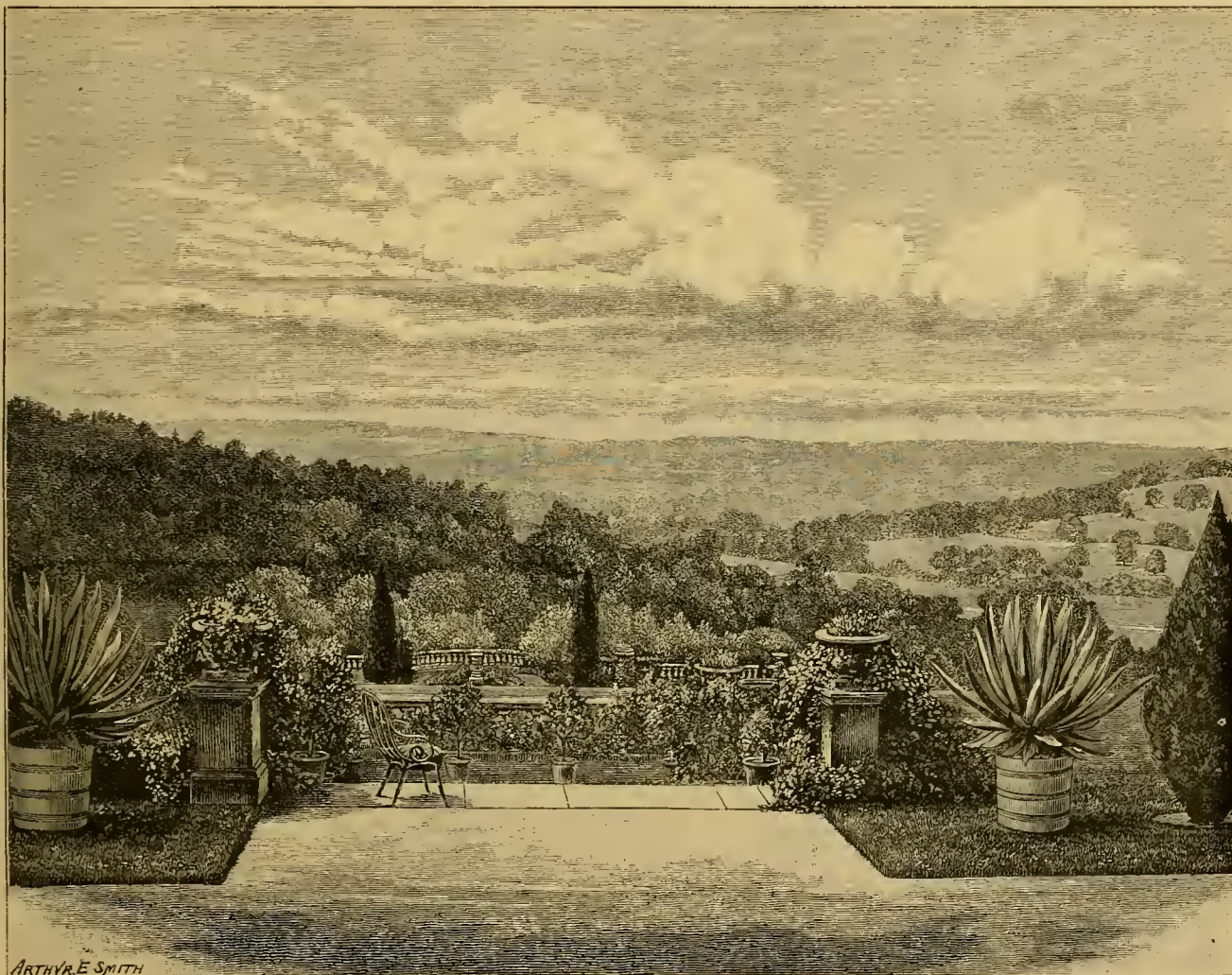


FIG. 167.—VIEW FROM THE TERRACE AT CHERKLEY. (SEE P. 756)

are smaller than the inner, and destitute of hairs at the edge.

## ON THE ORIGIN OF THE GARDEN AURICULA.

IN your columns for 1875 (vol. iv. of the new series, p. 806) there is printed an abstract made by my friend Mr. Alfred Bennett of a paper by Professor Kerner (then of Innsbruck, but now Professor at the University and Director of the Botanic Garden at Vienna, whom we all honour as one of the highest living authorities on critical alpine plants) on the subject of the origin of the garden Auricula. Professor Kerner attributes its parentage to the *Primula pubescens* of Jacquin. This is a plant which received that name in the first volume of the *Miscellanea Austriaca*, a work published at Vienna in 1778, a brief

and Rauschenfels, and it was refound by Kerner on the hills near Innsbruck in 1867. Of late years it has been distributed by Huter in his excellent sets of specimens of the dried plants of Tyrol. We have ten Tyrolese specimens of it in the Kew herbarium, two gathered in 1865 by Gander near Windisch Matrey, and eight dried by Huter himself in May, 1876, labelled "Tirolia merid., Pusteria med., Innichen, colitur in hortis, sol. schist., 1050 metres." From the widely-spread and well known *Primula Auricula* of Lionæus this *Primula pubescens* differs by having leaves shortly pubescent all over the surface, and especially on the margin, conspicuously inciso-crenate in the upper half, pubescent bracts, calyx, and pedicels, calyx-teeth more acute and as long as the calyx-tube, dark lilac flowers, and the whole plant, leaves, bracts, pedicels, and calyx, almost entirely destitute of fine white meal. It seems to me quite impossible to take a walk through

Europe. It is spread all over the mountain region from Dauphiné to Servia and Transylvania, and from the Jura through Switzerland to Savoy. *P. venusta* and *P. Balbisii* are both rare. Good coloured figures of Primulas are much wanted, and as none of these four have yet appeared in the *Botanical Magazine* I have no doubt that Sir Joseph Hooker would be willing to figure them if he were furnished with suitable material. All that I wish to do at present is to lay before your readers the view which I have just expressed, and to ask them to take it into consideration. I add brief descriptions of the four types to which I have made reference, drawn up from wild specimens, and mere names of a few other types to which Latin names have been given, which are probably hybrids with the parentage of which *Primula Auricula* has had something to do.

1. *P. Auricula*, Linn.—Leaves obovate-cuneate, 2—3 inches long, entire or obscurely crenate towards the



margin, nearly glabrous, furnished with a distinct white mealy margin. Peduncle glabrous, 3—6 inches long. Flowers 6—12 in an umbel; pedicels glabrous,  $\frac{1}{4}$ —1 inch long; bracts minute, ovate. Calyx  $\frac{1}{2}$ — $\frac{3}{4}$  inch long, mealy, as are the pedicels and upper part of the scape; teeth ovate, obtuse, shorter than the campanulate tube. Corolla a uniform primrose-yellow; tube cylindrical,  $\frac{3}{4}$ —1 inch long; limb  $\frac{3}{4}$  inch in diameter; segments  $\frac{1}{2}$  inch broad, conspicuously emarginate. Jacq., Fl. Austr., t. 415; Reich., Ic. Fl. Germ., t. 1093, figs. 1, 2.

Spread everywhere through the Alps of Central Europe from Dauphiné to Transylvania, and from the Jura to Savoy. The typical wild *Primula Auricula* has been drawn for the *Botanical Magazine*, from a plant in the Kew rockery.

2. *P. Balbisii*, Lehm.—Leaves obovate-cuneate, faintly crenate in the upper half, pubescent all over the surface, furnished with a distinct white mealy margin. Peduncle pubescent upwards. Calyx just like that of *P. Auricula* in shape, size, and cutting, but pubescent; segments obtuse, shorter than the tube. Corolla a uniform primrose-yellow, with a tube  $\frac{3}{4}$ —1 inch long, and a limb and segments as in *P. Auricula*. *P. ciliata*, Moretti, non Schrank; *P. Auricula*, vars. *mollis* and *ciliata*, Reich., Ic. Fl. Germ., t. 1093.

Alps of Lombardy and Tyrol. In my view, not more than a mere variety of *P. Auricula*. It is not identical with the plant figured as *P. ciliata* by Sweet, Brit. Flower Gard., series ii., t. 123. This is the *Primula ciliata* of Schrank, and is a form nearly allied to *P. pubescens*.

3. *P. venusta*, Host.—Leaves obovate-cuneate, distinctly crenate in the upper half, glabrous on the surface, furnished with a distinct white mealy edge. Peduncle glabrous, 3—6 inches long. Flowers 6—12 in an umbel; pedicels glabrous,  $\frac{1}{4}$ — $\frac{1}{2}$  inch long. Bracts small, ovate. Calyx campanulate, mealy, glabrous,  $\frac{1}{2}$  inch long and broad; teeth ovate, obtuse, rather shorter than the tube. Corolla dark lilac, with a tube  $\frac{1}{2}$ — $\frac{3}{4}$  inch long, and a limb  $\frac{3}{4}$  inch in diameter, with deeply emarginate segments  $\frac{1}{2}$  inch broad.—Bot. Reg., t. 1083; Reich., Ic. Fl. Germ., t. 1094, fig. 1.

Alps of Carniola and Tyrol. Differs mainly from *P. Auricula* in the colour of its flowers.

4. *P. pubescens*, Jacq.—Leaves obovate-cuneate, 2—3 inches long, pubescent all over the surface and especially on the narrow pale margin, distinctly incise-crenate in the upper half, not mealy on the edge. Peduncle 3—6 inches long, obscurely pubescent upwards. Flowers six to twenty in an umbel; pedicels pubescent,  $\frac{1}{4}$ — $\frac{1}{2}$  inch long, obscurely mealy, as are the small ovate bracts and the calyx. Calyx  $\frac{1}{2}$  inch long, pubescent; teeth ovate, subacute, rather shorter than the tube. Corolla dark lilac (figured by Jacquin with a yellow eye); tube  $\frac{3}{4}$ —1 inch long; limb  $\frac{3}{4}$  inch in diameter; segments  $\frac{1}{2}$  inch long and broad, deeply notched.—Misc. Austr., t. 18, fig. 2; Reich., Ic. Germ., t. 1102.

Mountains of the Tyrol, very rare.

The following forms are probably hybrids, with the parentage of which *Primula Auricula* has something to do, viz.:—*P. discolor*, Leybold; *P. rhoetica*, Gaud.; *P. helvetica*, Don; *P. Peyritschii*, Stein; *P. Portae*, Huter; *P. aretosis*, Kerner; *P. Goblilii*, Kerner; *P. Kernerii*, Gobl. and Stein; *P. alpina*, Schleicher; but here, as in *Narcissus*, we shall soon get bewildered if we go on giving Latin names to every slight variation in a series of complicated hybrid types. The wild European species of the *Auricula* group are not more than a dozen in number, but it is evident that these dozen cross naturally in all directions. *J. G. Baker*.

## NOMENCLATURE OF BRITISH FERNS.

THAT there should, in some cases, be two or three names for precisely the same plant is hardly to be wondered at; indeed such a thing is inevitable, and almost unavoidable under such a system of naming as has existed hitherto; but now that days of Conferences have set in, with something approaching to earnestness, it is not unreasonable to expect that what has been done for the Apple, the Daffodil, the Orchid, in the immediate future, may be done for Ferns, both British and exotic. I would suggest such a meeting being held in the month of August, at which time most of the Filices would be in their true character. As an instance of the existing confusion I give the following case:—A private communication is received from a botanist of high standing, asking for a plant or two of *Grammitis*

ceterach for herbarium purposes, the next time I may happen to meet with it. The answer returned is, that that plant is unknown to me at present, and the further remark is added, that in Bentham's *British Flora* there is only one species of *Grammitis* mentioned, viz., *G. leptophylla*. A second note from the same source is duly received, saying, that *G. ceterach* is sometimes called *Ceterach officinarum*. Under this name the plant is easily recognised, forwarded in due course, and is an old favourite we had known for years; but certainly never with the generic name used in specific order. It would be interesting to learn which of these two names at the present time is considered the right one; there can be no question as to which of the two the plant is most widely known by, viz., *C. officinarum*. My correspondent further states that the plant referred to as *G. leptophylla* is not a *Grammitis* but a *Gymnogramma*, so that we have here again a little uncertainty. This last name is frequently used by many English botanists, but it is rather misleading, for I believe it has been shown on the highest authority that the generic name, *Grammitis*, adopted by Continental botanists, has an incontestable claim and right of priority over that of *Gymnogramma*. It would be too much to expect that we shall at any time have complete unanimity regarding the nomenclature of Ferns—or, for the matter of that, any other class of plants; still, I would venture to say that many doubtful points might be cleared up for the time being, at least, and would be greatly to the advantage of all interested. *J. H.* [So long as men take different views of things, so long will there be synonyms. It is worthy of consideration whether it might not be possible to frame a conventional nomenclature, based on Bentham and Hooker's *Genera*, for garden purposes only, and leave the botanists to deal as they pleased with the synonyms. *ED.*]

## NOTES FROM FRENCH NURSERIES.

(Concluded from p. 737.)

MM. CHANTRIÈRE FRÈRES' NURSERY, MORTFONTAINE.—This nursery is eminently a place for the raising of Crotons, Anthuriums, Philodendrons, and Dracenas. Many other things are to be found, but these are its specialties, and are consequently grown in great quantities. The usual stuffy little houses crammed full of plants, are found. So thickly placed together are the plants that were it not for the bright sunshine of France they would be irretrievably spoilt by etiolation and damp. Of Dracenas, *Chamierii* is a distinct novelty, the leaves 1 foot in length and 3 inches in breadth, bronzy tints, changing to reddish ones as the foliage ages. *D. Eugène Chancier* has a bronze leaf with crimson mottling and veins; the habit is robust, and the foliage above the usual size. *D. Madame Bergman* has the tinting of *D. terminalis rosea*, but of much greater width of leaf than that old variety, and possesses a very leathery texture; *D. Verlaetti* has dark crimson foliage, with a broad margin of rose; it is very compact in growth, and is one of the best of its colour.

In Crotons were many fine things, of which we select a few of the more striking novelties, viz., *C. Alexander*, with broad entire leaves, the upper surface of which is dark green, marbled with red in the mature stage, and with yellow when young; the underside is of a cerise tinge. *C. Dallieri* has recurved foliage of a lively green, with yellow nerves and midrib, and bold blotches of the same colour; *C. Mortfontainense* has the form of leaf of *Disraeli*, but of a bright red colour.

In new Anthuriums were *A. carneum* with smooth surfaced spathes, large, and of a bright cerise colour, the growth being stronger than in *A. Andreanum*; *A. Souteiri* is another variety of robust growth, in which the flower-spathe is white, and the spadix brown; *A. Mooreanum* × *signatum* and *magnificum* has a large cordate leaf of leathery texture, and will make an imposing looking plant; *A. Oulettianum* has a cherry-red spathe, is longer than, and an improvement on, *A. magnificum*. Several other Anthuriums were observed, at present unnamed, some of which have white flowers and distinct foliage.

*Phyllanthus Chancieri*, with tiny flowers of a red colour depending from the small leaflets of what looks like a composite leaf, is a very noticeable plant. It is likely to prove a useful subject for table decoration and elegant arrangements indoors. The yellow spiked *Til-*

*landsia Zahni* is another remarkable plant. *Santozolinia bullata*, a stove shrub, with leaves having a bronzy-green surface, much roughened, and the habit of *Cyanophyllum magnificum*, was equally noteworthy. In *Peperomia prostrata* there is a pretty carpet plant for baskets and hanging pots; the minute round leaves are dark green marbled with white.

Many Palms, Ferns, and Begonias, together with a general collection of warm-house plants, are grown for sale; and the outdoors department is rich in species and varieties of coniferous plants, which do remarkable well in the deep warm soil overlying rock.

## Orchid Notes and gleanings.

### ONCIDIUM TRICUSPIDATUM.

THIS tiny *Oncidium* was described in the *Gardeners' Chronicle* last year (vol. xxii., p. 70) by Professor Reichenbach, and a plant of it may now be seen in flower in the Orchid-house at Kew. The whole plant, flowers and all, is not more than enough to make a meal for a cockroach, which bears out the remark of the Professor, that this species is botanically interesting only, for certainly it would not fetch a high figure at an auction sale. The leaves are  $1\frac{1}{2}$  inch long, in shape and texture very like leaves of a small *Masdevallia Harryana*, but a little stiffer, a pair of leaves being borne by each of the small thin pseudobulbs. The racemose inflorescence is 4 inches long, erect, branching, and bears about a dozen flowers, which are not more than half an inch in diameter, their colours being pale yellow lined and spotted with reddish brown. *O. tricuspidatum* is a native of Costa Rica, where, according to Professor Reichenbach, it was first discovered by Herr Wendland. It has recently been introduced alive by Messrs. Sander & Co., to whom Kew is indebted for the specimen now in flower. *W.*

### A REMARKABLE CATTLEYA.

In the gardens of G. Hardy, Esq., Pickering Lodge, Timperley, Cheshire, a *Cattleya Sanderiana*, imported two years ago, has lately been in flower, and has produced perhaps the largest blooms ever seen under cultivation. What may have been the size in a state of Nature we cannot say, probably not larger than these under notice. A flower was shown at the Whit-week exhibition at Old Trafford, which was measured by several Orchid growers, every one expressing astonishment at its immense size. It was just worth observing the look of surprise that came over many a countenance as the rule was placed on every part, eclipsing everything that had hitherto been seen or even anticipated. The diameter of the bloom was 11 inches, each petal covering  $5\frac{1}{2}$  inches, these in their widest part being just 3 inches across. The sepals were, perhaps, rather narrow, but in length were equal to the petals. The broad, flattened lip extended well below the throat to  $2\frac{1}{2}$  inches, whilst across this part of the labellum 3 inches were measured. The colours of the bloom were of the best and richest hue, and every division of the bloom was perfect. *W. S., June 1.*

### CYPRIPEDIUM CONCOLOR.

The little group of *Cypripedium* to which *C. concolor* belongs, and which includes the beautiful new introduction, *C. Godefroye*, and the no less beautiful but better known *C. niveum*, is perhaps the most charming of the Indian *Cypripeds*, many of which are remarkable more from their curious forms than for the possession of true floral beauty. The three species above named will probably come to be considered merely forms of one variable species; such, at least, seems to be a likely conclusion from what is now taking place at Kew, where an interesting set of these three *Siamese Cypripediums* are in a flowering condition. The history of *C. Godefroye* has yet to be told, and we believe by the Kew authorities, as these *Siamese plants* are said to contain among them the true *C. Godefroye*, and other kinds, which differ slightly from both this and *C. concolor* and *C. niveum*, and which may, therefore, be the links which are to connect these three so-called species into one. A plant of *C. concolor* has recently been in flower at Kew, and a few weeks ago a distinct form of it bore flowers in the same establishment. Apart from questions of nomenclature the large white or



yellow thickly spotted flowers of the above-named plants are so chastely beautiful that they ought to be included in the smallest collection of tropical Orchids, though at present the high price asked for *C. Godefroye* will prevent its becoming widely cultivated. *H.*

#### CYMBIDIUM PENDULUM VAR. ATROPURPUREUM.

The species of *Cymbidium* which have coloured flowers appear to show much variety of colour—at least, such is the case with *C. Lowianum*, some of the forms of which are not more beautiful than the old *C. giganteum*, whilst others are exceedingly beautiful. The same remark applies to *C. pendulum*, the type of which bears long pendent racemes of green and brown flowers, with a reddish-brown and cream-coloured labellum, but forms of which are also found with flowers of the greatest beauty. Such a form is that named as above, and which is now in flower at Kew—a large plant, bearing two long racemes of truly noble appearance. The sepals and petals are over an inch long, one-third of an inch wide, thick and leathery in substance, yellow-green on the back, and a dark maroon-purple on the inside. The column is of the same colour, and the labellum is creamy-white, with several large dark red spots on its recurved portion, and a tinge of rosy-red on the sides. This noble flowered variety first flowered in the Tooting Nurseries (Messrs. Rolisson) in 1868, and a drawing of it was published in the *Botanical Magazine* the same year. It is supposed to be a native of Java, where, as well as in Singapore and the Philippines, the type is found. In our opinion this is one of the most beautiful of a genus which contains some very fine garden Orchids.

#### DENDROBIUM DRACONIS.

Under this name there are several plants in flower at Kew of what in gardens is known as *D. eburneum* of Bateman. It is one of the handsomest of the Moulmein Dendrobies, and was first introduced to England by the Rev. Mr. Parish, whose zeal as a collector and introducer of Indian Orchids has recently been most fittingly acknowledged by the Royal Horticultural Society. *D. draconis* has plump pseudobulbs a foot long, which, when mature, are covered with the persistent sheathing bases of the leaves. The flowers are produced on the leafy growth of the current year, and are arranged on a two to six-flowered raceme, having a stalk an inch long, which curves downwards so as to display the large ivory-white petals and sepals, and the rather long, pointed lip, the margins of which are conspicuously crenulated. Except for a few lines and a dash of orange-red on the base of the lip the flower is wholly white. *D. draconis* flowers and grows freely under cultivation for a year or two, but like many other Dendrobies it seldom remains in thriving condition for any time. It likes a warm, moist stove, and plenty of water when growing.

#### AMORPHOPHALLUS VIROSUS.

In the spring of last year I received from Mr. Henley Grose Smith a specimen of an *Amorphophallus*, which although somewhat resembling *A. campanulatus*, seemed to me distinct in its much smaller inflorescence and somewhat globose irregular appendix, in these characters approaching *A. dubius*, but is larger than that species, and so is intermediate between the two. Mr. Smith informs me that it was brought by Mr. Bock from Siam. The following is a description of the plant, which is an ornamental and striking Aroid:—

Petiole tall, terete, rough, from being thickly covered with small tubercles, dark green, marked with numerous, more or less confluent, round or elliptic, whitish-green blotches. Lamina three-branched, branches two to three times forked, pinatisect, leaflets oblong or narrowly elliptic-oblong, variable in size, rather abruptly and shortly acuminate at apex, the lower side at the base decurrent on the branch of the petiole as a wing, entirely bright green without variegation. Peduncle asperate, and blotched like the petiole. Spathe funnel-shaped, slightly contracted at the middle, 9 inches long, 6 inches in diameter at the top; outside smooth, pale green, with a broad purple margin, everywhere marked with round white spots; inside rugose, and purple at the base, the rest smooth, having the middle part of a rich cream colour, and

the upper part purple. Spadix shorter than the spathe, about 7 inches long, stout, the female part occupying one-third of its length, the male part rather more than a third, and the rest forming an irregular, somewhat globose, rugulose, brownish or purplish appendix, the part just above the anthers being broken up into rugulose crowded tubercles. Ovaries globose, greenish, with a purplish apex; style 4 lines long, purple; stigma bifid, or rarely trifid, light brown, with a darker dorsal line. Anthers dirty yellowish, 3 lines long, compressed, dehiscing by two terminal pores. When cut through the inside of the spadix is of a soft salmon-pink colour. *N. E. Brown.*

#### COOMBE WOOD.

A RAMBLE through this extensive and well kept nursery, so rich in new and rare shrubs, most of which have been introduced by Messrs. Veitch, suggests bright visions of improvements in our general garden scenes in the future by means of the introduction of those lovely things from Japan and other regions which are constantly exhibiting their marvellous beauty and their worth as hardy plants in this country in the grounds at the Coombe Wood Nursery.

The introduction of these handsome new shrubs, their nursing over their journey, their subsequent propagation and years of culture in the open air necessary to prove their quality and hardiness in this country, is no light matter; and as those which pass successfully through the necessary probation play such an important part in beautifying our gardens and landscapes too great praise cannot be awarded to Messrs. Veitch and others for their enterprise in introducing so many lovely things which, while giving us their strange beauty, make themselves as much at home as though they were natives of these isles. But it takes many years to get even the most beautiful new shrubs generally planted, and even now at Coombe Wood a selection could be made of warranted hardy plants, which would make gardens full of beauty and pleasure, and unlike anything else in the country, if but the planters could be found willing to take up such an interesting and useful hobby. The visitor has but to glance at the noble avenue of alternate *Arancaria imbricata* and *Wellingtonia gigantea*, 20 feet to 25 feet high at Messrs. Veitch's, if he needs encouragement to plant. Any nobleman in the land would be proud of such an avenue on his estate, and some would have had such if, years ago, they could have imagined their beauty and vigour when planted in suitable districts. The *Rhododendrons* everywhere command attention just now by their gorgeous flowers and those at Coombe Wood are well known for their excellence. Viewed from the higher ground the large expanse of neat round-headed plants in the quarters backed by the masses of specimen bush and standard with their variously tinted blooms, they seem to light up the whole scene, the standards, like huge standard Rose trees, being especially effective.

On closer inspection bewildering details of beauty come forth, rendering it difficult to make a selection and say they are the best; but as many may be glad of the names of the most striking and distinct, we noted the following as being of the highest order of merit:—Duke of Teck, magenta tinged with lilac and fringed; Mrs. Cameron, bright pink, lighter in the centre, upper petal spotted orange; Baron Schröder, rich plum colour; James Bateman, rosy-scarlet; Duchess of Edinburgh, crimson; Mrs. Holford, rich salmon; Mrs. John Clutton, white; Old Port, rich violet-crimson; Sir Arthur Guinness, rose; Sigismund Rucker, magenta; Robert Marnock, bright crimson; Mrs. Shuttleworth, scarlet, spotted; Mrs. Milner, rich crimson; Michael Waterer, bright rosy-scarlet; Lord Eversley, dark crimson-scarlet; Lady Tankerville, pale rose; Madame Miolan Carvalho, pure white; Alarm, white, edged with scarlet; *Atro-sanguineum*, blood-red; Frederick Waterer, fiery crimson; Lady Armstrong, pale rose, spotted; Lady Annette de Trafford, cream-coloured, with chocolate blotch; H. H. Hunnewell, rich crimson; Blandyanum, reddish-crimson; Charles Bagley, cherry-red; Helen Waterer, purest white, edged with crimson; Vauban, mauve, with yellow blotch; and Brayanum, vivid rosy-scarlet. These form a very fine and distinct selection, but all who can possibly inspect Messrs. Veitch's fine stock should

not fail to do so whilst the countless specimens are in bloom.

The handsome Japanese Maples, which are among the specialties at Coombe Wood, and which were introduced through Mr. John Gould Veitch and Mr. Maries, seem quite at home there as hardy trees, some of the earliest arrivals having assumed large proportions in very exposed situations, one of them, the first imported plant of *Acer polymorphum*, having a head some 18 feet across, and densely clad with its beautiful finely-cut Fern-like foliage. The crimson and yellow leaved forms, too, of this numerous and diverse species are equally robust, and seem to point to the fact that they are by no means delicate; the sooner, therefore, that idea is done away with the better, as they are invaluable for their distinct foliage and neat growth. A nook could be found in most gardens which might well be devoted to them.

The Coniferous ground contains large quantities of all those well-known things which every one about to plant has first in his thoughts, but there are also a great many new and rare things not generally known, which might well occupy some of the space allotted in private gardens, and thus give variety, and prevent the too frequent repetition of the same species which we too often see. A visit to Coombe Wood Nursery would disclose a great variety of fine Conifers and other hardy plants unknown even to the general run of plantmen, and hence the importance of a personal inspection from all those who are undertaking the very important duty of planting trees, which if well done are perhaps to stand as memorials of them in times to come. Among the prettiest of the Coniferae may be noted *Abies brachyphylla* with young cones of a bright violet colour; *Abies Veitchii*, a variety with foliage like *A. Nordmanniana*, but more elegant; *A. sachalinensis*, a very handsome kind; *A. polita*, with dark green foliage, lighter beneath, and having a yellowish bark to the stem; *A. Mariessii*, very compact and bushy; *Biota japonica filiformis*, a common form of *Arbor-vitæ*, with long whip-like appendages to the branches; and innumerable fine golden and glaucous forms of *Yews*, *Cypresses*, and *Arbor-vitæ*.

Along the borders of the main walk a very rich and varied display of flowering shrubs appears—all the best and newest forms of *Weigela*, *Crataegus*, *Syringa*, *Viburnum*, &c., and one of them may be selected, first and foremost, as being one of the finest of flowering shrubs—*Chionanthus retusus*. This lovely plant grows into a compact neat bush, its leaves resembling those of the Lilac, whilst its bunches of pure white Jasmine-like flowers, which are produced in the most luxuriant manner, constitute it an object of great beauty, and unlike any other shrub in general appearance; it should make its way into every garden, large or small. *Philadelphus microphyllus*, with its neat twiggy habit and pretty simple white flowers, so fragrant of ripe Quince, with a suspicion of Tea Rose, is another good thing; and *Olearia Gunnii*, with Daisy-like flowers, a real gem; *O. Haastii*, which is now getting much used, and *O. dentata*, also appear very handsome. Also in great beauty are *Viburnum plicatum*, literally covered with white bosses, *Staphylea Bumalda*, and *S. colchica*, covered with flowers; *Styrax japonica*, white and very fragrant; *Magnolia Soulangeana nigra*, the darkest of *Magnolias*; *Philadelphus tomentosus*, very showy; *Escalopia sanguinea*, and *E. Philippiana*, the neatest of the *Escallonias*; *Andromeda japonica*, with drooping flowers like Lily of the Valley; and many fine improvements in Hawthorns, *Cytisus*, *Lilacs*, and other hardy flowering shrubs, among the last named being in great beauty the new white Lilac, *Marie Lagrange*. Conspicuous for their distinct and tropical looking foliage are *Pavia macrostachya*, with handsome *Aralia*-like leaves; *Eucalyptus coccifera* (true), which has here attained a good size, and is quite hardy here; *Styrax obassia*, with *Paullonia*-like foliage and handsome flowers; *Daphniphyllum glaucescens*, with very handsome large entire leaves; *Aralia Maximowiczii*, and several fine forms of *Quercus*.

Besides the growth of shrubs for planting, Messrs. Veitch make a special culture of such things as *Lilacs*, *Viburnums*, *Azaleas*, &c., for forcing in pots, and so well have they succeeded that they have disabused the minds of all who have tried their growths for this purpose that it is necessary to get such things from the Continent, for bushier plants of better blooming quality can be got at Coombe Wood. The *Roses* are in fine order, both in pots and in the open ground,



and the different varieties of hardy Azalea now in bloom well worth seeing.

Hardy marsh and aquatic plants, ornamental grasses and Bamboos, climbing plants, and all other things for planting in the open air, are well grown at Coombe Wood, as well for the neat specimens for sending away as for the large examples of them to show the character of each; and we note that a happy idea of displaying the beauties of such things as *Wistaria sinensis*, blue, white, double, and golden variegated and other strong growing climbers, is there carried out, the plants being trained up stout stakes, and made to form bushes; so grown they are easily kept within bounds, flower all the freer for the necessary pruning, and are available for beautifying the garden where more extensive accommodation for climbing could not be given them. The climbing *Hydrangea* (*Schizophragma hydrangeoides*) looks well so grown, and the lovely scarlet *Clematis coccinea*, which is so well grown at Coombe Wood, will no doubt adapt itself to this mode of culture.

Of Messrs. James Veitch & Sons' nursery at Coombe Wood it may be said that it is always in the most trim condition, and as it is so close to London a run out there for a couple of hours makes a pleasant relaxation for the business man, for one of those unfortunates on whose hands time hangs heavily, or for the lover of plants either from a botanical or a cultural point of view.

### NOTES ON THE CATTLEYAS OF THE AMAZON.

DURING a residence of some eight years in Para and on the Amazon we have received many letters asking information as to Amazonian Orchids. The notes given in Orchid manuals that a certain Orchid comes from Brazil, lead many to suppose that it comes from the Amazon, whereas the Amazonian region, vast in extent as it is, comprises only a small portion of the immense empire of Brazil. The two genera of Orchids concerning which there is the most inquiry (and well do they merit the attention) are *Cattleya* and *Lælia*. Now there is not a *Lælia* of any kind in the Amazonian valley, nor, as far as our knowledge extends, have any ever been found on any of the Amazonian tributaries. To the north *Lælias* are found in Mexico and Guatemala, but the Brazilian *Lælias* are natives of the southern provinces, generally in the region of Bahia or Rio de Janeiro, and thence toward central Brazil. The large genus of *Cattleya* is also sparingly represented in the Amazon valley, the great proportion of the Brazilian *Cattleyas* being natives of the same regions as the *Lælias*. But as compensation for the lack of number the Amazonian *Cattleyas* are pre-eminent for their beauty.

To one who now has only to wire them on to the trees, or on to blocks which hang on the fences, to have them establish themselves at once and bloom profusely, the general complaint that they do not thrive in cultivation would argue want of proper care, did not his experience in times past in their culture in the Orchid-house lead him to believe that they are not easily grown. A few notes as to the conditions under which they naturally grow may furnish some suggestions as to their culture.

The *Cattleyas* of the Amazon are *Cattleya superba* and its varieties, *El Dorado* and its varieties, *luteola Wallisii*, and the almost unknown species—if species they be called—*Schroederi* and *Leeana*.

None of these are found on the Amazon this side of Manaós, which city is situated on the river Negro just above its junction with the Amazon, about 1000 miles from Para, and, as far as our knowledge goes, no *Cattleyas* have been found above Tabatinga, the frontier fortress on the Amazon between Brazil and Peru. They are also, except *Cattleya luteola* (and perhaps *superba*), confined wholly to the northern bank of the Amazon.

The *Cattleya* region thus seems to comprise a tract of about 800 miles on the northerly bank of the Amazon, extending northerly to Guiana, Venezuela, and Colombia. The whole of this region for many miles north of the Amazon is of the same general character—*varzea*, or land overflowed in the annual rise of the rivers, with stretches or isolated portions of higher land known as *terra preta*. There are innumerable lakes, many of great size, countless *igaripes* and *parana-meris*, or water-courses which connect the various rivers, but never any high hills or

great elevations until far north near the boundaries of Brazil. The greater part of the soil is alluvial, though there are sandy plains and rocky formations. No road or path of any kind exists in the whole of this immense extent of territory, and the only communication is by way of the water.

The evaporation is very great, and in the woods the air is generally surcharged with moisture. The rainy season begins in December and continues until June, the rain at times falling continuously in a deluge. During the remainder of the year there is but little rain, but the air at night is always damp from the great condensation. The days are hot, the mercury often rising to 80° or 90° in the shade, and the nights cool, often cold, the thermometer sometimes falling to 55°. The annual rise of the rivers, as shown by marks on the trees, is from 20 to 30 feet.

It is under these conditions of temperature that the Amazonian *Cattleyas* grow. It must be remembered that *Cattleyas* are never found in the close dark woods, and never in pestilential localities. Orchids like a free circulation of pure air, and the *Cattleyas* often grow on the topmost branches of the immense trees in the full sunlight. They also never seek to cover or bury their roots, which run up and down the branches often to the length of 15 feet, but always on the surface clinging close to the bark, but in large clumps the roots often wind round and round the dead roots and pseudobulbs of past years, and make large masses, but these inner roots are all dead, and these masses become the habitation of fire-ants—a fact which does not add to the pleasures of Orchid collecting.

The *Cattleyas* thus experience a season of six months of constant moisture followed by six months of intense heat by day, during which they become very dry, but are every night refreshed by the copious condensation; the maximum and minimum of temperature in the shade being about 80°, rising to 120° in the sun, and about 55° at night. The nearer we approach these conditions in cultivation the nearer we shall be to success. *The American Gardener*.

### PLANTS AND CUT FLOWERS.

WITH regard to the economical use of cut flowers there is undoubtedly much need of reform, and that in more ways than one. A needless amount of material is wasted more frequently than not, by overcrowding in the arrangements. One-third at least of the cut flowers supplied by most private establishments could with advantage be dispensed with in each design. This surplus could be used advantageously in other parts of the household or reserved for future occasions. By using too many flowers another evil presents itself in the rapid absorption of the water in the vases, or of those constituents in it that are of the greatest value as sustenance for the flowers. This waste in flowers generally happens when what may be termed special efforts are being made, the object aimed at, viz., more than ordinary good effect, being defeated by the excessive quantities that are used. This point should always be borne in mind—not to rely on quantity so much as on judicious arrangement. A great waste of flowers also takes place when designs for dinner-tables are carried out by arranging the flowers on the cloth without any means of keeping them fresh, not to mention the amount of Fern fronds and other foliage that is so sacrificed. A good deal of economy can likewise be practised in rearranging the cut flowers; when the vases require it, it will often happen that some of the flowers are capable of being used over again: such as these ought not to be discarded. It will be found far better in every way for the gardener to have entire charge of the floral arrangements, provided the employers themselves do not personally undertake this work. It is never so satisfactory when this responsibility is left in the hands of the household servants. There are, we are well aware, some instances where this is perhaps unavoidable, as in the case of families residing in town whilst the source of supply is far removed. In such cases matters must be arranged in the best way possible to suit each instance. This mention of flowers when sent a distance either to town or elsewhere brings up another point, that is, that no longer time should be allowed to elapse between the receipt of the flowers and their arrangement than is at all preventible. For instance, on their receipt the box lids are opened and the flowers very probably exposed to the air for some con-

siderable time before being placed in water, or if they come to hand late at night are most likely left in the boxes till morning instead of being taken out and placed in convenient receptacles and in a cool place free from currents of air till the next morning. When flowers have to be sent a distance the selection should be made from such as are only just about to expand, as these will be found to last much longer; this is also an excellent system in home use. That there is a great waste in the consumption of cut flowers in many private establishments will, I feel, be confirmed by those who have had any experience of the subject, and it is this which ought to be prevented as much as possible, especially in these days when reduction in the garden expenditure is the frequent complaint that is heard of amongst the fraternity. No doubt the extra quantity required has caused less value to be put upon their use, but this ought not to be. *J. Hutson, Gunnersbury House, Acton.*

### DRIMYS WINTERI.

MR. TYERMAN was so good as to send us some time since flowers of this species produced on a plant against a south wall in his garden in Cornwall. We are not aware whether this species has been previously recorded as flowering in the open air. The plant is of interest as allied to *Illicium*, one of the *Magnoliaceæ*, and as the source of the bitter aromatic bark known as Winter's Bark. The tree is a native of Chili, and the bark was first introduced in 1579, by one of Drake's captains, from Magalhães's Straits. (See fig. 168.)

### CHÂTEAU DE FERRIÈRES.

THIS charming place is seen at its best in spring garb, as we saw it recently, the abundance of the flowering trees, shrubs, and hybrid *Rhododendrons* giving a beauty at that time seldom enjoyed in gardens in which Conifers and evergreens form the major part of the furnishing. The blending of the many tints of green here and there contrasted with that of copper Beeches and dark Pines and Spruces, and the lively effect of the broad lake, occupying the middle distance in looking from the terrace to the rising ground beyond, made up a picture of great beauty. The great mass of *Rhododendrons* at the foot of the terrace was in full flower, most of them being familiar varieties from the Bagshot and Ascot nurseries.

Summer bedding out had hardly been commenced, perhaps because the great masses of red and white Daisies, the Pansies, and *Saponaria calabrica* were yet so full of flower that they were loth to disturb them, and, moreover, late frosts are quite as prevalent there as in England. The quantities of bedding plants used may be reckoned by several hundreds of thousands, many ranges of low pits being filled with them.

The Pine-apples now being cultivated by Mr. Bergman in moss, as described by him in the *Gardeners' Chronicle*, March 28, 1885, p. 408, were stout and vigorous to a degree seldom seen; but we think much of the success seeming to attend this method of growing the Pine-apple is due to the sunny bright skies of France, which allow of the plants being grown without the aid of so much artificial heat as with us, and without depriving the plants of the great advantage of an abundant ventilation during the summer months. The sorts *Charlotte de Rothschild* and *Smooth Cayenne* are those mostly grown, of which many fruits were seen of 6—7 lb. in weight. Another kind, named *Bracamorensis*, is grown, but it is not very good in quality.

The Orchid collection, which becomes more extensive year by year, is generally well managed, and contains a great number of good things. The big plant of *Vanda Lowii* which last year had eleven has this year sixteen spikes of bloom just showing. *V. Batemani* was a strong plant, very healthy; and several *V. suavis*, good examples, were observed. A very fine piece of *Acrides odoratum*, with eleven spikes, and a great many plants of this *Acrides* of different dimensions were likewise found in one of the Orchid-houses. A good piece of *Dendrobium calceolus* was bearing an abundance of its golden blooms. *D. Bensonæ* was in fine bloom, as was *D. Dearei*.

Of *Cypripediums* there are many species and varieties, but few of them were in bloom, or they had been shorn of it for house adornment, the fate of most



of the best flowers at Ferrières. A fine plant of *C. caudatum* bore several of its curious blooms. An *Oncidium*, somewhat like *O. cucullatum*, named *Wiltouense*, was burdened with many long sprays of bloom.

One of the houses is the home of *Vanda teres*, which being planted out in a raised border, gives annually several hundred blossoms; this year it had as many as 600. In the same house *Anthurium Scherzerianum* is planted in elevated side beds, giving by this method of culture a large crop of blooms for cutting purposes. Peat and sand alone are used to form the border, and the plants are surfaced annually with fresh compost.

*Cattleya Mossii* is largely grown, and many varieties were still flowering. *Cattleya Sanderiana*

mouths. A house is set apart for them, light, roomy, and capable of being well ventilated when needed. Under this method of treatment the foliage is large, and furnishes the plants from top to bottom.

The Palm-house was pleasantly warm, roomy, and in no way crammed with plants. Palms, *Araucaria elegans*, a fine example; *Theophrasta imperialis*, Cycads, and a few others were planted widely apart, and between them stretched a carpet of *Selaginella denticulata* and nothing else—no frittering away of effect by multiplying objects of interest, such a common error, made in conservatories everywhere. A very long span-roofed greenhouse was filled with fine symmetrical plants of *Azalea indica*; many were over for the season, but a great number had yet to fully open their flowers. We remarked Jules van

## Florists' Flowers.

### THE DAHLIA.

THE exhibitions of the National Dahlia Society held at the Crystal Palace have done much to popularise this gorgeous autumn flower. The addition of bunches of single forms, and the small flowered type also exhibited in bunches, make the exhibitions much more attractive to the public who visit flower shows. The season being so late this year the plants were sent out later from the nurseries, and those propagated at home are only now ready to be planted out. It is not desirable to plant them out very early. If the plants are potted about the third week in May into 6-inch pots, and grown on in cold frames until the middle of June, they will grow on at once and will not be checked by cold nights. It is very desirable to have the ground well worked by exposure to the atmosphere. It should be lightly forked over two or three times during dry weather in April and May. The operation of planting should be carefully performed. Our plan is to mark out the places for the Dahlias; if ground can be spared they ought to be 4 feet apart at the least. The centre stick is then driven into its place, and a spadeful of soil is taken out in front of the sticks, to be replaced with some good rich loam, in which the young plants can root away at once. If the natural soil of the garden should not be well adapted for the culture of the Dahlia, and at the same time wet and cold, the plants will not take kindly to it at first, but if some suitable soil is put in the holes for them to root into they will start into growth at once. The plants should be tied to the sticks to prevent their being injured by the wind. The plants ought to be quite free from insect pests, and they must also be well inured to stand in the open air. The plants are best kept in cold frames, and the lights removed entirely a few days before planting them out.

### THE CARNATION AND PICOTEE.

These plants, even the choicest varieties of them, do not seem to be injured in the least by cold weather, as both out-of-doors and in pots they are remarkably strong, but rather late—quite two weeks later than last year. It is a good plan to place a handful or two of rich compost on the surface of the soil round the base of the plants. It is necessary to place sticks to all the stems at this time, and if there is any greenfly about the flower-buds dust them with snuff or tobacco-powder. The young seedling plants raised from seeds sown early in April may now be planted permanently where they are to bloom. We have to-day (June 2) surface-dressed the beds with rich manure, where the seedlings are planted that have to flower this year. The plants are also sufficiently advanced to have sticks placed to them. This has also been done, and they will have no more attention until they burst into flower about the end of July or the first week in August.

### PINKS.

The florists' type ought to be in flower by the third week in this month; they look as if they would be at their best ten days later. Having been carefully attended to with sticks, the cultivator has only to watch the development of the bloom; and if the plants were put out in the autumn, and are now good-sized specimens, they will be sure to come well laced. The plants for next season's bloom should be propagated about the end of June or early in July. I used to be much more successful in the propagation of Pinks in Scotland than I have ever been in the South. We always took off the pipings in wet weather, and they were dibbled into the open ground in rows, a shady place being preferred. The pipings were watered daily until they were rooted, and I did not lose more than five in a hundred. They do not root so well in the open air in the South, and as there are plenty of frames convenient, I generally make up a gentle hotbed for them in a shady place. As soon as they have formed roots, ventilation must be freely applied to prevent their becoming drawn. The forcing Pinks should now be ready to plant out in the open ground. It is best to propagate them some time in April, and as soon as they are strong enough to be planted out there is no better way to deal with



FIG. 168.—*DRIMYS WINTERI*. (SEE P. 760)

was seen in several examples, most of them carrying many spikes, and all evidently doing well under the treatment given.

Of *Odontoglossum Alexandræ* there is a very charming lot of varieties, all of course grown that they may supply cut bloom, so that no great quantity of bloom was visible. *O. niveum*, *O. Rossi major*, and *O. triumphans*, were amongst the species in flower.

In the stove we noticed some beautiful *Crotons*, mostly with very large, entire foliage, and several seedling, *Anthurium* × *A. Lindleyanum* and *Andeanum*, some possessing cherry-red spathes, and others of a deep crimson colour, all being plants of robust habit.

It is found that, when planted out, the *Crotons*, *Dracenas*, &c., make much finer growth than the same would do if kept in pots during the summer

Loo, a brilliant pink, having double flowers, a splendid variety; *Souvenir de François Vervaeke*, also a double sort, white, with rose stripes on the petals; and *Théodore Prosser*, a deep crimson, of excellent quality, in bloom.

Much more of interest horticulturally was noticed, which Mr. Bergman, the kindhearted, courteous head gardener, pointed out to us, but which space now prevents our noticing.

**PAVIA FLAVA.**—This yellow-flowered Chestnut, of North American origin, is now beautifully in flower about London, in the public parks and elsewhere. The tree is round-headed and symmetrical, like most of the *Pavias*, and the pale yellow flower-heads make a good contrast with *P. rubicunda*, and are, moreover, sweetly scented.



them. They ought to stand a foot apart, and in good soil they will quite cover the ground by the end of September, when they must be lifted and potted, not using very large pots, if they are 6 inches in diameter that will be large enough. If they are removed with a mass of fibrous roots, and the plants are placed in frames for a few days, they will not receive any check.

#### THE RANUNCULUS.

The growers of this choice old-fashioned flower are very few. I feel sometimes when writing a line or two of seasonable notes on these and the late flowering Tulips, that valuable space is taken up that might be filled with more useful matter. The late Mr. Turner, when he sent me the last roots of his choicest strain of Tulips, made the remark, "that he could not have thought it possible such lovely flowers could have gone so completely out of cultivation." The Tulip exhibition at Manchester serves to keep alive the embers of the fires that burned so brightly forty years ago. The extravagant prices paid for Tulips would give some idea of the estimation in which they were held. The Ranunculus succeeds the Tulip, and will be in flower this season by the end of the month. The roots have started remarkably well this year, and up to this time have required no attention except to keep the ground free from weeds. The beds were watered for the first time on June 3. If they get too dry the leaves of the plants become yellow, and the flowers do not develop.

#### THE TULIP.

The bloom is now quite over; not ten flowers out of hundreds are fresh. They will be lifted, and the roots will be stored away for the season in two or three weeks. As soon as the time of flowering is over the stems rapidly decay. The Northern florists say the roots may be lifted when the flower-stems can be bent double without breaking. The ground may be planted with Stocks and Asters. *J. Douglas.*

### INDIAN NOTES.

THE LUCKNOW HORTICULTURAL GARDENS (continued from p. 736).—In my report for 1865 I find the following:—"Cantonments and stations generally might be with little care turned into gorgeous gardens, in course of time, if some one were forthcoming to think of and look after these things, which to the ordinary mind appear trifles. Very few people have yet grasped the idea of the immense influence of these little pleasures on the health of the men. If people would only try to abandon their foregone conclusions about the nature of mind, and learn its relation to the other forces of the universe, they would not fail to see at once what influence beautiful trees, beautiful flowers, and the delight ensuing from the mere impression of such objects on the brain have on health."

#### EXPERIMENTS ON ACCLIMATISATION.

About this time I proposed to myself the laborious task of endeavouring to acclimatise European vegetables and flowers (annuals), and to obtain by selection some kinds that would suit the soil and climate, and thus perpetuate their good qualities by seed raised in Lucknow. This I thought would be a great gain, as the importation of European seeds in large quantities was expensive, and they could therefore never reach the native cultivator. Up to this time there was a theory in India that acclimatised seeds were worthless. Experience of native gardeners, however, soon gave me a notion of the cause of this theory. A native will sow seed in the most careless, "anyhow" fashion. In collecting seeds he mixes varieties, and sows the mixture again next year, and so on, regardless of proper soil to invigorate the plants from which seed is to be raised. Of course, after a certain number of years of this treatment there will be a lot of plants which might truly be called degenerated, or as the enlightened gardener would call them, "rubbish." I determined to undermine this theory by proper cultivation and selection every year of the best specimens only for seed, eradicating all plants which did not come up to my standard. By this, of course, was meant that I had to do the selection and eradication for many years with my own hands, as natives could not be trusted to do it. I thought that if a plant germinates, grows well, and seeds, there was no sensible reason why it should not be improved in India as well as anywhere else, provided the conditions of healthy and luxuriant growth were invariably given. In course of some years by this means I obtained a large variety of annuals, which now have a name in India, and are appreciated in many places as better than those from imported

seed, being more certain to germinate and more suited to the climate. In Calcutta, at the Royal Botanic Garden, as a rule, nothing but my Lucknow acclimatised seed was sown, as the climate there did not admit of the plants from imported seeds of annuals coming to flower, owing to the shortness of the winter. Every year I was asked to send a large quantity of these acclimatised seeds to the Agricultural Society of India, for distribution to its members, so that the success of my exertions in this direction was undoubted.

As regards vegetables, I succeeded in acclimatising several seeds, many of which are still to be had in quantity, with an acclimatised pedigree of more than fifteen years. Celery grown from acclimatised seed several times got the 1st prize at horticultural shows, in preference to that from imported seed. Cos Lettuce, by always selecting the best and most perfect specimens for seed, has held its own for upwards of seventeen years. A trial made at the Saharunpore Botanic Garden with the Lucknow Cos Lettuce seed resulted in the following report:—"A splendid variety. Three sowings were made, and all made good heads, superior to any imported variety we had. Inquiries were made by parties who received it in 'dallies,' where the seeds were obtained from." In 1883 I sowed some of this Lettuce seed in Etawah, and sent some heads to friends. They said they never saw anything like it for size, whiteness, crispness, and sweetness. Tomatos from acclimatised seed have been introduced among natives successfully. They develop earlier, and fruit earlier than plants from freshly imported seed. I used to send a large quantity of acclimatised Cauliflower seed every year to Bombay and Calcutta. The plants flowered early, and produced good heads; while the imported seed, I was told, rarely came to anything in those climates. They have at present in the Lucknow garden one of the best kinds of white Onion in India, with a long and perfect pedigree; also a fine dwarf Pea, imported many years ago as the Tom Thumb Pea. The demand for the Lucknow acclimatised seeds rose steadily. In 1873-4 the sale of this seed was only 172 rupees, in 1874-5 it was 642 rupees, in 1878-9 it rose to 1291 rupees, and in 1882-3 to 1367 rupees, and all this on account of its real worth. Never that I remember was it advertised.

I introduced also the Cyprus Carob by means of seed. It answered so far as to grow flower and fruit. But the latter, ripening during the hot winds, produced shrivelled pods. I distributed large quantities of the seed to all parts of India, but I have never heard that they have anywhere come to anything.

From one plant of the *Bougainvillea glabra* which I obtained literally thousands were made and distributed all over Oudh and the North-Western Provinces. They are to be seen at almost all the railway stations.

Sugar-Beet and Mangel Wurzel were grown experimentally with success. Of the former some specimens of medium size with the leaves on weighed from 7 to 8 lb., and of the latter 9 lb. each. On other occasions individual specimens weighed from 15 to 20 lb.

Some Mahogany plants sent by the Director of the Royal Botanic Garden, Calcutta, thrived, and are now as good as some I saw at the latter place, and of about the same age.

#### DATE PALMS.

About the year 1868 I read Gifford Palgrave's book on his interesting journey through Arabia. In that he says that at "Djouf" he found excellent Dates, and added, that there "it is the bread of the land, the staff of life, and the staple of commerce." He also states that Kaseem has the best Dates known anywhere. "Those who, like most Europeans at home, only know the Date from dried specimens in shop windows, can hardly imagine how delicious it is when eaten fresh, and in Central Arabia." He and his companion bought a large handkerchief full for three farthings, and "hung it up from the roof-beam of our apartment to preserve the luscious fruit from the ants, and it continued to drip molten sweetness into a sugary pool, on the floor below, for three days together, before we had demolished the contents, though it figured at every dinner and supper during that period." In another part of the book, having tried many kinds, Palgrave says, "The 'Khalias' Date is the *facile princeps* of its kind, and bears to ordinary Dates the same relation that the Bombay Mango bears to the 'Jungli' (Mango)." It is grown in "Hadhoo" on the east coast of Arabia. Another fine kind in the same place is "Rekab." Having

read the above, it struck me that it would be a great triumph if I could introduce into India some of these fine kinds of Date Palms. I suggested the matter to Government, who got me, through the Resident in the Persian Gulf, between 1869 and 1873, seeds and offsets of a number of the best varieties of Date Palms. Till then I did not know that the Date Palm could be propagated by offsets. The latter are given off at the base of the stem on a level with the ground. They had a woody stump without any roots. Most of them struck, and all the seeds germinated. A portion of the seed had been distributed to every district in Oudh. At present, in the Lucknow Horticultural Garden there is a large number of the best kinds of Arabian Date Palms raised from offsets, besides a large number raised from seed (upwards of 252 seedlings between thirteen and sixteen years old, and 112 Palms from imported offsets twelve or thirteen years old). I remember at that time a Deputy Commissioner of one of the districts of Oudh persisting in the idea that my experiment would prove a failure. He said pilgrims coming from Arabia have often brought Date seeds with them, and no instance is known of their having ever succeeded. It does not require much acumen to see the reason of failure in introducing the Date Palm in this way. At best the seeds must have been few, and when young the goats must have eaten much of the plants. One here and there may have struggled through all the surrounding difficulties, and when it flowered it may have been either a male or a female, and therefore no result was obtained. Even had there been many, probably none would be spontaneously fertilised. The Arabs, in cultivating the Date Palm, universally practise artificial fertilisation, as they say they cannot rely on either wind or insects for performing this office, and in propagating they rely on offsets to propagate any desired kinds, as seeds vary.

Mr. Ridley, the present Superintendent of this garden, in his report to Government for 1881-82 (that is, about eight or ten years after the Palms were introduced), writes:—"This year a greater number of the Arabian Date Palms fruited than in any preceding year. Some of the bunches were of good size, and yielded very good fruit; the size, shape, and colour of these prove the trees in the garden to be a collection of several different varieties. The colours are mostly shades of dark red and yellow, while the shapes ranged between oblong and oval, of different sizes." Here, then, is a garden into which the true Arabian Date Palm has been transplanted bodily from regions where it is indigenous, and which should serve as a centre for disseminating this important and useful tree over the province of Oudh, the North-west, and other parts of India. They have there not only many of the true varieties of Arabia, but also an infinity of other probable varieties, raised from seed of different kinds. It has always been a wonder to me why these fine kinds of Arabian Date Palms have not been systematically introduced into the South of Europe. This Palm grows well there, as well as all about the Mediterranean. One never hears of it in Cyprus for instance. These delicious varieties ought to suit that island well, now that locusts are warred against with success.

#### EUCALYPTI.

In 1866 I commenced a series of experiments with the Eucalypti. The first dealt with was the famous *E. globulus*. Most of the plants grew amazingly till the rains commenced, when all damped off except three. These survived for about three years, and grew to the height of 20 or 30 feet, when one unusually rainy season killed them all. Why this *E. globulus* has been considered suited to swampy regions I do not know. In the plains of India, as soon as it feels the rains it dies off. It appears it cannot in the least withstand moisture and heat combined. The Nilgiri Hills is the only place in India where I have seen this *Eucalyptus* thrive. There it does so beyond conception. In those hills it has both moisture and drainage, and the temperature is not high. The *Eucalyptus rostrata* succeeded well in Lucknow, and there are now specimens of it 40 and 50 feet high. It does not mind the alternations of temperature, and extremes of dryness and moisture; but unfortunately it does not seed in that climate. Another kind, *E. resinifera*, also succeeds well and seeds, but it forms a spreading tree, unsuited to timber. I tried a large number of other kinds, and they all proved to be unsuited to the climate of Oudh. In 1877-78, however,



shortly before I left Lucknow, I tried the *E. citriodora*. It has a rough leaf, and is deliciously scented, like Verbena. It has thriven better than any kind previously tried. It has a clean white stem, with deciduous bark, and without a branch, excepting at the very top. The trees are now 30 and 40 feet high, and as straight as an arrow. They are not bothered either by heat, cold, dryness, or moisture. They flower and seed, and, best of all, the seed germinates. In 1883 Mr. Ridley had under his care thousands of young seedlings raised from the acclimatised seed of the trees I had planted. It is not improbable that the *E. citriodora* may yet do for Oudh and the North-west of India what the *E. globulus* is doing for the Nilgiri Hills. Of course its constitution has yet to be studied, as well as the best mode of raising seedlings. A little care may be required in sowing the seed and nursing the young plants, owing to the extreme dampness at one season and the extreme dryness at another, but I think when once they start, the plants will require little care, and will form fine trees in a comparatively short time. *E. Bonavia, M.D., Etawah, February 10.*

(To be continued.)

## The Arboretum.

### GOLDEN YEW AT TRING PARK.

THE extensive use of these made in the recent alterations in the grounds at Sir Nathaniel de Rothschild's affords excellent examples of their invaluable aid in lighting up the views where heavy green foliaged trees and extensive lawns already exist. At a distance their effect is equal to that of flowers, while they have the advantage of being bright summer and winter alike. The manner in which they are arranged in massive belts and groups near the mansion at Tring Park affords a study which any landscape gardener might do well to imitate. The manner in which the now gorgeous Rhododendron clumps and the beds of red Roses and other flowering shrubs are arranged to show up the golden foliage of the Yews, demonstrates that the whole has been arranged with consummate skill and taste.

### GENISTA PRÆCOX.

This is an early flowering graceful habited Broom. In the York Nurseries it forms a most attractive and pleasing object, especially so where the plants are planted in elevated positions on the rookwork—the blossoms being then raised above the line of the eye, enhances the beauty of the shrub. There appear to be several varieties of it; varying both in habit of growth and in the colour of the flowers: some are stiff and compact, while others have pendent branches, which hang gracefully like whiplash, and when the plant is in flower the shoots are clothed almost their entire length with bright yellow, or cream-yellow, or pure white, according to the variety. Another feature which makes this beautiful Broom doubly welcome in our gardens is its perfect hardiness. *R. P.*

### PHOTINIA SERRULATA.

In your remarks on the above at p. 728 you speak of the tree at Shaldon as one of the largest. We have a tree here growing in the open, but in a sheltered position, which exceeds the height of the Shaldon tree by 3 feet. It has a clean stem of 6 feet, and is 2½ feet in height. This tree has flowered profusely this spring, but the flowers appear to last but a short time after being quite open, and the perfume is not very pleasant. (See *Gardeners' Chronicle*, No. 568, vol. xxii., p. 616.) *P. Conway.*

### CERCIS SILIQUASTRUM (JUDAS TREE)

is one mass of flower this year; one of our trees, which exceeds 30 feet in height, and about 25 feet through, is quite a picture at the present time. One of your contemporaries in writing of the tree at Dulwich states that it rarely flowers in this country. Surely this must be a mistake; trees here, both small and great, never fail to flower each year. [Such is our experience also near London. *ED.*] *P. Conway, Muntkam Gardens, Worthing.*

### HALESIA TETRAPTERA.

This tree, popularly known as the Snowdrop tree, is probably the best of the five or six known

species, taking into account the abundance and purity of the pure white flowers, together with the relative hardiness of the trees in this country. Asiatic representatives from China and Japan produce their flowers in terminal panicles, but those from America produce them in lateral clusters from last year's wood, consequently the flowering branches are surmounted by a tuft of leaves of the present season's growth. The flowers are pendent, bell-shaped and produced in such great abundance as to constitute the tree a conspicuous object for a park or shrubbery, where it comes into flower as the double Cherry fades and forms a succession to it. There is a well flowered tree in the pleasure grounds, Kew, and a figure is given in an early number of the *Botanical Magazine*, t. 910. *F. F.*



## Plants and their Culture.

### RICHARDIA ÆTHIOPICA, ETC.

THE turning-out system is a very good one to follow with the Richardias (*Callas*), especially where labour is at the minimum, and a maximum return looked for. These plants will thrive best in a rather stiff soil, as we observed last year in the case of some pot-grown plants, that were the sturdiest lot we ever saw. In planting-out it will be well to look after keeping up the stock by division of the stronger clumps; secure also a level piece of ground for them, so that they can receive the copious waterings in which they delight without the same running away from them. Forced clumps of Lilies of the Valley and Hoteia (*Spiraea*) japonica should also be turned out after having been divided, having regard, however, to the selection of a spot where they can remain for at least one season before being again potted up. Young stock of *Deutzia gracilis* and dwarf plants of Lilacs will also be benefited by being turned out of their pots for a season or two.

### THE CONSERVATORY.

The gayest displays in this structure will now be waning; the Azaleas in their brilliant colours and other plants now being past their best, and the Calceolarias (herbaceous) that will soon be over; there will be a lack of variety and colour that will not compare favourably with the early bloom. The show and fancy varieties of the Pelargonium will, it is true, prove of much value during the next few weeks; a conservatory, however, unless it be kept well ventilated by night and day, is not a good house wherein to keep them in perfection. Should this building join the mansion, there is oftentimes a difficulty in leaving a good supply of fresh air on during the night-time, by reason of having to guard against the intrusion of those who view the valuables in the mansion with an envious eye. Unless this obstacle can be surmounted by the provision of proper fastenings to the doors giving admittance to the house itself or by means of ventilation through which it would be impossible for any person to gain admittance, the cool greenhouse plants on the whole will not remain in perfection as long as they ought to do. Pelargoniums and Fuchsias will drop their flowers prematurely, and the growth of all the plants will become unduly drawn. In such instances I advise a greater quantity of Ferns, Palms, and ornamental foliage plants generally to be used, in fact I prefer the use of such plants during the summer months in any case. They impart a cool, refreshing appearance, especially when used in association with an ornamental fountain, bringing much relief to the eye when wearied with the brilliant display in the flower beds and borders outside. The richly coloured forms of the improved types of the Coleus can in such cases be used with good effect in combination with plants possessing white and green variegation (*Aspidistra lurida* variegata and *Eurya latifolia* variegata are two good examples). These, with the best of the hardier Palms, Dracenas, Cordylines, and Ferns, can all be turned to good account. If a good number of stove plants are grown this will be a source from which many excellent subjects can be chosen;

well established plants of Crotons, the same of the brightest of the Dracenas, with *Pandanus Veitchii*, will, with proper attention, endure a good time without any serious injury—in fact it affords a means of these excellent foliage plants being viewed with comfort by those who cannot conveniently endure the temperature of the stove proper, and this is a point not to be lost sight of. The chief points to be aimed at are the avoidance of chill to the roots, caused by the use of cold instead of tepid water and sharp currents of air; the plants can at times receive a syringing, as opportunity may occur. Their removal will be a means of easing the stove during the warmer months. Camellias that are now making their growths will need watching against attacks of aphids, more particularly in the case of plants that are retained in the conservatory after their flowering season is over. It is not always convenient to fumigate in such a structure, but no means should be neglected to keep down these insects at such times. The *Lapagerias* will probably be attacked by the same pest, and some few other climbers as well; in order, therefore, to thoroughly extirpate them endeavours should be made to give at least two fumigations before much harm be done. Any climbers that are making a too luxuriant growth may require careful thinning, and this had better be done before they become too dense. *James Hudson, Gunnersbury House, Acton, W.*

## The Kitchen Garden.

### CELERY.

PREPARING AND PLANTING THE TRENCHES.—The finest Celery is grown in trenches containing but one row of plants; but two, three, or four may be grown together in the same trench. Whichever be the plan adopted the broad rules of cultivation remain the same. I much prefer the single row with trenches 4 feet between. The depth to which the trenches should be excavated will depend entirely on the nature of the soil, not only with due regard to the depth of the latter, but the extent to which it is drained. On land with two spits deep of good soil, and well-drained, the soil may be dug out to the depth of 8 inches to 1 foot. The first-mentioned depth is quite sufficient providing the trenches are 4 feet apart, as this distance will allow space enough to collect sufficient soil to blanch, and also to lie thick enough around the plants to turn severe frosts. The more shallow the soil the wider they must be apart. After the soil is removed from the trench to the required depth, dig the bottom a good spit deep, or as deep as the soil allows. After this is done add 4 inches thick of prepared manure, then dig this in half a spit deep, and the trench is ready to receive the plants, which should stand about 9 inches apart, irrespective of the number of rows of plants placed in each trench. Trenches to receive one row of plants should be 14 inches wide; two rows, 2 feet, and so on.

### PREPARING THE MANURE FOR THE TRENCHES.

To each cartload of good rich manure add two bushels of soot, half a bushel of freshly slacked lime, and a peck of agricultural salt. Prior to adding the latter three things, the manure should be well worked about in order to well separate all the flakes. The whole should then be thoroughly mixed together and thrown up into a heap, quite one month before it is required for the trenches.

### EARTHING-UP THE PLANTS.

With the first early and main crop this should not be done until the plants are nearly full grown. Prior to earthing-up remove all the under-sized leaves and stalks from the base of the plant, then tie up the remainder with broad pieces of matting, being careful to place each stalk into its proper place, so that the sticks, when dug for use, will come up quite straight. When the plants have been earthed-up as far as possible, consistent with not allowing any earth to drop in the heart of the plants, remove the matting. Before any sharp autumn frosts occur, a second and last earthing-up will most likely be required. The last batch, which was placed in the trenches late in the year, will require earthing-up at intervals, as a protection from frost, and the trenches for this lot need not be deep, as the plants rarely attain a large size, but although small they will stand frost well and come in at a time when salading is at a low ebb. *G. H. Richards, Somerley Gardens, Ringwood, Hants.*



## APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, June 15	Sale of Valuable Mexican and Brazilian Orchids, at Stevens' Rooms.
TUESDAY, June 16	Sale of Natural History Specimens, at Stevens' Rooms. Sale of Imported Orchids, at Protheroe & Morris' Rooms. Summer Show at the Royal Botanic Society, London. Grand Floral Fete at York.
WEDNESDAY, June 17	Sale of Imported Orchids from the New Plant and Bulb Company and Mons. Leon Humbolt, at Stevens' Rooms. Sale of Carnations, Picotees, and Plants, at Protheroe & Morris' Rooms. Sale of Imported Orchids from Mr. Sander, at Stevens' Rooms.
THURSDAY, June 18	Meeting of the Linnean Society.
FRIDAY, June 19	Sale of Imported Orchids, at Protheroe & Morris' Rooms.

THE fitting sequel to the public ceremonial in Westminster Abbey on the occasion of the burial of CHARLES DARWIN was enacted on Tuesday last. On that day Professor HUXLEY, as President of the Royal Society and of the DARWIN Memorial Committee, presented to the Prince of WALES, as the representative of the Trustees of the British Museum, a marble statue of the late philosopher. The memorial is placed on the landing of the staircase in the great hall of the new Natural History Museum at South Kensington, than which no more fitting place could have been found. The naturalist is represented seated with the head slightly inclined to one side, wrapped in thought, like that marvellous statue of MICHAEL ANGELO'S in Florence. The pose is easy, the likeness good, so that the artist, Mr. BOEHM, may well be congratulated on his success. The statue has been erected with funds raised from all countries and all classes of people. Germany, of course, was too much in sympathy with intellectual advancement to be behind in the matter, but the large share taken by Sweden in the matter is remarkable. In that country, we are told, all classes, from the seamstress to the bishop, contributed according to their means to the erection of this tribute, which is thus, as the Prince of WALES aptly stated, more cosmopolitan than national; nevertheless we Englishmen especially do well to be proud of DARWIN. There is no reason in these columns to say why—the tale has been so often told, and each day confirms it.

Evolution and its methods have been applied with signal success to almost all departments of human knowledge—all have benefited. The fright experienced by some folk merely served to show their own inconsistency, for true religion remains as before, unaffected, while truth has had much of its concealing veil stripped off. From those who from lack of training in scientific method and scientific objects, evolution is still but an empty name, the man's method of work, essentially practical, taking nothing on trust that could be verified, and the grand simplicity of his character, have compelled respect and homage. Unaffected by passion, unswayed by insult and contumely, returning no ill, he simply worked, not merely theorised, but worked incessantly, and ultimately by his singleheartedness, his amazing candour and still more amazing modesty, disarmed all opposition. He lived to see his opinions all but universally accepted, he lived to witness the enormous generating power of his theories in all departments of knowledge, he lived to be a witness to the vast and varied erudition which he was the direct cause of bringing to light; he lived till the reckless clamour of ignorant or thoughtless opponents had died away, but never a word of triumph or self-complacency escaped his lips. And why? The great philosopher, like another NEWTON, realised more fully than any one the sense of his own limitations and imperfections on the one hand, and the boundless scope of Infinity on the other. And thus it happens that while in a neighbouring country religious feeling is violated, and political disturbance apprehended when a great man is carried to the grave, here in England men of all creeds

and of all parties stand round the tomb, and from prince and archbishop downwards combine to render homage to the memory of the greatest man the century has produced.

The following is the text of Professor HUXLEY's Address:—

"It is now three years since the announcement of the death of our famous countryman, CHARLES DARWIN, gave rise to a manifestation of public feeling, not only in these realms, but throughout the civilised world, which, if I mistake not, is without precedent in the modest annals of scientific biography.

"The causes of this deep and wide outburst of emotion are not far to seek. We had lost one of those rare ministers and interpreters of Nature whose names mark epochs in the advance of natural knowledge. For, whatever be the ultimate verdict of posterity upon this or that opinion which Mr. DARWIN has propounded, whatever adumbrations or anticipations of his doctrines may be found in the writings of his predecessors, the broad fact remains that since the publication, and by reason of the publication, of the *Origin of Species*, the fundamental conceptions and the aims of the students of living Nature have been completely changed. From that work has sprung a great renewal, a true *instauratio magna* of the zoological and botanical sciences.

"But the impulse thus given to scientific thought rapidly spread beyond the ordinarily recognised limits of biology. Psychology, ethics, cosmology, were stirred to their foundations, and the *Origin of Species* proved itself to be the fixed point which the general doctrine of evolution needed in order to move the world. 'Darwinism,' in one form or another, sometimes strangely distorted and mutilated, became an everyday topic of men's speech, the object of an abundance both of vituperation and of praise, more often than of serious study.

"It is curious now to remember how largely, at first, the objectors predominated; but, considering the usual fate of new views, it is still more curious to consider for how short a time the phase of vehement opposition lasted. Before twenty years had passed, not only had the importance of Mr. DARWIN'S work been fully recognised, but the world had discerned the simple, earnest, generous character of the man that shone through every page of his writings.

"I imagine that reflections such as these swept through the minds alike of loving friends and of honourable antagonists when Mr. DARWIN died; and that they were at one in the desire to honour the memory of the man who, without fear and without reproach, had successfully fought the hardest intellectual battle of these days.

"It was in satisfaction of these just and generous impulses that our great naturalist's remains were deposited in Westminster Abbey; and that immediately afterwards a public meeting, presided over by my lamented predecessor, Mr. SPOTTISWOODE, was held in the rooms of the Royal Society, for the purpose of considering what further steps should be taken towards the same end.

"It was resolved to invite subscriptions, with the view of erecting a statue of Mr. DARWIN in some suitable locality; and to devote any surplus to the advancement of the biological sciences.

"Contributions at once flowed in from Austria, Belgium, Brazil, Denmark, France, Germany, Holland, Italy, Norway, Portugal, Russia, Spain, Sweden, Switzerland, the United States, and the British Colonies, no less than from all parts of the three kingdoms; and they came from all classes of the community. To mention one interesting case, Sweden sent in 2296 subscriptions 'from all sorts of people,' as the distinguished man of science who transmitted them wrote, 'from the bishop to the seamstress, and in sums from £5 to 2d.'

"The Executive Committee has thus been enabled to carry out the objects proposed. A 'Darwin Fund' has been created, which is to be held in trust by the Royal Society, and is to be employed in the promotion of biological research.

"The execution of the statue was entrusted to Mr. BOEHM; and I think that those who had the good fortune to know Mr. DARWIN personally will admire the power of artistic divination which has enabled the sculptor to place before us so very characteristic a likeness of one whom he had not seen.

"It appeared to the committee that, whether they regarded Mr. DARWIN'S career or the requirements of a work of art, no site could be so appropriate as this great hall, and they applied to the Trustees of the British Museum for permission to erect it in its present position.

"That permission was most cordially granted, and I am desired to tender the best thanks of the committee to the Trustees for their willingness to accede to our wishes.

"I also beg leave to offer the expression of our gratitude to your ROYAL HIGHNESS for kindly consenting to represent the Trustees to-day.

"It only remains for me, your ROYAL HIGHNESS, my Lords and Gentlemen, Trustees of the British Museum,

in the name of the DARWIN Memorial Committee, to request you to accept this statue of CHARLES DARWIN.

"We do not make this request for the mere sake of perpetuating a memory, for so long as men occupy themselves with the pursuit of truth, the name of DARWIN runs no more risk of oblivion than does that of COPERNICUS or that of HARVEY.

"Nor, most assuredly, do we ask you to preserve the statue in its cynosural position in this entrance-hall of our National Museum of Natural History as evidence that Mr. DARWIN'S views have received your official sanction, for science does not recognise such sanctions, and commits suicide when it adopts a creed.

"No; we beg you to cherish this memorial as a symbol by which, as generation after generation of students of Nature enter yonder door, they shall be reminded of the ideal according to which they must shape their lives, if they would turn to the best account the opportunities offered by the great institution under your charge."

— A PEAR CONGRESS.—The success of the Apple Congress has probably been the parent of the desire for the establishment of a similar exhibition of Pears in October next. We shall heartily support such a proposal, but we have not got our Pears yet. A Potato Conference has also been proposed, and has precedence; but some say Potatoes, like the poor, are always with us; had ones sometimes, but seasons still give force to the adage, "He who plants Pears plants for his heirs." Let us have the Pears by all means, if we can get them, but that is no reason why we should not have the Potatoes too. The fruit that grows on the tree, and the fruit that grows at the root, are so different, that we cannot suppose the authorities of the Royal Horticultural Society feel incompetent to undertake both "congresses," if season permit.

— ROYAL BOTANIC SOCIETY.—The great summer show of this Society will take place on Wednesday, June 17, when a fine display of plants, flowers, and fruits may be expected.

— COL. TREVOR CLARKE.—The sympathy of very many horticulturists and Fellows of the Royal Horticultural Society will be manifested towards Col. CLARKE, so long one of the most enthusiastic and intelligent supporters of horticulture, and the recent death of his wife. Mrs. CLARKE had been in ill-health for a long period.

— PRIZES FOR MARGUERITES.—Mr. OLLERHEAD, the head gardener at Wimbledon House, informs us that Sir HENRY W. PEEK, Bart., desires it to be made known that he intends to place in the hands of the Royal Horticultural Society the sum of £20, to be divided at their discretion into prizes for the well known section of Chrysanthemums called Marguerites, or French Daisies. Full particulars will shortly be advertised.

— "WALKS IN EPPING FOREST" is the title of a little book published at 123, Fleet Street, and which is intended to make known to Londoners and others, not only the beauties and attractions of the Forest, but the readiest method of getting there, and the easiest and most pleasant ways of exploring its bye-ways. The book is agreeably written, the information is correct, the illustrations pretty, and the map serviceable. We have said enough to show that the few pence the book costs will be well expended, even if the reader has no idea of visiting the Forest himself.

— A NEW DAISY CUTTER.—An implement for the collecting of the flowers of the common Daisy on lawns has been brought out by Mr. ROWLAND, of Cranleigh, Surrey, which differs from the old form in that it is made to be pushed before the workman instead of being pulled towards him as with the older implement, and that it is to be, provisionally, made of iron instead of steel, thus making it cheaper at the cost of lesser durability. We had thought the close-cutting lawn-mower had rendered the Daisy cutter unnecessary on all well kept lawns.

— HACKWOOD PARK TOMATO.—This is an exceedingly prolific variety, its merits being well tested in a Tomato-house at Stoodleigh Court, Tiverton, where Acme, Fildon, Hathaway's Excelsior, and others are growing side by side, and in a fruiting state. Mr. BARNES thinks well of it, and gives it the preference to any other he knows.



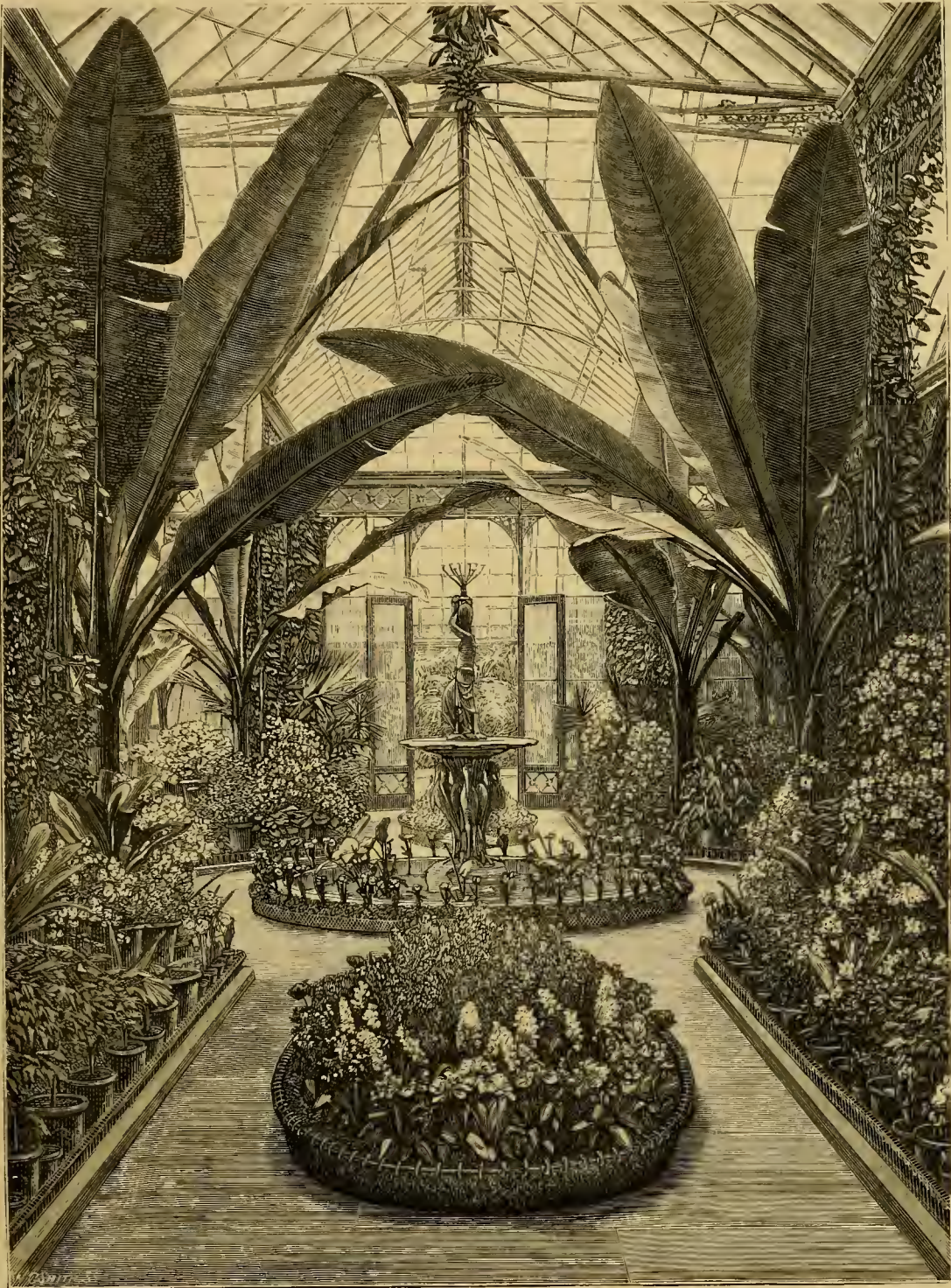


FIG. 169.—INTERIOR OF THE CONSERVATORY AT CHERKLEY COURT. (SEE P. 755)

— **HARDY ORCHIDS.** — Messrs. BACKHOUSE send us flowers of *Orchis militaris* with grand spikes of lilac flowers. The four-lobed lip is marked with small projecting purplish hairs. *O. fusca* is represented by a magnificent spike, the hooded sepals are richly spotted with brown, and the broad lip deeply notched in front is white, flushed with lilac and dotted with small spots of a similar colour. This is the finest spike we have seen of this species. Messrs. BACKHOUSE find these two species thrive best in calcareous loam. *O. latifolia*, var. *lagotis*, has a leafy

spike of richly coloured dark violet flowers, heavily marked with darker spots. A heavy loam mixed with good fibrous peat suits this best.

— **THE EFFECT OF PRUNING VINES.** — In our issue for March 7, p. 314, we quoted some observations of MM. CASOCIA and SAVASTANO to the effect that unpruned Vines produced berries with the greatest amount of sugar and the least proportion of acid. The paragraph attracted the attention of Professor CORNU, the Director of the Jardin des Plantes,

who at once called attention to the universal practice of pruning in the Vine growing districts, and to the alcoholic strength of the wine produced from them. In the *Vigne Américaine* M. PLANCHON records the opinions of certain members of the Central Society of Agriculture of the Herault, comprising many well known cultivators whose reputation has become established even on this side of the Channel. The conclusions come to are:—1. The larger the number of berries on a given Vine, the smaller the proportion of sugar and consequently of



alcohol. The proof of this is afforded by those Vines which, being intended to be removed next year, are not pruned at all or only slightly. The numerous berries produced on such Vines ripen with difficulty, and often remain sour as verjuice. 2. Vines cultivated in "hautains" and slightly pruned or not at all: the Vine trellises which yield large crops always produce a wine of less alcoholic strength than the same varieties do when pruned severely, and whose berries are near enough to the soil to profit by the radiation of heat from its surface. Numerous illustrations are given in proof of these assertions and in support of the usual practice in the vineyard of hard pruning.

— GHENT BOTANIC SOCIETY.—At a recent meeting of the Royal Agricultural and Botanic Society of Ghent, First-class Certificates were awarded to Mr. J. Van der Swaelmen, for *Oncidium pulchellum*; to Mr. A. Van Geert, jun., for *Lastræa* sp. nova; to Messrs. Vervæet & Co., for *Calamus* species; to Mr. L. Desmet-Duvivier, for *Odontoglossum vexillarium purpureum*. Commendations were awarded to Mr. Aug. Van Geert, jun., for *Masdevallia Backhousiana*; to Madame J. Baumann, for *Anthurium Scherzerianum* var. *atropurpureum*; to Mr. De Smet-Duvivier, for *Ixora Cheloni*; to Mr. Aug. Van Geert, sen., for *Phalaenopsis Stuartiana*; to Mr. F. J. Spæe, for *Medinilla Curtisii*; to Mr. Aug. Van Geert, sen., for *Cattleya Mossiæ splendens*; and Mr. James Bray received a Cultural Commendation for *Cypripedium Lowii*.

— GRAS CAULIFLORA.—The handsome foliage of this plant is sufficient to command attention at all times, whether in flower or not. Of the several plants at Kew, that one in the south end of the Palm-house engages the attention of thousands of visitors. The huge leaves are collected umbrella-fashion at the apex of a naked trunk, and attain a length of from 3 to 5 feet. These hang down in a very characteristic manner, and their beauty is greatly supplemented when a tier of young leaves crowns the summit. This same plant has commenced flowering, the first time at least for a number of years, and as the clusters of creamy-white flowers occupy the greater part of the naked trunk, a succession of open flowers will be kept up for a long time. The plant is a member of the great Myrtle family, and is figured in the *Botanical Magazine*, t. 5622. Only two or three species are known to science, natives of the tropical parts of America, where they form tall trees. They require accordingly a tall house with stove temperature, in order to attain flowering dimensions.

— MESSRS. SUTTON & SONS, READING.—This well known firm of nurserymen and seed merchants has received an additional partner, in the person of Mr. LEONARD GOODHART SUTTON, a son of the senior partner, who, from the thorough business and scientific training which he has enjoyed, should prove one of its most useful members.

— HORTICULTURAL CLUB.—The usual monthly dinner took place on Tuesday last, when there was a large attendance of members, including Mr. JOHN LEE, Messrs. LODER, GIRDLESTONE, G. PAUL, WHEATSTONE, GALT, DRURY, COUSENS, &c. In the evening a discussion took place on alpine plants, the subject being introduced by the Secretary, who in his address took up the practical side of the question, and adverted to some considerations which ought to be borne in mind by those who wish to grow these plants, the difficulty connected with them being considered being exaggerated. The discussion was continued by Mr. E. G. LODER, who especially detailed the manner in which he had overcome the difficulties connected with growing *Gentiana bavarica* and *Phyteuma comosum*; and Mr. GEORGE PAUL also spoke of the manner in which he grew *Silene acaulis* in drain-pipes sunk in the ground. Mr. GIRDLESTONE spoke also of the manner in which he conquered some difficulties connected with them. Some interesting blooms were exhibited. Mr. GIRDLESTONE exhibited a box containing, amongst other things, *Iris susiana*, *Thalictrum adiantifolium*, *Rosa rugosa corsicans*, *Anemone sulphurea*, *Pentstemon glabrum*, *Edelweiss*, &c. Mr. GEORGE PAUL had *Onosmatauricum*, *Saxifraga Waldensteini superba*, *Heuchera sanguinea*, &c. Mr. DRURY brought a fine plant of *Saxifraga pyramidalis*. Mr. PERKINS, of Leamington, sent a plant and some blooms of his fine new *Pelargonium Volonté Nationale alba*, which was

greatly admired. Mr. F. ARTHUR DICKSON, of Chester, sent up for the dinner some splendid *Asparagus*, grown on the coast of North Wales. Altogether a most pleasant and profitable evening was spent.

— POLYSTACHYA OTTONIANA.—A plant of this distinct and pretty little Cape Orchid is now flowering at Kew. The genus *Polystachya* comprises four or five species from South Africa, and about the same number from India, the largest flowered species being *P. grandiflora*, figured in the *Botanical Magazine*, and which is in cultivation at Kew along with *P. pubescens*, *P. rufula*, and the above-named. This last has small oval-shaped pseudobulbs which grow closely together, and are covered with silvery sheath-scales. The leaves are 5 inches long by a quarter inch wide, channelled, with numerous brown spots on the under-side. The flowers are produced from the young growths, singly or in pairs, on a slender peduncle nearly as long as the leaves. As in all *Polystachyas* the flowers of *P. Ottoniana* have the lip uppermost, which makes them appear upside down. They are three-quarter inch across, ivory-white, with a rose coloured keel to the sepals, and a yellowish line down the centre of the recurved labellum. In form they are very similar to the flowers of *Cymbidium eburneum*, but about one-sixth less in size. They are very fragrant. *P. Ottoniana* has been introduced from the Cape to Kew, where it is cultivated in a cool-house, and is fastened to a bit of soft Fern-stem with a little sphagnum about the roots of the plant.

— SHOW FIXTURES.—The Grand Floral Fête at York will be held on Wednesday, June 17, and two following days. The seventh annual show of the Bagshot and Windlesham Horticultural Society will take place in Bagshot Park on June 30 and July 1. The Croydon Horticultural Society's summer show of Roses and other flowers, plants, fruits, and vegetables, on July 1, in the grounds of Wellesley House. The Bath Rose Show on July 2. Tunbridge Wells Horticultural Society will hold the annual Rose, Flower and Fruit Show on Friday, July 3. A grand exhibition of Roses at the Crystal Palace on July 4. Ealing, Acton, and Hanwell Horticultural Society will hold its summer show in the grounds of Gunnersbury House on July 7 and 8. The directors of the Royal Caledonian Society will hold their show of plants, fruit, cut flowers, and vegetables, in the Waverley Market, Edinburgh, on July 8 and 9. A Rose Show, Cottage Hospital, and Children's-work Exhibition, will be held by the Horticultural Society of Moreton-in-the-Marsh on July 15. The annual Bedford and Bedfordshire Horticultural Society's shows will take place at Bedford on July 15. The Royal Botanic Society's show of plants, fruit, and cut flowers, will be held on June 17. The Newcastle-on-Tyne Botanical and Horticultural Society will hold a three days' show, on July 22, 23, and 24, when prize money to the amount of £302 will be awarded. Darlington Rose show, affiliated with the National Rose Society, will hold its show on July 23. Saffron Walden and North Essex Horticultural Society hold their show on July 15, when six open prizes will be offered for collections of fruit and vegetables. Wirral Rose Society will hold their annual meeting on July 18, when £112 will be offered in prizes. The twenty-first annual exhibition of the Calne Horticultural Society will be held in the grounds of Bowood Park, Calne, on July 28, when good prizes will be offered in the plant and Rose classes.

— CINCHONA IN JAMAICA.—The areas of land planted in Cinchona all over the world, according to the latest report of the Botanic Gardens of Jamaica, are comparatively small, and unless a very greatly increased area is brought into cultivation the day is not far off when, instead of quinine being too cheap for the Cinchona planters' benefit it will be too high for the consumers' pockets. In India there are only 18,300 acres; in Java 15,000 acres; Straits Settlements, Borneo, &c., 500 acres; Jamaica, say 500 acres; in Ceylon there were last year 64,000 acres. The area, then, of Cinchona which is likely to be a source of permanent supply is therefore only about 35,000 acres—a little more than half the area of the Ceylon fields, which have been the source of the recent enormous supplies of bark, 7,000,000 lb. in 1882-83 10,000,000 lb. in 1883-84. Unless all the accounts which show that Cinchona cultivation in Ceylon is a thing of the past, and that the Cinchona tree will not survive there for more than three or four years, are

grossly untrue, the yield of bark next year must fall off heavily and the price of the article must rise rapidly and considerably. The soil of Jamaica is so evidently suitable to Cinchona, and the growth and vitality of the plant is so satisfactory there, as compared with Ceylon and India, that there is little doubt that Cinchona cultivation will pay as well, if not better, in Jamaica than in the East or anywhere.

— LINNEAN SOCIETY.—Something like a sensation was experienced at the last meeting of this usually impassive and decorous Society. Some one espied a lady seated on the back benches, a hurried search for precedents was instituted, charters and by-laws were rapidly consulted, the business of the meeting, usually so punctually commenced, was delayed, and ultimately the Fellow under whose protection the lady was introduced, was requested to intimate to her that those documents mentioned Fellows and visitors of the male sex only. The lady accordingly withdrew. As in any case the lady could only have been present as a matter of courtesy, it seems a pity that an unnecessary act of discourtesy should have been committed by the authorities.—At a meeting of the Society, to be held on Thursday, June 18, at 8 P.M., papers will be read on—1. "Goldfingia MacIntoshii, a new Sipunculid from the coast of Scotland," by Prof. E. RAY LANKESTER. 2. "On the Occurrence of Articulated Laticiferous Vessels in *Ilex*," by D. H. SCOTT.

— RHODODENDRONS IN LONDON.—A fine display of these plants is now on view, and will continue for several weeks, in a large marquee erected in the garden of Cadogan Square, Sloane Street. The show is due to the enterprise of Mr. ANTHONY WATERER, of the Knap Hill Nurseries, Woking.

— ARBORICULTURE IN PRINTING HOUSE SQUARE.—We regret to hear that the old specimen of *Ptelea trifoliata*, which has grown for so many years in Printing House Square beneath the shade of the *Times* Printing Office, has at last fallen to the ground. We hear that it was a flourishing tree in 1841, and it has a special interest as furnishing an illustration of what shrubs will thrive even in such unlikely localities as that in which this tree has grown for so many years. The seed-vessels of this plant have large membranous wings, which give them a striking appearance, while in autumn the three-parted leaves assume a deep golden colour. From the bitter aromatic principle they contain, the seed-vessels have been used in some places as a substitute for Hops. Its native country is the Northern United States, and it owns kinship with the Rues (*Rutaceæ*).

— ROYAL METEOROLOGICAL SOCIETY.—At the ordinary meeting of the Society, at 25, Great George Street, Westminster, on Wednesday, the 17th inst., at 7 P.M., the following papers will be read:—"Meteorological Observations made on a Trip up the Nile, February and March, 1885," by WILLIAM MARCET, M.D., F.R.S., F.R. Met. Soc. "The Mean Direction of Cirrus Clouds over Europe," by Dr. H. H. HILDEBRANDSON, Hon. Mem. R. Met. Soc. "On the Influence of Accumulations of Snow on Climate," by Dr. A. WOELKOFF, Hon. Mem. R. Met. Soc. "Note on the Weather of January, 1881," by CHARLES HARDING, F.R. Met. Soc. "Results of Meteorological Observations made in the Solomon Group, 1882-84," by Lieut. ALEXANDER LEPPER, R.N. "Graphic Hygrometrical Table," by DAVID CUNNINGHAM, M.Inst.C.E., F.R. Met. Soc.

— ANTHOCERCIS VISCOSA.—A specimen of this old introduction has been flowering for some considerable time in the south octagon of the Temperate-house at Kew. There is no question about the showy character of the large white flowers blotched with purple in the tube; but the viscid nature of the leaves might be objectionable to some if the plant was grown for cut flowers. The leaves, however, are agreeably fragrant, which compensates for the bad properties experienced in handling them. Eighteen species are known to science, all Australian shrubs, of which few have been introduced, and fewer still are known to cultivators in general. The present species is figured in the *Botanical Magazine*, t. 2961. The genus is included in the Solanaceæ by the *Genera Plantarum* in a tribe represented typically by the well known garden annual *Salpiglossis*. Other authorities include both the above-mentioned genera in the Scrophularia family, doubtless on account of the four perfect and one rudimentary stamen.



## ALPINE PLANTS.

**ARNERIA ECHIOIDES.**—This interesting and singularly pretty plant, with its clear yellow flowers and dark velvety spots, is now in full bloom, and well merits attention as being one of our most showy Borage-worts. Not long ago, like many other alpine, this plant was almost coddled into existence, but now it may be seen growing strongly in an ordinary border and where but a minimum of attention has been bestowed on its cultivation. As regards soil it is by no means fastidious, flourishing well in either light or stiff. It is certainly a decided gain to know that such an ornamental plant requires but the attention that is usually bestowed on one of our commonest garden occupants.

**GENTIANA VERNA,**

long supposed to be a miffy plant, is really not so, and flowers in our lowland gardens just as well as on the alpine peaks where it is now protected by a blanket of snow until revived by the mid-summer sun. A peaty loam, pressed firmly, suits it well. In the pink Wood Sorrel (*Acetosella purpurea*) the colour is distinct and good. It is a delicate and precious little plant which well deserves to be increased and grown as a garden flower. Is this what Ray calls "*Biophytum trifolium acetosum flore pleno*"?

**RANUNCULUS ALPESTRIS.**

It is delightful to see this high alpine plant growing and flowering really well at less than 100 feet above sea-level. The numerous slender stalks a little more than 2 inches in height, surmounted by large solitary snow-white flowers, are in my opinion not even surpassed by *R. anemonoides*, which is now just out of bloom. Peat, loam, and lime, with a fair supply of moisture, seems to suit it best.

**R. AMPLEXICAULE,**

with its graceful greyish leaves and pretty white blossoms with yellow centres, is always welcome, and well worthy of extensive culture as one of our most showy Crowfoots. On rockwork amongst leaf-soil it does remarkably well, seeding up flower-stems nearly 1 foot in height, which are also furnished with entire stem-clasping leaves—whence its name.

**THE BLOOD ROOT (SANGUINARIA CANADENSIS)**

is a distinct and curious North American plant, not only from its great fulness of sap, but because of the shape, colour, and method of development of the leaves. Grown in a cool shady position among rich vegetable soil this handsome plant produces an abundance of large pure white flowers which, although of good substance, usually fall to pieces in about a week. It will be found of great benefit both for the plant's beauty and welfare to have the place in which it is grown carpeted with some low creeping plant such as the *Arenaria*, *Linaria alpina*, or *Campanula hederacea*.

**PRIMULAS.**

Few alpine are more effective just now than the various species of *Primula*. *P. cashmeriana* and its near relative, *P. purpurea*, both well in bloom at present, are very effective, the boldness of growth being a marked characteristic. The flowers, though individually small, are arranged in globular trusses of large size, and placed on stems of from 9 to 12 inches in height. *P. verticillata*, although of a somewhat tender nature, has stood our past three winters with impunity. The flowers are distinct and beautiful, of good substance, and borne in quantity.

**DAPHNE CNEORUM**

is one of the sweetest and most showy hardy plants now in bloom, and which, on account of its procumbent spreading habit should have a place on every rockwork, large or small. In light sandy soil it grows freely, and by layering the branches they root rapidly and soon produce a good bold mass of rich green foliage, which during the spring months is studded with a multitude of rosy-lilac very fragrant flowers.

**MYOSOTIS ELEGANTISSIMA.**

The variegated Forget-me-Not is a pretty and desirable plant, its blue flowers contrasting charmingly with the silvery variegated foliage. In a shady, damp position it does well, and soon forms a very ornamental tuft. Two other species of *Myosotis* are also worthy of attention—our native *M. alpestris* and *M. azorica*. The latter is, unfortunately, rather

tender, although in many shady, sheltered gardens it seems quite at home, and during early May produces a wealth of indigo-blue flowers, for which it would be almost impossible to find an equal.

**HYOP PETTICOAT NARCISSUS.**

Just now one of the most charming flowers of the open air garden, as well as valuable addition to the later Narciss, is *N. Bulbocodium*, or the Hoop Petticoat Narcissus. The rich golden-yellow cup, regularly widening from the base to the margin, is both distinct and beautiful. In many gardens it will not thrive, the chief requirements—a light sandy loam, and warm, rather dry situation—being rarely found. Placed on low warm banks or the more sheltered positions of the rockwork it is much improved, and thrives infinitely better than in the ordinary border.

**ERODIUM MACRADENIUM.**

Neat in habit and of exquisite beauty is the little Stork's-bill (*Erodium macradenium*), and which, although introduced to this country more than a century ago, is still comparatively rare. From the exceptional length and peculiar formation of its roots, it requires a deep well drained soil and sunny situation. *Emergo.*

THE DOUBLE NARCISSUS  
POETICUS.

MR. PETER BARR, in a note to the *Gardeners' Chronicle* last year, expressed an opinion that the double form of *Narcissus poeticus*, so common in market gardens near London and elsewhere, is the double of the variety "patellaris," a form not often found single, and distinguished by its broad and regular crown. I disputed Mr. Barr's assertion last year, but this year, having had a better opportunity of comparing the single "patellaris" both with the single *N. p. recurvus* and with the double form, which is abundant in my garden, I believe Mr. Barr to be right. I find that all the characters of the single patellaris, the form and carriage of the leaves, the shape of the limb, and the angle to the tube at which it is carried, correspond to those of the double *N. poeticus*, whilst the peculiar recurved leaves, which give the name "recurvus" to the more common variety, as well as its English name, "the drooping-leaved Narcissus," do not mark the double form. Assertions about the doubling of the single Poet's Narcissus by cultivation in certain soils are even more common than those about the wild Daffodil, and both alike require careful and continuous observations to confirm or refute them.

To endeavour to obtain these observations I last year distributed several hundred bulbs of "recurvus" of proved singleness amongst gardens said to have this doubling power in the soil. If they double it will be interesting to note whether they also change the character of their leaves, which I think it not improbable that they may do, the drooping being effaced by the greater vigour of growth generally present in double forms. *C. Wolley Dod, Edge Hall, Malpas.*

FRUIT-GROWING AT MR.  
LADDS.

In times past the price which the best fruit made was very different to what it is now; it was no unusual occurrence for the earliest Grapes that came to hand in Covent Garden Market to sell for 15s. or 20s. per pound, the first Strawberries half-a-crown an ounce, and Peaches £3 or £4 a dozen. Higher figures than these were sometimes realised, whilst late Grapes, kept until the first of the new crop were about to appear, were worth nearly as much as the new ones. But it goes without saying that at such prices the demand was confined to the few who are ever ready to pay any price for anything providing only that it is rare enough to make its use all but prohibitory even amongst well-to-do people. In like manner choice flowers through the winter and early spring were only obtainable at a figure proportionate to that of the fruits named. But the time for such prices is gone, and not likely to return. At the present day, during the season, when most difficult to produce, the best fruits and flowers do not fetch more than a third of what they used to; but with the drop in price has come the increased demand, which rarely fails to spring up when any commodity that comes under the cate-

gory of luxuries gets cheap. As a natural consequence, to meet this altered state of matters the leading market growers, convinced that the demand will still further increase, are largely increasing their means of production.

In addition to the large extent of glass which Mr. Ladds put up at Swanley in the winter of 1883-4, which was planted with Vines and filled with Tomatos last summer, there has been this winter an immense addition made there—forty houses, each 200 feet long by 12½ feet wide, and seven each 200 feet long by 17 feet wide, having been completed. They are constructed in the same plain but substantial way that Mr. Ladds is now doing the whole of his work of this kind. The houses are erected in blocks, with well-built 9-inch walls enclosing each block. They are thoroughly stayed with stout iron ties, so as to stand the immense pressure which the wind has on such enormous surfaces of glass in an elevated exposed position, such as that in which these houses stand, where there is nothing in the shape of a tree or a building to break the force of the gale. All the wood used is Pitch Pine, selected so as to be perfectly free from knots. All the houses stand ends north and south, excepting the 680 feet vinery, and some half-dozen others, which run in the opposite direction. The new houses were begun in the autumn about September, and the last of them were all but finished and ready for use when I saw them, the last week in March. At that time twenty were filled with pot Strawberries, consisting of a fine lot of even plants, promising well for a crop. In addition to these Mr. Ladds has at his Dartford Heath establishment twenty-five houses, similar in width, and each 135 feet long, filled with Strawberries, something like 100,000 plants in all. Early forcing is not attempted, the crop being timed to come in so as to give a succession from early in May until they are ripe out-of-doors. Nearly the whole are Sir Joseph Paxton, but several others are being tried to come in about the time mentioned. As the Strawberries are cleared out the whole of the houses that have been occupied by them are to be filled with Tomatos, hundreds of thousands of plants of which are prepared wherewith to stock them.

In ten of the new houses at Swanley a row of *Maréchal Niel* Roses has been planted at each side, and ten others with similar rows of *Gloire de Dijon*. Tomatos will also form the principal crop here until the Roses get up.

No time is lost in long waiting for a crop of Grapes; five of the twenty houses planted with Vines last March twelvemonth are being fruited this year, the Vines being allowed to carry five or six bunches each. They are planted on each side of the houses at a distance sufficiently far apart to allow of each Vine running right across the span from eave to eave. The remaining fifteen houses, as well as the very big one, which were planted late with very small Vines, will not be allowed to bear anything until next year. These are to be filled with Tomatos this year.

The whole of these Swanley houses are now heated by twelve of Rochford's boilers, which Mr. Ladds is adopting in place of the boiler of his own design which he has hitherto used. There is this difference in those he is putting in from the ordinary Rochford, which is composed of 4-inch pipes, that Mr. Ladds is using 3-inch. The boilers are placed in pairs, side by side, in each stokehole. In the big vinery, where the flow and return is continuous from end to end, the water from leaving the boiler before it gets back into it has to travel over a quarter of a mile. The four long houses at the Dartford Heath place—now filled with 100 Royal George Peaches, occupying each side of the houses—are now a feature such as I feel satisfied has never been seen in Peach growing under glass before. When I saw them nothing could promise better for a crop, the fruit from end to end, without the exception of a single tree, were as even as if they had been put on the branches by hand. By the way the thinnings lay on the ground there had evidently been as many taken off as would have sufficed for eight or ten crops. The cultivation of this fruit is about to be much extended here. At the Bexley Heath establishment a new house, double span, 300 feet long by 35 feet wide, has this winter been finished, and is now filled with a beautiful lot of flowering plants of *Gardenia*. They are all in pots; Mr. Ladds has tried planting out *Gardenias* on a large scale; the plants were kept until they formed bushes 8 or 10 feet through, by 6 or 7 feet in height; but henceforth their cultivation is to be confined to pots. *T. B.*



## FRUIT NOTES.

WASHINGTON PLUM.—A coloured figure of this excellent Plum is given in a recent number of the *Bulletin d'Arboriculture*. It is a Plum of large size, oblong obtuse form, yellow colour, and good flavour. The history of this Plum is curious. A Plum tree (variety not stated) was overthrown by a hurricane, but from the stock proceeded some suckers, one of which was removed and grown on, ultimately producing a fruit, deemed worthy to be named after Washington himself.

## FRUIT PROSPECTS.

There is every prospect now of abundance of all kinds of fruit. Generally we have to make some kind or other an exception, but, notwithstanding the cold spring, we have come out of very little the worse. Peaches and Nectarines are good, and with the exception of a little blister, the foliage is clean and healthy. Apricots are a full crop, but there are great losses of branches, not one variety escaping, though the Hemskirke is said to be less subject than any other. Pears on walls of most are good. Plums, though not a full crop, are above the average, and very free from aphids. Apples have set a good crop, not so thickly as anticipated, still sufficient to require thinning—the larger varieties, some of them, already thinned. Orchards are later, can scarcely tell yet what will swell, but I don't think there is any doubt about there being full crops. Early Cherries are good; the Elton now colouring, Morellos very abundant—far too many to mature on the trees. Gooseberries and Currants are excellent. Raspberries have broken well, and promising to be a good crop. Strawberries every prospect of being heavy crops; next week will find plenty of ripe fruit in the market. It is very cheering to be able to write thus of our fruit crops, excessive drought, birds, and wasps being the only difficulties lying in our way to securing a good fruit harvest. Wasps have been unusually abundant this spring, nests having been taken here this season as early as May 13. D. C. Powell.

## DISEASE AND NON-GERMINATION OF PEAS.

EVERY one acquainted with garden literature must have observed numerous reports regarding the non-germination of Peas. The failure is often attributed to the weather, to the state of the soil, or to destruction wrought by birds. In not a few instances seed merchants are seriously blamed for sending out old and dead, instead of new seeds. The growers seldom report further than the total failure of the crop; they say they have planted seeds with no result, and a new sowing has been compulsory.

I have several times reported that parasitic and other fungi frequently grow inside the pods of Peas, and often upon the seeds themselves whilst still in the pod.\* The fungi I have noticed include the destructive *Peronospora viciae*, B.; *Erysiphe Martii*, Lk.; *E. communis*, Schl.; with *Penicillium crustaceum*, Fr., and other moulds. These fungi, one and all, not only invade the exterior of the seeds, but by their germ-tubes gain an entrance to the interior, and destroy the embryo and life of the Pea.

The accompanying illustration will show younger readers of the *Gardeners' Chronicle* more clearly than words how the germ of the Pea is attacked and destroyed by fungi from the outside.

The outline on the left-hand top of fig. 170 represents at A a Pea, enlarged four diameters; the dotted line shows a fragment of one of the valves of the pod. B is the little stalk of the Pea, and the black dot at C is a natural opening in the skin of the Pea leading direct to the germ within. In the properly fertilised and ripe Pea this little opening, or gate, is termed the micropyle (little gate). When the Pea is very young—a mere unimpregnated ovule in the ovary—this minute orifice is known as the foramen (hole), and through this minute hole the ovule is acted on and fertilised by the pollen with its pollen tubes. It will be seen then that every Pea has a weak point, or gate, by which its interior may be reached by both friendly and hostile "tubes."

In the next figure, on the right, D shows a Pea removed from the pod as well as from its little stalk. The scar left by the latter is seen at E;

this scar is termed the hilum, or umbilicus: it is the point of attachment of the Pea to its mother. The little gate, or micropyle, is seen at C; the shading represents the threads of microscopic fungi and the injured outer membrane of the Pea.

The third figure shows a section through a healthy Pea; F, is the surface of one of the cotyledons, or young seed leaves within the Pea; G the testa, skin, or coat (of two thin membranes); H is the young rootlet or radicle within the Pea, ready to emerge on germination through the little gate, or micropyle, at C; J is the plumule or rudimentary bud with young leaves of the embryo Pea. The fourth figure at K shows in section the interior parts diseased by fungi, the disease being clearly traced to the microscopic opening, or micropyle, at C. The micropyle of a Pea is so small that it requires a lens to see it; from a microscopist's point of view, however, it is an opening of very large size.

At L a micropyle of the Pea is engraved direct from a camera-lucida reflexion from a microscope, enlarged

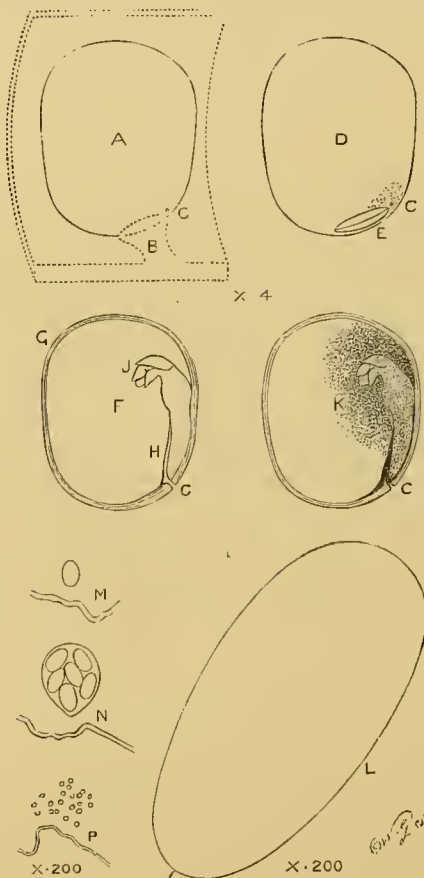


FIG. 170.—DISEASE OF PEAS.

200 diameters; the little straight line at the bottom is the commencement of the umbilical scar (seed at E). To show how large the opening of the micropyle is in comparison with the spores and threads of the dangerous parasite of Peas, named *Peronospora viciae*, I have engraved to the same scale a spore and mycelial tube of this fungus at M. The parasitic fungus of Peas, named *Erysiphe Martii*, Lk., bears its transparent spores in little colourless bags, asci, as seen also to the same scale at N. It will be noted that many of these bags of spores could easily sail into the micropyle. At P are shown the minute spores and a single thread of one of the blue-mould fungi, *Penicillium crustaceum*, Fr. The difference in size between these microscopic spores and the minute micropyle of the Pea is remarkable.

The micropyle in seeds commonly becomes closed or obliterated, but in Peas and Beans it frequently remains open; in some varieties and samples of Peas it appears to be always open.

Good seed merchants never send out Peas or any other seeds without first testing and often guaranteeing their power of germination; when, therefore, a crop is very bad or a total failure, it is hard to see

how the seed merchant can be free from blame, if the seeds have not been eaten by birds. I have at times received large samples of seeds for examination from good firms, and in cutting sections of the Peas have found in some instances nearly every example dead, through the destruction of the embryo by parasitic fungi, through the micropyle.

It is obvious that in slight attacks the germinating Peas grow up from the seed with the elements of disease already in their tissues. All diseased Peas should, of course, be destroyed, and no seed Peas should be kept in places where the slightest moisture prevails; damp air not only starts fungi into renewed growth, but it causes the micropyle (which may possibly be closed) to gape open, and so offers a point of ingress to a death-dealing invader or invaders. W. G. Smith.

## HOME CORRESPONDENCE.

Rhubarb.—Amongst the subjects thought just then to be perhaps of trifling importance, staged at the recent South Kensington exhibition, was a couple of samples of Rhubarb from the Society's gardens at Chiswick—Stott's Monarch and Victoria. Chiswick soil seems to be favourable to Rhubarb, for the growth in this case was remarkable, the Victoria stalks being some 4 feet in length and straight as a rod, very large, and remarkably handsome; whilst Stott's Monarch, which is of pale green hue, quite lacking colour, had stems 7 inches round and nearly 3 feet in length. Gigantic as these stalks were, and effective in attracting the attention of visitors, it is very doubtful indeed whether either sort would be favoured in any kitchen or cottage home for domestic consumption. Probably a large amount of Rhubarb is employed in the manufacture of those sparkling hocks and champagnes which deluded Britons pay for so liberally and drink so freely, under the impression that it is genuine juice of the Grape. Mr. Robert Fenn has often manufactured from Rhubarb and Gooseberries home-made champagne which would puzzle some *connaisseurs* to tell from a Continental brand, and at a cost of about 1s. per bottle. Why English enterprise has never yet set to work to manufacture its own champagne, with such a wealth of Rhubarb and Gooseberries at our doors as we have, is, indeed, marvellous, and shows that for some things we prefer to pay through the nose for any kind of manufacture if it has a Continental brand. Whilst we have these gigantic Rhubarbs we happily have in Red Champagne and Early Albert other kinds of great value for domestic purposes, and Victoria is seldom seen so large as it was in this particular instance. Kinds that are very early and produce stalks of medium size, rich colour, and of good flavour, are most desirable. It is worthy of notice that new distinct Rhubarbs are singular rarities. A. D.

Seedling Dendrobiums.—Thinking it might interest some of your readers, I have sent you two seedling Dendrobium devonianum raised from seed sown in June, 1882. No. 2 shows the first bulb. Some plants from the same batch flowered a month ago, being only two years and ten months from the time of sowing the seed. Edmund Ayling, Forty Hill, Enfield, Middlesex.

Wistaria sinensis at Home.—Presuming its home to have been on the trees of its native forests, I had long wished to rescue poor Wistaria from its unnatural position on the garden wall, and several years ago wrote to this effect in the *Gardeners' Chronicle*. Much time, however, elapsed before I succeeded in carrying out my desire of establishing it on a group of large Laburnums growing at the entrance of the rock garden at Bayfordbury, chiefly from falling into the common error of planting it too near the base of the trees. But having obtained a strong plant with a single stem some 10 feet long, I prepared the soil at that distance from the nearest Laburnum, to which I led the stem underground, and soon induced it to grow well; and at the present time it is spreading more or less over the tops of three adjoining trees with a profusion of blossom on both the Laburnum and Wistaria; so that, from their time of flowering being identical, just now it is a sight worth seeing. [Visitors to Mr. A. Waterer's nursery at Woking will remember a similar case. Ed.] A *Tropeolum speciosum* planted near the same spot bids fair to succeed them with its flowering later in the year, after wandering over some low Box trees beneath the Laburnums. Immediately adjoining on



the grass is a very fine specimen of *Gunnera manicata*, with several heads of flower coming on, and in the corner of some rockwork an old-established plant of *Plumbago Larpentæ* has obtained an undisturbed possession, producing every autumn a great profusion of fine flowers. A little further on, upon some sunny sloping rocks, the hardy varieties of *Cactus Opuntia*, of considerable size, promise abundance of flower, retaining some of the fruit of last year, which seem inclined to ripen. The alpine in general are flowering, well favoured by the late winter, as also a fine specimen of *Chamærops Fortunei*. On leaving the rock garden, in an angle of a portion of the wall of the house facing east a *Lapageria rosea* was planted some years back, which is growing most vigorously, far exceeding some plants in the conservatory. It has not yet flowered, but from the size which it has attained I fully expect it to do so this year. It has been sheltered with dry Fern in the winter, and is affected more by sun than cold weather, although it only gets the former in the early morning. *W. R. B.*

*Ornithogalum gracile*.—About "*Ornithogalum gracile*" (see p. 480) exported by an eastern province nurseryman, the story is much this way. Given a white *Ornithogalum*, apparently useful for forcing and other horticultural purposes, given also a collecting nurseryman out here without knowledge of the plant's name—any fancy adjective which seems likely to take a purchaser's eye is attached to the exported lot. The consignee, simple soul, supposes his collector to know all about the name and takes it on trust. And thus *synonyma hortulana* get their misbegotten birth. *Ornithogalum gracile* is founded on a very tiny span-high species distributed some years ago from my herbarium collection in the *Van Stadensberg*, No. 1939, and described by Mr. Baker in *Journal of Botany*, 1874. *O. gracile*, so called, is probably merely *O. thyrsoides*, or *O. lacteum*, both of which have been exported by the thousand from the Cape Town peninsula ever since the time of Villette and Bowie, or earlier. *Cape Town*.

Is Cotton an American Plant?—Mr. Bourke, in the *Snake Dance of the Moquis of Arizona*, p. 244, says:—"The Tunis weave the same kind of cotton mantle, but do not grow the fibre, preferring to buy this from their neighbours, the Moquis, whose fields, exposed to warmer suns, have yielded the precious bolls from generations long prior to the advent of the Spaniards." He also (p. 241) refers to Davis' *Conquest of New Mexico*, p. 100, which speaks of the inhabitants possessing "blankets of cotton." I always understood that Cotton was an Old World plant used on this side of the Atlantic centuries before America was discovered, and that the first Cotton ever sent from America to England was a little lot the fill of a woman's apron; as that was approved of the next shipment was one bale from, I think, Savannah. But if Cotton was an Old World plant how could it be used in the New World "centuries before the advent of the Spaniards"? *J. R. Hay.*

The Snake's Head.—The local name in this part of Hampshire for the common Fritillary is "The Snake's Head." *Helen Watney.*

Proliferous Roots of Orchids.—In the *Gardeners' Chronicle* of May 16 last Professor Reichenbach (p. 627) writes as follows regarding the proliferous roots of the Bird's-nest Orchid (*Neottia Nidus-avis*):—"I saw this as long ago as 1849, when I observed the fact at Tharant. I learned very lately that it had been observed before by Vaucher in 1841. After Vaucher and myself it was seen by Irmisch, Prillieux, Hofmeister, who got it from me; then it was formally denied by Drude, but reobserved and neatly described by Warming, the excellent Scandinavian botanist." Now, although it is not distinctly stated in the above that Vaucher first observed the proliferous roots of the Bird's-nest Orchid, still such will naturally be inferred from the text. This is, however, not the case, as previous to its being noticed by Vaucher in 1841, it was observed and formed the subject of a most interesting communication to the *Magazine of Botany and Gardening* in 1833, by the Hon. and Rev. W. Herbert. He thus knew of it more than eight years before Vaucher, as in writing his notes he says that "many years ago," &c., that was previous to 1833. My own observations (communicated some time ago to the Royal Horticultural Society, regarding the proliferous roots

of the *Neottia*, but more particularly that the young eye or bud is produced at the extremity of one of the fibres, and not, as your correspondent says, from the axils of certain sheaths or the very top of a root-fibre), are certainly more in accordance with those of Herbert than Reichenbach. The whole matter is most interesting, and well worthy of more careful observation than it has hitherto received. *A. D. Webster.*

Rosemary.—This maritime plant (*Rosmarinus—sea dew*) has probably been associated with pure love and pure, lasting, loving remembrance on account of the old fable that, like the earlier veiled Aphrodite, or Venus, the goddess and symbol of pure, unearthly love, it arose from foam caused by the fashing of the sea waves. The later, coarser, generally nude and non-seaborn Aphrodite, daughter of Zeus and mother of Eros (Cupid), was (as opposed to the first-mentioned) the goddess and symbol of earthly and sensual love. *W. G. S.*

Pine Needles.—Every one knows how the adult leaves of Pines grow in groups of two, three, or five,



FIG. 171.—TERMINAL SHOOTS OF PINUS.

according to the species, and how, as a rule, the stem or branch which bears them does not elongate but remains abortive. We have lately met with an instance in the Scotch Pine wherein the stem has continued its growth between the two needles, so that a new leaf-shoot was produced in that situation: see fig. 171. Generally such shoots proceed from the axils of scales or of primordial leaves, as may be seen very well in seedling Pines; but in this case the shoot forms the direct continuation of the axis. *M.*

Australian Grapes.—The London correspondent of one of the Manchester papers of last week notices the arrival of two consignments of Australian Grapes, which were offered for sale, and went off well. The writer says:—"I heard the other day from a friend who has just arrived from Adelaide, that Grapes are selling there at a penny per pound, so that if the exporters can send them over here and command a sale at from fourpence to sixpence per pound, it will pay them to do so. Some people are professing to pooh-pooh the idea of an Australian fruit trade; but, judging from what we have now seen, there seems every prospect that, like the wool and frozen meat trades, it will ultimately develop into a remunerative line of business." There can be little doubt if these Grapes arrive

here in good condition and in a fairly well usable state, they will seriously depreciate the value of English hothouse Grapes. When Jersey Grapes arrive in good condition, the value of hothouse Grapes falls at once, some people preferring to use these to paying a higher price for good hothouse Grapes. If Australian Grapes come in as competitors, they will cause a greater depreciation in hothouse Grapes. *M. S.*

Cabbage Early Warwick.—Amongst the recent introductions of early Cabbages there is none can approach this grand old variety; in every respect it is a perfect Cabbage, fit for any gentleman's table, and a grand market variety, and is without doubt the earliest Cabbage in cultivation. I have grown it side by side (all sown on the same day) with Ellam's Dwarf, Offenham, and Carter's Heartwell Early, and the Early Warwick is fit to cut quite ten days to a fortnight before any of the aforesaid. The Early Warwick Cabbage was raised and sent out by Mr. Butcher, of Stratford-on-Avon, some thirty-five years ago. This firm still hold stock of the original variety, having each year carefully saved seed from selected plants. I can strongly recommend the Early Warwick Cabbage to all who have to supply the table with early Cabbages as a first-class variety. *R. Greenfield, Priory Gardens, Warwick.*

Tacsonias Dying.—After reading Mr. Earley's letter on Vines dying, I am induced to send a few notes about the mysterious way the Tacsonias are dying on the roof of our conservatory. Three years ago some fine plants were bought from a well known English firm. The varieties were Van Volxemii; they were planted in a border 2 feet wide and 18 inches deep, well drained. These were trained up the columns and across the arches. Up till last November nothing could be more satisfactory than their growth, when one showed signs of decay, then the one next to it went away; and now I see another quite gone, although it had shoots 3 and 4 feet long covered over with healthy foliage. The disease seems to be working to each end of the house. The border is well looked after for water. In the same border there are Camellias, Rhynchospermums, and Pelargoniums trained up the wall, and nothing can be more satisfactory than their growth. I will be much obliged if some of your able correspondents will be so kind as to give their opinion, as it is very annoying to see those immense arches covered with dead creepers. *H. K.*

Hydrangeas.—It is a long time since I have seen such a display of these highly ornamental plants as came under my notice a few days ago at Mr. R. Bayley's, Tor Grove, Plymouth, in one of the conservatories there. The gardener, Mr. Gould, is certainly clever in producing dwarf compact plants, each carrying three and four very powerful-looking cymes or corymbs of their elegant flowers. *Hortensis* is the principal, but its pure white variety, "Thomas Hogg," comes in for a good share of attention. Mr. Gould secures autumn-struck plants early in February, which he hurries on into 5 and 6-inch pots, in which they bloom. Hydrangeas ought to command extensive cultivation, as they are so well adapted for a variety of purposes, and they make excellent table plants when in flower. *W. Napper, June 8.*

Fairy Rings and Moles.—Every one who is acquainted with the literature of fairy rings knows that there was once a prevalent belief that the green circles in pastures were caused by the burrowing of moles. When it was pointed out that fungi were almost invariably present at one season of the year on the margin of the rings, the reply was made that the disturbed ground formed a pabulum suitable for the growth of fungi. The theory has, however, long been thoroughly demolished, so that it is now unnecessary to bring forward any arguments against the idea. The one fact that fairy rings are often common where moles do not, and never have, existed, is sufficiently fatal to arguments in its favour. Still the fact remains undoubted that there is often a kind of "consortium" or fellowship between fairy rings and the burrowings of moles; but the truth is, moles do not incite the growth of fairy rings, but, on the contrary, fairy rings attract moles, as the following note will show. "I have long been acquainted with some enormous fairy rings on Dunstable Downs, caused by the growth of the edible and delicious *Agaric* of spring, *Agaricus gambosus*. During the last week or two I have visited the rings and secured several repasts. Mole-hills were in the



neighbourhood of the rings, but there were at first no runs or heaps on or very near the fungus circles. On visiting the rings again, last Sunday, I was surprised to see an abundance of mole-hills on the exact circles of the fairy rings, and many examples of *Agaricus gambosus* overthrown by the burrowings of moles beneath the rings. It appears then that moles are attracted by the rings. It may be that either the underground strong-scented nitrogenous mycelium of the fungi is the source of the attraction, or it may be due to the presence of a greater abundance of worms (possibly attracted by the same cause) on the line of the rings than elsewhere. It is quite possible that worms may be attracted to the line of the circles by the decaying roots of the dead grass and fungi of the previous year, and so the moles in turn discover an unusual number of worms. Whatever the explanation may be, it would seem certain that moles are really attracted to the rings." *W. G. S.*

**Saxifraga Macnabiana.**—Mr. G. C. Churchill, p. 738, is right in regarding *Saxifraga Macnabiana* as a garden variety. It was raised in the Royal Botanic Garden, Edinburgh, in 1875, from seeds obtained from *Saxifraga nepalensis*, a misleading name for a form of *S. pyramidalis*. Of the seeds sown only two plants came to maturity, one, *S. Macnabiana*, having very dark spotted flowers and leaves like *S. lingulata* (which I take to be the male parent), the other having broader leaves and larger, less coloured flowers, but also a handsome plant. *S. Macnabiana* seeds freely, but does not come true from seed, the seedlings being generally like *S. pyramidalis*. *Robert Lindsay, Curator, Royal Botanic Gardens, Edinburgh.*

**Melon Canker.**—In answer to Mr. Ward, who, at the commencement of his remarks on p. 703, accuses me—unfairly as I think—of misquoting from his previous note, I was certainly under the impression, after reading it, that his intention was to convey the meaning that deep planting was the only cause of canker, for on the page mentioned he says, "In reference to this subject I beg briefly to say, that if due allowance is made in forming the hillocks after the plants have been set therein at the same depth in the soil as they were in the pots, and soil has been added afterwards to cover the roots as they push through the sides of the hillocks, and 3 inches higher than the soil surrounding them, to prevent water lodging about the stems, 'canker' will be prevented from attacking them;" and further down he concludes thus: "In short, I opine that canker is caused by the plants being set out too deeply, and the mould becoming too wet round the stems, gainsay it who can." Now it is clear that Mr. Ward, when writing this, did infer that canker was the sole result of deep planting. I am still of opinion that Melons may be planted and earthed-up as is usual with Cucumbers, without any fear of canker, provided no injury be caused to the stems. In reply to the query, Why the temperature of the house should affect the buried stem? I may say, as far as I have seen, canker usually occurs where the stems come in contact with the soil, and not the buried portion, consequently the temperature of the house would affect it; and as the sudden fall in the atmosphere would in most cases be accompanied also by a similar fall in the bottom-heat through the heat from the hot-water pipes not affording enough heat, the entire plant would feel the check. The last instance of canker or damping off that came under my notice (twelve years since) was, I believe, occasioned in this way: During hot weather the fires were withheld for a few days—a cold night succeeded a hot bright day, the house being heavily charged with moisture; this sudden check produced, in my opinion, the canker which followed, although the plants were on raised mounds of soil, and not deeply planted. Too much water will certainly cause the sudden collapse of Melon plants just the same as it would a *Calceolaria* or *Cineraria*, quite independently of what depth the stem is buried in the soil. I am careful that our plants shall not get "too wet," and to this, combined with small beds of firm soil, with ample drainage and careful attention always, attribute our immunity from disease. Mr. Ward furnishes his name and address as a guarantee of his cultural statements. I may inform him that my employers have recently passed high encomiums on our Melons, both as regards culture and flavour. We also have gardening friends who frequently give us a call, and several of them members of the Royal Horticultural

Society's committee; one, a member for many years past, when he saw our Melon-house recently remarked that he had "never seen a better crop or a prettier lot of Melons." As far as quality is concerned I presume Mr. Ward will allow that the exhibition table is a fair test, and I may mention that during the past year or two out of seven times exhibiting we have obtained six 1st prizes, and on one, if not more occasion he was himself amongst the competitors. *C. H.*

**Snowberries.**—I have always understood that these white berries were poisonous. I cannot call to mind any instance, but I well remember having been, when quite a child, cautioned by a good botanist, "not to eat these berries, because they would make me very ill." I believed the old gentleman, and never doubted his words as regarded both Snowberries and Laburnum seeds, whilst he, at the same time, rebuked my mother for allowing me to put them in my mouth when trying to thread them. The Snowberry of Brazil (*Chiococca*) is very hurtful, violently emetic, and some writers say that when its cuds are given as a remedy for snake bites, "the remedy is worse than the wound." *Helen Watney.*

**Clover Sickness.**—In adverting to this subject Mr. Plowright says (p. 704) that the structure of the internal mass enclosed in the small nodules on the roots of diseased Clover reminds him of *Plasmodiophora*. *Plasmodiophora*, as all readers of the *Gardeners' Chronicle* no doubt know, is the fungus which is believed to cause "club root" or "finger-and-toe" in Turnips, Swedes, and other cruciferous plants. It does not seem probable that *Plasmodiophora* would spread from Clover to Turnips. There may, too, be two or more species of *Plasmodiophora*. It is, however, a fact that there exists a very strong and wide-spread belief amongst farmers that "finger-and-toe" commonly shows itself in bad form when Turnips are grown after a crop of Clover, especially after Clover grown on "Clover-sick" land. This belief of "experienced agriculturists" when linked with the resemblance which is said to exist when the diseased tissues of Clover and Turnips are examined under the microscope, will no doubt be sufficient for some minds to conclude that the resemblance means nothing more or less than the positive identity of the two diseases. It is possible that some one will now be ready to "prove" the existence of a genetic connection between "Clover-sickness" and "finger-and-toe." The connection, though not probable, is possible; it is hard to say that anything is impossible. "Faith healing," instead of lime dressings, clean farming, and a proper alternation of crops, may now perhaps be tried with success in bad cases of "Clover-sickness" and "finger-and-toe." *W. G. Smith.*

**Cattleya Mossiæ.**—I send a bloom of *Cattleya Mossiæ* which was produced on a plant here that has been grown in England several years. You will notice the double lip and abnormal development, one so peculiar that I have never seen its counterpart, and therefore send it you as a matter of interest botanically. I know *C. MacMorlandiæ*, which has no lip at all, and so flowers persistently, as I have remarked at Messrs. Veitch's. This seems the complement, having two lips, but, unlike *C. MacMorlandiæ*, this has not the sepals and petals. *Cattleyas* have been great here this season. One flower of *Mossiæ* has measured 10½ to 10¾ inches in breadth across—the largest I remember. *Fred. A. Philbrick.* [In the flower sent the parts were in twos instead of threes—two sepals, two lip-like petals, and an erect column without anthers. This dimorphic condition is not uncommon in Orchids. *Ed.*]

**Mimulus Seed.**—Were Mr. Murphy's experience of the laggard germinating powers of *Mimulus* seed that of all others, I fear few would care to grow what must rank amongst the most beautiful of garden flowers. I can say for strains of very beautiful *Mimuluses* that have not such pretentious designations as "Queen's Prize," that seed germinates in a week or two most freely, even when sown in an ordinary greenhouse in the dull month of November; for I always sow at that time of the year in shallow pans, and thus get myriads of seedlings to dibble out into shallow boxes, or else into a frame in February, and from thence into the open ground in April. Perhaps so treated the seed organs are more perfectly fertilised than is the case with plants grown in pots under

glass. It would be a misfortune were it to be assumed that *Mimuluses* of the finest and most beautiful strains are difficult to raise from seed. *D.*

## Reports of Societies.

ROYAL HORTICULTURAL: June 9.

THE varied beauties and other charms of the floral display on Tuesday at South Kensington abundantly illustrated the fact that the attractiveness of different groups of flowers differs in kind as well as in degree. Delights of colour, of perfume, and of form, whether united, as in a *Maréchal Niel* Rose, or separated, as in the night-scented Stock, in many Tulips, Pansies, and other groups, are perfectly intelligible objects of desire; but the cultivation of such plants as *Arum crinitum*, many of the *Arisemas*, and, it must be added, not a few Orchids, must be explained by some totally different motive. Besides the great number of plants that are shelved at South Kensington and elsewhere as "of merely botanical interest," there are whole groups of others which, though enjoying the utmost popularity, can lay no claim to beauty of colour, of perfume, or even of form. "Bizarerie" seems to be the only term that explains the attractiveness of many plants in Tuesday's show. The attempt to get flowers as nearly black as possible is an instance in point. This shows itself in the hyperbolic application of names signifying black to dark purple Pansies, and to the reddish-brown labellum and lines on *Cypripedium barbatum*, as well as in the streaks on popular Tulips and in such oddities as *Iris susiana*, which might be described in the language of "the ring" as "white with black specks." The reptilian mottling of some of the *Stapelia*-like *Epidendrums*, &c., the metallic hues of some *Ixias*, and the glaring aniline hues achieved in some *Begonias* and *Pelargoniums*, and in the majority of *Masdevallias* and *Pyrethrums*, are also to a great extent "acquired" tastes (?). Looking, however, at the show as a whole, one can well see the charm of the Orchids as a class, and admire the success which has attended the artificial selection of *Begonias* for size and colour of flower. Though fewer in number and deficient in some types many of the individual Orchids shown were finer than those at the Conference. New sorts did not seem to endanger the pre-eminence of well-grown old favourites, such as *Lælia purpurata*, *Dendrobium thyrsiflorum*, *Cattleya Mossiæ*, *C. Mendellii*, and *C. Warnerii*; though among the *Cypripediums*, which were well represented, *superbum* and *nigrum* are names indicating undoubtedly fine strains of our old friend, *C. barbatum*, and the red-lined cup of *Anguloa Ruckerii sanguinea* is a welcome comparison to the clear-hued *A. Clowesii*. *Odontoglossum cordatum aureum* is "a thing of beauty" in lemon-yellow and green, and one can never tire in admiring the curiously long "tails" of *Cypripedium caudatum* and the fresh complexion and fine foliage of the hardy *C. spectabile*. The increase in the taste for simpler and more hardy plants is seen each year at Kensington in the care bestowed upon such plants as *Hemerocallis flava* or *Chrysanthemum frutescens* (of which magnificent specimens were shown from Mr. Brasse's garden at Preston Hall, near Maidstone), and so well repaid in colour by *Pæonies* and *Geum coccineum*. This last species affords rich hues not perhaps as yet obtained in any other flower, certainly not among the varied beauties of the *Begonias*. Several useful *Ajugas* and *Centaureas* were shown, and florists have done well to seize upon the rich purple of our native *Campanula glomerata*; but perhaps the greatest treat in simple colour was to see the magnificent *Papaver orientale* surpassed by *P. bracteatum*, and it in its turn yield a well contested triumph to *P. ioviolacratum*—certainly a king of Poppies. The delicately tinted Japanese *Pæonies* lack the fine contrast of the glossy black centre.

A medal was well earned by the diameter of 7½ inches reached in a *Begonia*, the varied hues, lemon, red, pink, orange, and white of this group being one of the most rapid achievements of modern floriculture, reminding us of Darwin's saying with regard to the possibilities in pigeons' feathers. It may, however, be doubted whether doubling has effected much gain in this group, or among *Pelargoniums* or *Violas*. Irises are unhappy plants to show in a cut state, as often also are growing *Adiantums*; but *A. Victoria*, *A. Raperi*, and *A. umbellum* made a pleasing show of the latter, while some large plants of *A. cucutatum*, grouped with *Pelargoniums* and club-moss were a tasteful contrast to the collection of slicks and Fuchsias sent from Chiswick.



## Scientific Committee.

E. S. Loder, Esq., in the chair.

## DENDROBIUMS, MALFORMED.

Dr. Masters reported upon the specimens sent to the last meeting. They had two supernumerary labella in place of the two extra usually suppressed stamens of the outer row. He also showed various malformed flowers of *Cattleya Mossiae* and *Lælia purpurata* from Mr. Douglas, with more or less regular flowers, some being binary in arrangement.

## LYCOPERDON, SP.

Mr. Murray pronounced the species sent to the last meeting to be *L. cæclatum*.

## CUCUMBER GUMMING.

He also reported on the Cucumbers sent to the last meeting. No trace of fungus or other cause could be detected.

## LILY OF THE VALLEY DISEASED.

He also reported on these, but the fungus was in too immature a state to pronounce upon it. He proposed cultivating it, and would report later.

## COCCI ON APPLE BARK.

Mr. McLachlan showed specimens, and raised the question as to how these insects, normally sap-loving, could live on dead bark. Mr. Pascoe remarked on the long periods many would exist and thrive though deprived of food.

## SCILLA, MONSTROUS.

Mr. Boulger exhibited a specimen of *Scilla* having flower-buds in the axils of the perianth leaves.

## MERCURIALIS, MONŒCIOUS.

Mr. Boulger showed specimens in which female flowers grew on the lower part and male peduncles on the upper.

## FLOWERS EXHIBITED.

Dr. Lowe showed a fine spray of *Melanthus major*, *Libertia grandiflora*, *Caccinia glauca*, *Grevillea sulphurea*, *Lynchnis alpestris*, *Achillea rupestris*, *Xerophyllum asphodeloides*. Mr. Loder exhibited five species of *Allium*, white and green-flowered. They were referred to Kew for names; also *A. Murrayanum*.

## AQUILEGIA CROSS.

Mr. A. Dean sent a flowering branch of a seedling raised from *A. chrysanth* crossed by a white garden variety. It was pink in colour and quite spurless.

## TULIP: PISTILLODY OF PERIANTH.

Rev. G. Henslow showed a specimen in which all the leaves of the perianth had coalesced, forming a thick green pistillate structure open on one side, the free margins alone being petaloid. The proper pistil and stamens were included, but more or less degenerate in character, the former being open down one side with abortive ovules. This monstrosity is described by Dr. Masters (*Teratology*, p. 302).

## MORCHELLA SP.

Mr. Smith sent drawings of two species. The one was from Blaydon, near Bristol, and was an enormous specimen of *M. Smitthiana*; the other was a small example of *M. gigas* from West Deeping, near Market Deeping. He adds that the species has only once before been found in Britain, and that it sometimes attains dimensions almost equal to *M. Smitthiana*—viz., a foot or more high.

## Floral Committee.

Present: Shirley Hibberd, Esq., in the chair, and Messrs. Kinghorne, Cannell, Laing, Herbst, Walker, Wilks, Fraser, Noble, Duffield, Pollett, H. Williams, J. O'Brien, E. Hill, H. Turner, Ballantine, Amos Perry, Hudson, and Baines.

The central stage was devoted on one of its sides to the rather numerous groups of Orchids of the amateurs and nurserymen, whose display equalled almost that seen at the late Orchid Congress, and in some things exceeded it in the size and beauty of the specimens shown—a result which may be attributed to the stimulus afforded by the monetary value of the different awards. Taking the groups noteworthy for their size and superiority from a cultural point of view, first we must name that of Messrs. F. Sander & Co., St. Albans, which was awarded a Silver-gilt Banksian Medal, and was also recommended for some special award in addition. The plants were arranged with Maidenhair Ferns and *Panicum variegatum*, in a succession of lines extending to a length of ten yards. Odontoglossums were largely represented—*O. citrosum*, *O. citrosum roseum*, both of which were seen in many beautiful specimens, as were *O. Alexandre*, *O. niveum*, *O. Pescatorei*, *O. Wilckeanum*, &c. *Cypripedium niveum* was a very charming panful of many plants, *C. Laurenceum* was likewise good. The *Cattleyas* formed the other striking feature, fine specimens of *C. Mossiae*, *C. purpurata*, *C. Mendelii* in several varieties, and *C. Acklan-*

*dia*. *Masdevallias* included *Harryana Arnoldiana*, a splendid crimson; *M. Harryana*, in varieties; *M. Schlimii*, and *M. Lindeni*. Other plants were *Zygopetalum Macleanii*, *Sobralia macrantha*, *Acrides* in varieties, and a *Dendrobium*. Messrs. F. Sander & Co. showed a group of the pretty *Aërides Ballantini*, which received from the judges special recognition.

Messrs. Heath & Son, Cheltenham, received a Silver Medal for a collection of Orchids, in which were noticed a fair-sized, well-flowered *Cattleya Skinneri Mossiae*, of good quality of bloom; *Acrides Fieldingi*, and *A. odoratum*.

The next largest group consisted of twenty-five Orchids, distinct, shown for competition in the open classes by Mr. H. James, the Castle Nursery, Lower Norwood, who obtained the 2d prize. His best plants were a good form of *Cattleya Mossiae* with pale flowers, a nice piece of *C. Mendelii*, the seldom-seen *Saccabium retusum*, with small flowers of white and lilac; *Cypripedium Veitchii* with five blooms; *Oncidium Harrisonii*, a slender growing species with yellow and brown flowers; *Dendrobium Bensonae*, a nicely bloomed dwarf piece; several *Masdevallias*, as *M. Lindeni* and *M. Harryana*, and the dwarf growing *Acrides japonica*, having white flowers spotted with rose-lilac. Mr. James was the only competitor in this class. For the competition with twelve distinct species of Orchids, open to men—1st, Mr. J. Cypher, Cheltenham, who had a capital lot of plants, consisting of an *Odontoglossum vexillarium*, a compactly grown specimen with highly tinted blooms; *Odontoglossum Alexandræ*, in variety of forms; a fine plant of *Oncidium sphacelatum*, with several large spikes; a *Lælia purpurata*, with thirty blooms; *Cattleya Mendelii*; a very superior *Cypripedium Hookeri*, bearing eighteen blooms; *Dendrobium thyrsiflorum*, with eight fine spikes, a nice panful of *Masdevallia Harryana*, *Cattleya Mossiae*, &c. The 2d prize was taken by Mr. H. James, Lower Norwood, who had fine *Cattleya Mendelii*, with twelve blooms; *C. Mossiae*, with twenty-four; *Anguloa Clowesii*, with eleven blooms, a capital plant; *Brassia verrucosa*, with fifteen spikes, and several others. Six Orchids, distinct, ourserymen.—1st, Mr. J. Cypher, who had *Masdevallia Harryana* of a brighter tint than usually seen; a strong plant of *Anguloa Clowesii*, with six blooms; *Cattleya Mendelii*, having thirteen large and beautiful blooms; *Dendrobium thyrsiflorum*, a fresh looking plant of four large spikes of bloom. 2d, Mr. H. James, whose exhibit was richer than the other in *Cattleyas*; and an *Epidendrum vitellinum majus*, well bloomed. For fifteen species of *Odontoglossum*—1st, Mr. H. James, with *O. cordatum* with four spikes; a fine piece of *O. citrosum*, another of *O. polyanthum*, the neat growing *O. Lehmanni*, *O. Alexandre*, with a spike of particularly massive blossoms; and another of *O. Pescatorei*. For the best six *Cattleyas*, or *Lælias*, nurserymen—1st, Mr. Cypher, who had *Cattleya Sanderiana*, with a spike of three immense blossoms; *C. Mossiae*, of fine form; *C. Mendelii* and *Lælia purpurea*. 2d, Mr. H. James, whose *Cattleya Mossiae* lilacina was a delicately tinted flower; others were *C. Warneri*, *C. Mendelii*, and *C. intermedia*. Cut blooms were exhibited to the number of twelve by Dr. Paterson, Fernfield, Bridge of Allan, 1st; 2d, Mr. H. James, in the open class.

## ORCHIDS—AMATEUR CLASSES.

Twelve distinct.—1st, H. Little, Esq., Hillingdon Place (gr., Mr. F. J. Hill). In this collection *Odontoglossum Roezlii* had fifteen blooms, and was a beautiful mass; *Aërides crispum* had four medium spikes; a *Lælia purpurata*, with three large blooms; *Cattleya Mossiae*, with fifteen blooms of a rich colour; a well flowered *Dendrobium Dalhousianum*, and *Cypripedium barbatum superbum*. De B. Crawshaw, Esq., Rosehill, Sevenoaks (Mr. S. Cooke, gr.), was 2d, with *Cattleya Mendelii*, a good piece with eight blooms—an extra fine variety; *Vanda suavis*, with two stout flower-stalks, well furnished; the rare *Cattleya intricata*, a striking flower, said to be a hybrid between *C. amethystina* and *Lælia elegans*; a fine *C. Warneri*, of splendid colour; *Epidendrum vitellinum majus*, and other good things.

For the six best Orchids, distinct.—1st, F. A. Philbrick, Esq., Oldfield, Bickley (gr., Mr. H. Heims), in whose exhibit the *Odontoglossum vexillarium*, with nine sprays of bright hued blooms; *Phalenopsis grandiflora*, *Cattleya Mendelii*, of good form; *Cypripedium barbatum superbum*, with twenty-two blossoms; *Lælia purpurata*, bearing twelve blooms; and the beautiful *Masdevallia Harryana sanguinea* were of the finest quality. H. Little, Esq., was 2d; his *Cypripedium Laurenceum*, *Cattleya Mossiae*, a good dark variety of *Lælia purpurata*, were noteworthy specimens. The 3d prize was won by R. R. Hyatt, Esq., Leigham Court Road, Streatham (gr., Mr. A. Luff).

The best six *Cattleyas* were shown by De B. Crawshaw, Esq., whose plant of *Cattleya Warneri* was so good that it was awarded a Vote of Thanks; the others were forms of *C. Mendelii*, *C. Mossiae*, and *C. gigas*, 2d, H. Little, Esq.

The prize of a Silver Banksian Medal for the finest specimen Orchid was taken by Mr. Evans, gr. to J. S. Hodgson, Esq., Lythe Hill, Haslemere, with a very fine *Odontoglossum vexillarium*.

F. A. Philbrick, Esq., was 1st for six cut blooms of Orchids; Mr. Evans was 2d, and Dr. Paterson 3d.

Mr. John Day, Tottenham, showed *Odontoglossum hybridum Dayanum*, a flower possessing a light pink ground colour, the segments having white margins and chocolate spots. Dr. Wallace, Chelmsford, showed a very fine deep rose-tinted *Odontoglossum vexillarium* var. *purpureum*.

From Sir N. M. de Rothschild's gardens, Tring Park, came *Cattleya Wagneri*, a white variety with deep yellow stain in throat, lower half of lip white, with petals and sepals as well as lip prettily frilled. *C. gigas imperialis*,

imported September, 1884, had a very large richly coloured lip, sepals and petals rosy-crimson—a large showy bloom. A Vote of Thanks was accorded for these two plants.

Messrs. J. Laing & Co., Forest Hill, had a very fine group of tuberous *Begonias*, including the best of the older varieties and their finest novelties. *Princess Victoria* is a bright scarlet, changing at the centre to white—a single flower; *Globosa* is a beautiful salmon-coloured duplex flower, very full; *Marquis* of Stafford is another good double, of a scarlet colour; *Lillie* is light flesh colour, that becomes white in the middle—a very pretty full flower; *Amy Adeock* is another scarlet, having the centre petals white. A Silver-gilt Medal was awarded for the above group of these now popular flowers.

A few cut blooms of single and double-flowered *Begonias* were shown by Mr. Cannell, Slough.

From the nurseries of Mr. C. Turner, Slough, came some stands of capital *Maréchal Niel* Roses, and three stands of cut blooms of *Pyrethrums*. Messrs. J. Veitch & Sons, Chelsea, had a very pretty *Gloxinia* named *Marchioness of Abergavenny*, a white ground erect variety, densely spotted with crimson; *Lælia Canhamii* *Cattleya Mossiae*, and *Lælia purpurata*, a flower having white sepals and petals and a deep purple lip, which has the peculiar attraction of a thin white margin; *Rhododendron Manglesii*, mentioned in the *Gardeners' Chronicle*, p. 730, June 6, 1885; *Chionanthus retusa*, a white-flowered hardy shrub, the flowers in panicles, growing out of the old wood. Miss Jekyll, Mumstead Place, showed a *Saxifraga* plant, *Carpenteria californica*, with flat white blooms 2 inches in diameter, and yellow anthers, to which a Vote of Thanks was accorded. Mr. Cummins, gr. to H. Snee, Esq., The Grange, Wallington, showed *Galeandra nivea*; and Mr. W. Bull, Chelsea, had *Bilbergia nobilis*, a grand habited plant, with broad grey-spotted recurved leaves and rosy-pink bracts on a drooping spike; the flowers were not open.

From Mr. Waterman, who grows these plants uncommonly well, came six *Chrysanthemum frutescens* of a large size, and white with bloom. A Silver Medal was awarded.

## LANCASHIRE SHOW TULIPS.

The collection of florists' Tulips sent by Mr. S. Barlow from Manchester was one of the best seen in London for many years past. The flowers were very young, so much so, indeed, that when the wooden crinolines placed within the flowers to assist them to expand were removed, a number of them closed up directly. The great hindrance to the collection being so effective as Mr. Barlow could have desired is that the flowers were fully a week too young; they were buds, not flowers; the bases of them were cloudy or creamy for want of a few more days of growth and bleaching; the green in the outer petals had not grown out, while the outer petals were also shorter than the inner ones; and these defects constituted all the difference between a perfectly developed flower and the same flower five or seven days earlier in point of time. In a communication from Mr. Barlow which accompanied the Tulips he states:—"In reference to this want of full development in the outer petals being the main cause of inferior effect, I will mention a remarkable case in point. Nearly thirty years ago I won the premier prize for the best flower selected from the whole exhibition at the Great South Lancashire Tulip Show with that old Dutch sort, 'La Vandikken.' When this flower opened for the first time, the inner petals expanded, finely developed, and grandly flamed, the marking being perfect, while the outer ones looked ridiculous by contrast, being only half the height of the inner ones. I thought the outer petals had been half-killed by the frost, but to my astonishment they grew slowly day by day until in about a week they were of equal height, and almost of equal quality to the inner petals, and the flower won the premier prize as the best flowered in any class. If that flower had been exhibited in its early stage of growth, as most of my collection is, it would have disqualified any stand. I mention this as an illustration."

The collection staged by Mr. Barlow included about sixty flowers; the most striking were:—Flamed bizzars: Masterpiece, Nonpareil (Ashmole), Lord Stanley, Dr. Hardy (Storer), Prince of Wales, Sir J. Paxton, Ajax, Storer's Orion, and a fine seedling by Parker. The best feathered bizzars were:—General Grant (Hepworth), Masterpiece, William Wilson, Albert (Ashmole), and Sir Joseph Paxton. Flamed roses: Sarah Heady, Mrs. Bright (Hepworth), brilliant in colour; Mabel (Martin), and Old Aglaia. Feathered roses: Modesty, very fine in colour; Lady Wilton, (Martin), and Charmer (Martin). Flamed byblomems: Samuel Barlow (Hepworth), William Parkinson (Hepworth), Friar Tuck (Storer), Duchess of Sutherland, and Talisman. Feathered byblomems: Bessie (Hepworth), William Bentley (Groom), Mrs. Jackson (Jackson), Seedling 101 (Martin), Maid of Orleans (Gibbons), and Violet Aimable. The breeder varieties formed nearly one-third of the whole, and they were much admired for their striking colours. Of bizarre breeders there were Seedling 27 A. (Hepworth), Excelsior (Hardy), and Horatio (Hardy). Rose breeders: Annie McGregor, Mrs. Barlow, Lucretia (Martin), and Seedling 16 (Hepworth). Byblomen breeders: Samuel Barlow (Hepworth), Alice Grey (Walker), Nimbus (Hardy), Glory of Stakehill (Ashmole), and Delicata (Eardman). First-class Certificates of Merit were awarded to flamed bizzars Prince of Wales and Orion, feathered bizarre William Wilson, flamed rose Mrs. Bright (Hepworth), feathered rose Modesty, and flamed byblomen Samuel Barlow. The stand was also awarded a Silver Medal.

Another important matter was referred to by Mr. Barlow, namely, his finding in many usually fine flowers "that the pollen from the anthers has liquefied (?) and run upon the stamens, thereby tinging them more



or less. This is notably seen in Hardy's Excelsior, both in the breeder and in the rectified state; out of some forty blooms I have scarcely one in a pure state, although I have won with the breeder, perfectly pure, at least a score of times in stands and classes. This, I think, is owing to the slow growth or development of the flower during the long cold May. The anthers being protected have developed more rapidly than the petals, with the result that in very many cases the pollen from the anthers is ripe when the flower first opens, and has disfigured the stamens. A very notable illustration of this is shown in feathered bybleimen Mrs. Jackson, which I send to show its wonderful colour—black as the raven's wing, darker and more glossy than the once famed Louis XVI. The flower from this bulb was perfectly pure two years ago (I did not through severe illness see my bloom last year); but it is now stained all down the anthers. This flower, raised by Mr. David Jackson, of Middleton, has never been in the breeder state; unlike 999 out of every 1000, its first bloom was a grand black feathered one, so pure, so fascinating in colour, as to be a perfect surprise.

"In judging of my exhibition of Tulips these things should be duly considered, and allowance made for them. Should there be any spark of the old Tulip love of yore lingering among my Southern brother florists, I shall be glad to assist in kindling it into flame, by helping them to form a collection which in quality shall far exceed the flowers which gave so much delight to growers in the palmy days of Groom, Goldham, Lawrence, Dr. Sanders, and other renowned Tulip fanciers."

#### HARDY FLOWERS.

Hardy flowers were decidedly in the ascendant on Tuesday at South Kensington. Foremost was Messrs. Kelway & Son's collection of cut Pyrethrums from their Langport nurseries—four boxes of double flowers, and five of single varieties, set up in little groups of one variety, and displayed to the best advantage. It is not to be wondered at that many of the visitors to the "Inventions" took them for Chrysanthemums. A few of the best double varieties will be found in J. N. Tweedy, floribundum plenum, Rubens, Marquis of Salisbury, Herman Stenger, Princesse de Metternich, Progress, Lady Godiva, Emile Lemoine, and Fulgens plenissimum. The leading single varieties—and some of them are very richly coloured—were Bajanda, Banquo, Cerinthus, Gedboisi, Druis, Chios, Vestalis, Abnaozor, Eurybates, Bactius, &c. Double Pyrethrum Melton, a large, full, and rich-coloured variety, of a bright carmine-crimson hue, is a good acquisition to this popular class of flowers. In addition, this firm had very fine blooms of Papever bracteatum, Trollius europæus, various Irises, Pæonies, &c.

Messrs. James Veitch & Sons, of Chelsea, had a collection of cut flowers, of hardy Rhododendrons, an admirable lot, comprising Sir Joseph Whitworth, Madame Carvalho, Kate Waterer, Lord Wolsley, Mrs. John Clutton, James McIntosh, Concessum, Meurice, and Nero.

From Messrs. Cross & Steer, nurserymen, Salisbury, came a basket of Pink Tea Fairy, a small-flowered pure white variety, the blossoms much frimbriated, very free, and likely to be very useful for cutting from. A yellow-flowered Carnation named Pride of Penshurst came from Mr. Jennings, gr. to Leopold de Rothschild, Esq., Ascott, Leighton Buzzard, a good grower and very free, the flowers pale yellow. Messrs. Heath & Son, nurserymen, Cheltenham, had a yellow-flowered variety also, named Daisy Gastrell, with well formed, rather small pale blossoms.

From the Royal Nursery, Slough, came boxes of cut blooms of double Pyrethrums, set up in bunches of eight or nine flowers, backed by their foliage, in the way in which Mr. Turner sets up single Dahlias. It was a useful practical lesson in the art of staging flowers of this character. The leading varieties were Marchioness of Lorne, Prince Teck, very fine; Versailles Defiance, Boule de Neige, Princess Alexandra, J. N. Tweedy, La Vestale, Charles Baltet, and Flora.

Messrs. Paul & Son brought from their Broxbourne Nurseries a large group of hardy plants, as well as cut flowers, including Aquilegias, Pyrethrums, and other things of a similar character, admirably illustrative of the wealth of hardy flowers in bloom at this season of the year. Messrs. Hooper & Co., Covent Garden Market, had a similar group, including cut specimens of Irises, Poppies, Pyrethrums (single and double), Ixias, and Sparaxis, &c. Mr. J. Vander Rees, Exotic Nursery, Tottenham, had a similar collection of an equally interesting character. Mr. T. S. Ware, nurseryman, Tottenham, had a very large and representative collection, occupying a large space of slating, all hardy plants, including Pyrethrums, Aquilegias, Irises, including the singular I. Susiana, I. germanica, I. Gracchus, with yellow upper segments, rest of flower white, striped purple; Campanulas, Poppies, &c. Messrs. Barr & Son, King Street, Covent Garden, had a smaller but useful collection, including fine collections of Ixias and Sparaxis of the leading varieties.

The collection of cut Verbenas which Mr. W. H. Stacey brought from Dunmow, was greatly admired, for the bunches of trusses of bloom were wonderfully fine. Fairy Queen, French-white, with a slight white centre, and round it a broad irregular band of satiny-rose, pip large, well formed, and stout; and Distinction, a very fine striped variety, were considered to be the best. The following varieties were in the finest condition:—Hamlet, crimson, very fine; Othello, shaded crimson: Purity, pure white, the *beau idéal* of what a white Verbena should be; Lilacina, pale lilac, very fine; and Ruby, rich ruby-crimson. If such fine trusses of flower can be produced on plants of Verbenas under glass, then their more extended culture in this way should be enforced. One thing is certain, Mr. Stacey is determined that the

Verbena shall not suffer for lack of some one to present it in a very attractive form.

#### MISCELLANEOUS GROUPS.

A charming bank of plants was arranged by Messrs. Hawkins & Bennett, Lily Nursery, Twickenham, and commanded general admiration. At the back was a line of tall-growing pink Ivy-leaved Pelargoniums; some very fine plants of Adiantum cuneatum were embedded in white and scarlet zonal Pelargoniums, and edged with a line of the common Selaginella; at each end of the bank was a diamond, composed of bunches of scarlet, white, pink, and salmon zonal Pelargoniums. Mr. J. Wiggins, gr. to W. Clay, Esq., Kingston-on-Thames, had a collection of seedling show and decorative Pelargoniums—a very good lot, the best being Vanity, white, with slight carmine spots, large, and free; Titania, white, dark top, petals margined with deep lilac and white; Ruby, bright salmon-carmine, a good showy variety; and Rose Queen, rich rose-pink lower petals, dark top petals, margined with fiery carmine—a good form. From the gardens of the Royal Horticultural Society came a large collection of Fuchsias, of which the Floral Committee will have to take account during the summer.

#### FIRST-CLASS CERTIFICATES.

To Messrs. J. Veitch & Sons, for Lælia Canhami, Rhododendron Manglessii, and Gloxinia Marquis of Abergavenny.

To Mr. W. Bull, for Bilbergia nobilis.

To Messrs. Paul & Son, The Old Nurseries, Cheshunt, for Saxifraga latifolia superba.

To Messrs. F. Sander & Co., for Aërides Ballantynei.

To Messrs. J. Laing & Co., for Begonia Marquis of Stafford, Globosa, Princess Victoria, and Lillie.

To Mr. J. Wiggins, for Pelargonium Variety.

To Mr. T. Ware, for Iris germanica, Gracchus.

To Mr. Gordon, for Tree Pæony Snowball.

To Mr. Stacey, for Verbenas Fairy Queen and Distinction.

To Messrs. Kelway & Son, for Pyrethrum Melton.

To Mr. S. Barlow, for Tulips Modest, Samuel Barlow, Mr. J. Bright, Princess of Wales, Orion, and W. Wilson.

#### Fruit Committee.

Present: Harry Veitch, Esq., in the chair; and Messrs. Lyon, Willard, Lane, J. Lee, A. Sutton, W. Paul, Woodbridge, Blackmore, Haywood, G. Paul, G. Bunyard, Webb, and Miles.

Mr. Herrin, gr., Chalfont Park, showed La Favorite Melon; and Mr. Jas. Corbett, Fawley Park, Melon Royal Regatta. Mr. Gilbert showed Broccoli Gilbert's Queen, large and firm, and seemingly well protected from the weather.

#### FIRST-CLASS FRUIT AND VEGETABLE CERTIFICATES.

To Mr. Gilbert, for Gilbert's Queen Broccoli.

To Mr. Herrin, for La Favorite Melon.

#### WALTHAM ABBEY HORTICULTURAL: June 4 and 5.

THE show, which was held on the above days at this quaint old Essex town, was a decided success, both as regarded the extent of the display and the great merit of the productions forthcoming. In the plant classes this was very noticeable, some of the specimens being unsurpassed by any that have been exhibited in or about London for some time.

#### OPEN CLASSES.

For twelve stove and greenhouse plants in bloom Mr. Donald, gr. to — Barclay, Esq., Leyton, took a decided lead, with large and beautifully flowered examples, the best of which were Darwinia tulipifera, profusely bloomed, the flowers much finer coloured than usual; D. Hooker, equally well done; Statiche profusa, Aphelexis macrantha purpurea, Ixora Fraseri, and Borenia pinnata, all in fine order and quite fresh. Mr. James, Castle Nursery, Norwood, who was 2d, also had a well-managed group.

With twelve fine-foliage plants Mr. Donald and Mr. Rann, gr. to J. Warren, Esq., Handcross Park, Crawley, had a close run. Mr. Donald taking 1st, with a big well-grown collection, the most noticeable amongst which were Croton angustifolius, C. pictus, Cycas revoluta, Latania borbonica, and Chamaerops humilis, which, in the size and condition it was here brought out, is one of the most desirable Palms in cultivation. Mr. Rann's best plants were Kentia Belmoreana, Croton Queen Victoria, C. multicolor, and Cycas circinalis.

With ten Ferns Mr. Rann was well in front, staging, along with others, good examples of Gleichenia repens, G. Mendelii, Davallia Mooreana, some 8 feet in diameter, and Lomaria Vroomii. Mr. Donald, who was 2d, also had a clean fresh group.

For six Crotons the 1st prize went to Mr. Rann, who staged medium-sized examples; the same exhibitor being likewise 1st for six Azaleas.

In the nurserymen's class for the best group of new or rare plants Mr. B. S. Williams, Victoria Nursery, had 1st honours for a beautiful collection; 2d, Mr. James.

#### GROUPS OF PLANTS.

For the best and finest group of plants Messrs. Paul & Son, Cheshunt, were 1st, with a large and varied collection, consisting of Rhododendrons, bushes and standards; hardy Azaleas, Roses in pots, in the form of bushes and standards, flowered in the way usual with

the Cheshunt plants; associated with these were hardy herbaceous and alpine plants, making altogether an imposing display. Messrs. J. & J. Hayes, Edmonton, were 2d, with a large and beautifully flowered group, comprising Pelargoniums, most of the leading market kinds; Cinerarias and herbaceous Calceolarias, for both of which showy species of plants Messrs. Hayes have done so much to bring them up to the present high standard, alike remarkable for distinct colours and profuse habit of bloom. Mr. B. S. Williams was 3d, having flowering and fine-leaved plants, Orchids, Nepenthes, and Sarracenias. Mr. Rumsey, Waltham Cross, had an extra prize in the same class for a varied and well selected group—hardy shrubs, flowering and others; greenhouse plants, Ferns, and a beautiful lot of cut Roses. Messrs. Cutbush, Highgate, likewise received an extra prize in this class for a miscellaneous collection of stove and greenhouse flowering and fine-leaved plants.

#### HERBACEOUS PLANTS.

Twenty-five herbaceous plants.—1st, Messrs. Paul & Son, who had a beautiful lot; 2d, Mr. Gilks.

Six Pelargoniums.—1st, Messrs. Hayes, showing medium-sized, beautifully flowered examples.

For the best group of market plants grown in 6-inch pots Mr. J. Rochford, Cheshunt, took 1st.

#### AMATEURS' CLASSES.

In the amateurs' division, with five stove and greenhouse plants, Mr. Keers, gr. to F. Carter, Esq., had 1st, his best plants being a beautifully flowered specimen of Clerodendron Balfourianum and Trachelospermum jasminoides.

For five ornamental plants.—1st, Mr. Turk, gr. to W. Melles, Esq., who, in a nicely managed group, had good specimens of Phoenix pumila and Cocos Weddelliana.

With ten Orchids Mr. Gilks, gr. to A. Borthwick, Esq., Walthamstow, was 1st, staging a meritorious group, the best of which were a very handsome form of Lycaste Skinneri bearing a score of flowers; it is one of the most distinct varieties we have seen, the lip is milk-white, with a narrow well-defined border of deep crimson; Cymbidium Lowii with very long spikes, C. eburneum, Lælia purpurata, Oncidium macranthum, and a fine Odontoglossum Hallii. Five Orchids.—1st, Mr. Gilks, with nicely flowered plants, the most noteworthy being a well-bloomed Masdevallia Lindenii and Lælia purpurata.

For ten Caladiums.—Here Mr. Turk had 1st honours, staging a good selection of these effective plants thoroughly well grown, the best being Mons. A. Hardy; Candidum, Luddemannii, Pyrrhus, Mithridate, Comtesse de Maille, Artémise and Herold; 2d, Mr. Riding, gr. to R. Edwards, Esq.

For twelve Roses in pots.—1st, Mr. Rann.

#### SCOTTISH HORTICULTURAL ASSOCIATION.

THE monthly meeting of this Association was held on Tuesday, June 2, at 5, St. Andrew Square, Edinburgh. One of the Vice-Presidents, Mr. R. Lindsay, Curator of the Royal Botanic Garden, occupied the chair. Between forty and fifty gentlemen were present. A number of rare and beautiful flowers and plants were exhibited by various members of the Association. There was a very beautiful show of Pansies from Messrs. Dicksons & Co., one of which, named Mrs. J. Fleming, received the award of a First-class Certificate from the Flower Committee.

A paper was read by Mr. Alexander Hutton, F.L.S., Arbroath, on "The Lily and its Allies," in which the characteristics of the botanical order Liliaceæ were fully explained. The Amaryllis family was afterwards referred to as one of the nearest allies. The history, geographical distribution, and economic uses of many of the Lilies were given, special reference being made to the florists of Palestine and Japan, which are so rich in that family of plants. The part played by insects in the fertilisation of the Lily family was referred to, several curious instances being mentioned, among which the Yucca was named as being associated with a small moth (Protonuba yuccasella), the existence of the one being entirely dependent on the other. Concerning the Hyacinth and Tulip, reference was made to their commercial importance, and to the extensive trade carried on between Holland and Great Britain in these bulbs.

In connection with the Amaryllis group, the history of the American Aloe was sketched, and it was pointed out that this has no connection with the Aloe of the Cape of Good Hope, as the latter belongs to the Lily family, the former being an Amaryllid. In dealing with the Narcissus, an account of that interesting plant was given, dating its history back from the classic days of Greece and Rome. The arrangement and nomenclature of that popular flower had been much simplified by Mr. Baker, of Kew Gardens, and also by the Daffodil Conference of last year.

Dr. Sidney, 20, Heriot Row, exhibited a seedling Chestnut, grown in a glass vessel, and a number of ornamental vases, in which were growing Beet and Carrot from shed tops; these were placed in water and covered with moss, and were highly ornamental, and as they were grown in a room they could be grown by any one. It was explained by Mr. Lindsay that some of them were grown by patients of Dr. Sidney.

From Messrs. T. Methven & Son came a spike of Dra cœna indivisa; Mr. Howie, Inch House Garden, a collection of beautiful seedling Begonias; Mr. Air, 3, Wilfred Terrace, Narcissus poeticus with twin flowers; Mr. Chapman, Easter Duddingston Lodge, a collection of hardy flowers; Mr. Pealing, florist, Logie Green, two bunches of Lily of the Valley—one of the ordinary form, the other with the interior of the flower beautifully spotted with pink.



## MASSACHUSETTS HORTICULTURAL.

BOSTON : May 9.—At the free weekly exhibition, held in the Society's large hall, there was a large and good display of Pelargoniums, Azaleas, Orchids, wild flowers, &c. David Allan, gr. to R. M. Pratt, staged the following Orchids, viz., Cattleya Mossie, C. gigas imperialis, Oncidium sphecelatum, and Dendrobium japonicum var. robustum, and cut flowers of Lælia purpurata, L. majalis, Cattleya Mendellii, C. labiata Gaskelliana, Dendrobium devonianum, and Cypripedium niveum. From the above contributor came a large collection of Auriculas. E. Sheppard exhibited Lælia purpurata and a fine plant of Dendrobium thysiflorum, also a large collection of Pelargoniums. Mrs. P. D. Richards, West Medford, Mass., showed an interesting collection of wild flowers. C. M. Hovey showed some very fine Azaleas, and was awarded 1st and 2d prizes for single plants with Madame Miellet and Cheloni. Several contributors showed large displays of cut flowers. In the vegetable department there was a good display of forced Cucumbers, Mushrooms, Tomatoes, &c. From Geo. Hill came a large dish of well-grown Sharpless Strawberries.

May 16.—At the exhibition to-day B. Moore exhibited three vases of Roses and large plants of H.P. Roses, and another plant in bloom at four months from seed. Edwin Fewkes showed Bougainvillea glabra and hybrid Primulas. Miss A. Kenrick contributed Magnolia Lenne, M. Soulangeana, and M. speciosa.

May 25.—Among the most interesting exhibits made to-day was a collection of flowers of various species of Apples from Northern Asia, exhibited by Jackson Dawson, gr., Arnold Arboretum, namely, *Pinus communis*, fl.-pl.; *P. toring*, and var. *P. baccata*, and the varieties *rosæ*, *præcox*, *cerasifera*, and two others; *P. malus spectabilis*, *P. prunifolia*, *P. floribunda*, and *P. coronaria*, fl.-pl. Mrs. P. D. Richards again made an excellent display of wild flowers not shown before this season; Mrs. F. B. Hayes, Rhododendron Madeni, R. nobile, R. Countess of Haddington, R. roseum, and R. Hookeri; also *Malus floribunda*, and a variety of *Violas*. *F. A. De Mar*.

## BATH AND WEST OF ENGLAND AGRICULTURAL : BRIGHTON MEETING.

THE classes open for competition in the horticultural department of the above Society's show were fairly attended, and the exhibits were good in quality. The prizes for a group of Orchids did not bring so many competitors as one might have expected, owing most probably to the Orchid show at South Kensington being held at the same time. The 1st prize, £15, was taken by Mr. Meachin, gr. to Captain Armstrong, Withead, Sussex, with some very nice well-grown plants, the best of which were *Aërides Fieldingii*, with three spikes; very good *Vanda tricolor*, *Vanda suavis*, good; two pretty *Cypripediums*, and several meritorious *Odontoglossums*; Mr. Martin, of Hurst, being 2d, with a very creditable lot, though smaller.

A cup or money, value £5, for the best collection of fruit, was taken by Mr. A. Waterman, gr. to H. A. Brassey, Esq., M.P., Preston Hall, Kent, with a very good collection; Messrs. T. Rivers & Son, Sawbridge-worth, Herts, being 2d, with a fine even lot.

In the class for the best two baskets of Strawberries, the 1st prize, £3, was taken by Mr. Vert, gr. to Lord Braybrooke, Audley End House, Saffron Walden; 2d, Mr. Waterman, gr. to H. A. Brassey, Esq., M.P.

Messrs. Smith & Son, Worcester, showed a fine collection of specimen Clematises, in which we noticed two new varieties, very fine, viz., Countess of Lovelace, and Venus Victrix; Enchantress was also good, the whole being remarkably well grown.

Messrs. J. Cheal & Sons, Lowfield Nurseries, Crawley, Sussex, had a fine group of hardy Rhododendrons, the best of which were Lord Wolsley, The Bride (pure white, new), Charles Noble, Ellen Waterer, Purity, John Waterer, and Mrs. W. Agnew.

The same firm showed a good group of hardy Azaleas; also a collection of cut blooms of hardy perennials, and a collection of cordon fruit trees, for which this firm has long been famous, consisting of Apples, Pears, Plums, and Cherries. Mr. Joseph Cheal gave a short and interesting lecture on their growth and treatment.

Mr. Balchin, nurseryman, of Brighton and Hassock's Gate, showed a very fine miscellaneous group, arranged with great taste, the most prominent plants of which were Yuccas, Palms, Dracænas, Ferns, Ericas, Orchids, a large plant of *Statice imbricata*, well flowered, and a grand plant of *Platynerium alcinore*, also the pretty blue *Leschenaultia biloba major*, which should be grown by every lover of plants.

S. Warren, Esq., of Handcross Park, Crawley, showed a fine collection of stove and greenhouse plants, consisting of Crotons, Palms, Azæas, Roses, and other plants, all well grown and perfect.

Messrs. Laing & Co., Forest Hill, sent a collection of Begonias (double and single), shown in their usual form.

Mr. Miller, of Worthing, exhibited two boxes of double and single Pyrethrums, which were very much admired.

CORYDALIS BIGELOWI.—Mr. Burbidge sends us flowers of this *Corydalis*, one of the finest of its class, some 18 to 24 inches high with much cut foliage, and leafy racemes of purplish violet-spurred flowers, each about 1 inch long.

## CLOSE-FERTILISATION OF ORCHIDS.

APROPOS to the subject of the Fertilisation of Orchids, perhaps it would not be amiss to allude to some discoveries which tend to show that intercrossing is not so advantageous as has been supposed, and that cleistogamy (close-fertilisation) sometimes occurs in this "stronghold" of cross-fertilisation.

A paper read at the Linnæan Society last December on "Contrivances for Insuring Self-fertilisation in some Tropical Orchids," by Mr. H. O. Forbes, seems worthy of some more general notice. As the order Orchidaceæ is looked upon by some as a sort of stronghold of the theory that adaptations to insect agency are for the purpose of securing some sort of advantage to the species by intercrossing. The author, however, after calling attention to the general fact, as observed by himself in Portugal and in the tropics, that Orchids especially adapted for insect agency are to an enormous extent utterly barren (not 2 per cent. of the flowers in one case being fertilised), described several species which exhibit remarkable adaptations for securing close-fertilisation, and in so doing more or less prevent intercrossing, and yet produce abundance of seed.

The appearance of his paper would seem to afford an opportunity for reopening this subject, and I propose making some observations upon it.

Mr. Darwin was "much surprised" at the close-fertilisation of the Bee Ophrys, and remarks in his work, *The Fertilisation of Orchids*, that "Nature, if I may use the expression, seeing that the Fly and Spider Ophrys were imperfectly fertilised and produced few seed-capsules . . . changed her place and effected complete and perpetual self-fertilisation in order that more seeds might be produced." He observed that the contrivances are still present which are utilised in other species, e.g., viscid disc, depression of caudicle, &c., and thereby inferred that they are "assuredly adapted to give an occasional cross with another individual; and the safest conclusion, as it seems to me, is, that under certain unknown circumstances, and perhaps at very long intervals of time, one individual of the Bee Ophrys is crossed by another."

This sentence and another—that "Nature abhors self-fertilisation"—I believe to have given rise to nearly as widespread erroneous an apprehension as that "Nature abhors a vacuum." I know nothing in the nature of plants, at least, to justify this *à priori* assumption, and the large number of cleistogamous flowers now known to exist, including one described by Mr. Forbes in *Orchids*, as a silent protest against the notion. Mr. Darwin repeatedly spoke of the injuriousness of self-fertilisation in his work on *Cross and Self-fertilisation of Plants*, but as far as I know, he gave no experimental grounds for its justification. On the contrary, his own experiments with *Mimulus*, e.g., *Hero*, *Dianthus*, &c., went a long way to refute it. I combated this view in 1877, and have seen no reason to change my opinion since then; and the fresh discoveries of Mr. Forbes is a corroboration, as he was good enough to observe of my conclusions. As the latter, however, have been misstated, and I think misunderstood, I should like to restate them, as they have now received a remarkable confirmation where, perhaps, many would have least expected to find it.

When we speak of a "benefit" or "injuriousness" accruing to plants, we ought to attach very definite meanings to those words. Now, as far as I can make out from Mr. Darwin's use of the latter term, he meant that close-fertilisation brought about some sort of physical weakness, so that plants perpetually so fertilised would die out unless re-crossed from time to time. I repeat, this is an *à priori* assumption, which has never been verified experimentally. On the other hand, as to the word "benefit," I do not see how we can recognise more than two "ends" in plant life, viz., self-preservation, and the production of numerous healthy offspring; and the question is, Which answers best—intercrossing or self-fertilisation? I must refer any one interested in this question to the details given in my paper on "Self-Fertilisation" (*Trans. Linn. Soc.*, vol. i., p. 17, 1879), where it is shown—keeping these two ends solely in view—that self-fertilising plants are incomparably the better off. What "good," then, does intercrossing? Avoiding the word "good," we may get a more satisfactory answer to what are the effects or results of intercrossing. Comparing plants with flowers adapted for intercrossing with allied species adapted for self-fertilisation, it will be found that the

former are (speaking generally) larger plants, are more often perennials, and have "finer" foliage, and more "handsome" flowers; but "finer" and "handsome" are merely subjective impressions, and are of no account to the plant itself, hence, to the horticulturist, the value of intercrossing is untold; but to aid in the struggle for life, the dependence upon insects is as much a source of embarrassment as a want of self-reliance is to a man who desires to get on in his struggle for life. Of two plants, both structurally adapted to insects, but one more favoured by them than the other, as a coloured variety over a white one, then, of course, the latter, if it cannot propagate vegetatively, stands a fair chance of dying out; but if it can acquire self-fertilising properties, as so many have done—and I have shown that cleistogamous flowers are adaptations from ancestral insect-visited flowers—then they, so far from being injured thereby, acquire an ascendancy over their still visited allies which is perfectly astounding—as Mr. Darwin proved in the case of *Hero Mimulus* and *Dianthus*. Thus it is, as Mr. Forbes has now shown, with Orchids. He examined them in many situations—dense forests and in open ground, in sun and in deep shade, and "invariably found that a very small proportion produced fruit."

The first self-fertilising form which he described is one of *Phaius Blumei*, of 150 flowers, of which there was not one that was not self-fertilised. There are two forms—one in which the rostellum is well developed, but the pollinia, bathed in a profuse amount of fluid secreted by the stigma, "avalanches down," obliterates the intervening rostellum, and emits the pollen tubes over its edges. In a second form the rostellum is rudimentary, the anther is at first terminal and erect; it then rotates forward through 90°, when it occupies the normal position, as in the previous form. It then continues to rotate through 70° more till it reaches the fluid emitted by the stigma. This takes place in the bud, so that before the flower opens the pollinia are immovable. Similarly *Spathoglottis plicata* is completely fertilised while in bud, yet the flower opens afterwards. Here, then, we have two cases where cleistogamy is not yet reached, though the processes approximate that condition. In *Arundina speciosa* the rotation of the pollinia continues till they are actually thrust down the throat-like stigma, which, as the author says, "swallows them." Occasionally they fail to rotate, and then the flowers remain unfertilised. *Eria* (?) *flavescens* behaves very much like *Ophrys apifera*, only the labellum and sepals close over the stigma and shut in the pollinia fixed to the latter. A very nearly related species is not self-fertilised, and rarely sets seed. Lastly, *Plocoglottis* (?) is absolutely cleistogamous.

In these cases of Orchids, as in many other plants that could be added, all degrees of transition may be found between flowers apparently well adapted for intercrossing, yet quite as well able to fertilise themselves, and cleistogamous flowers, many exhibiting adaptations for both purposes. If, however, self-fertilisation be specially resorted to, then the adaptations for intercrossing may or may not be retained as well. Mr. Darwin's inference from their presence (as mentioned above in the case of the Bee Ophrys) is, therefore, a false assumption, at once negated by cases where the adaptations for intercrossing are entirely lost, as is the case of a plant bearing nothing but cleistogamous flowers.

I would here add that I find our British *Neottia Nidus-avis* is self-fertilised by the powdery pollinia falling on the edges of the stigma into which the pollen tubes penetrate. Also *Chysis aurea*, which was noticed by Orchid growers to fade within a few hours after expansion, and therefore rejected by them, is self-fertilising also, the pollinia readily falling into the stigma. *Geo. Henslow*.

## CACTACEÆ AT NEW ORLEANS.

POSSIBLY the display is the most extensive ever gotten together at one exhibition. One exhibitor, Mr. J. H. Erkener, of San Antonio, Texas, claims to have on exhibition 20,000 specimens, obtained from Mexico at great personal labour and expense. The entire collection taken together is extremely interesting and instructing. The greater portion of the exhibit is made by Mexico. There are specimens from the size of an Acorn to plants of *Cereus giganteus*, 21 feet in height and 3½ feet in circumference.

*Cereus*, about twenty-four varieties, some of which are as follows:—

<i>C. longisetis</i>	<i>C. dubius</i>	<i>C. procumbens</i>
<i>C. chloranthus</i>	<i>C. ctenoides</i>	<i>C. polyacanthus</i> , &c.
<i>C. schottii</i>		



## Echinocactus, about eighteen varieties :—

E. Emoryi E. brevihamatus E. Le Contei  
E. longehamatus E. texensis E. Wislizeni  
E. heliophorus, 4 feet high and 9 feet in circumference, &c.

## Mamillaria, about thirty varieties :—

M. echinus M. dasyacantha M. fissurata  
M. Grahamii M. gummifera M. applanata

## Opuntia, about twenty varieties :—

O. Bigelovii O. Engelmanni O. arborescens  
O. frutescens O. rufida O. Schottii, &c.  
O. Wrightii

Agave mexicana, specimens 12 feet across; the variety that produces the Mexican beverage :—

A. geminiflora A. revoluta A. densiflora

J. E. W., in "Gardeners' Monthly."

## MAHWA FLOWERS.

THE succulent corollas of *Bassia latifolia*, and of *B. longifolia* and *B. butyracea*, Sapotaceous trees, preserved by drying, have long been used as an article of food of the poorer classes, especially of the wild tribes, inhabiting the forests of Central India. The tree is not unlike our Oak in form, size, and colouring of the foliage; it grows from 30 to 40 feet high, and flowers in the months of March and April. The flowers are sweet, containing the remarkable amount of 63 per cent. of sugar, but, owing to a very strong smell, they are not relished except by those accustomed to their use. A first-class tree often yields more than 20 cwt. of flowers. An ardent spirit (3 galls. from 1 cwt.) is manufactured from them, which is largely consumed by those classes of the people who have no caste objection to the use of spirituous liquors. Colonel Drury, in his *Useful Plants of India*, states that the Mahwa spirit, if carefully distilled, resembles good Irish whiskey in taste. The flowers of an allied species, *B. longifolia*, growing in Southern India, are also eaten as food after being roasted, as well as the skins of the fruit boiled to the consistence of jelly.

But these flowers have recently developed into a considerable article of commerce, their saccharine value being appreciated in Europe. The exports from India in the year ending March, 1884, reached 269,329 cwt., valued at £67,066. A sample of the flowers as imported shows a soft sticky mass, having much the appearance of Raisins of a poor quality, such as are packed in casks. When soaked in water the individual corollas swell out and assume a flattened globular shape, about as large as an average Cranberry, and are found to consist of a very fleshy cup, within which are a great number of anthers. From a scientific point of view the Mahwa is a most interesting product, for it is rarely that we find the flower, the corolla of a plant, serving any other purpose than as a temporary protection for the reproductive organs within. For it to secrete more than half its weight of sugar, and thus become an article of economic value, and even of commerce, is most remarkable. The flowers are also good for feeding cattle; they will keep for a long time. P. L. S.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, JUNE 10, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRICAL DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.	WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 18 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 50 years.	Dew Point.		
June	In.	In.	°	°	°	°	°	°	S.S.W.	In.
4	29.71	-0.09	85.8	54.0	32.8	69.8	+12.7	49.6	53	0.00
5	29.69	-0.11	82.5	55.5	27.0	66.2	+8.9	56.1	70	0.00
6	29.83	+0.03	72.3	57.5	14.8	57.9	+4.0	56.0	94	0.22
7	29.68	-0.12	66.0	55.5	10.5	60.3	+2.0	55.6	85	0.00
8	29.55	-0.25	68.5	57.0	11.5	59.5	+1.8	58.4	66	0.79
9	29.84	+0.04	64.3	50.4	13.9	53.3	-4.6	59.3	88	0.19
10	30.15	+0.36	65.5	46.5	19.0	52.4	-5.7	46.9	80	0.00
Mean	29.78	+0.02	73.7	53.8	19.9	59.9	+2.3	53.3	80	1.20

June 4.—Very fine day and night, lightning about 11 P.M.  
— 5.—Very fine day and night.  
— 6.—Rain from early morning till noon, showery afterwards.  
— 7.—Fine day and night.  
— 8.—Rain from early morning, and nearly all day.  
— 9.—Rain from early morning till noon, finer afterwards, sun shining slightly about 5 P.M.  
— 10.—Fine day and night.

LONDON : Atmospheric Pressure.—During the week ending June 6, the reading of the barometer at the level of the sea increased from 30.04 inches at the beginning of the week to 30.27 inches by 9 A.M., decreased to 30.26 inches by 1 P.M. on the 1st, increased to 30.31 inches by 9 A.M. on the 2d, decreased to 29.82 inches by 9 A.M. on the 5th, increased to 30.02 inches by 1 P.M. on the 6th, and was 30 inches by the end of the week.

The highest reading of the barometer for the week was 30.06 inches, being 0.07 inch higher than last week, and 0.08 inch higher than the average of the week.

Temperature.—The highest temperature in the shade in the week was 86°.8 on June 4; the highest on May 31 was 67°.3. The mean of the seven high day temperatures was 76°.9.

The lowest temperature was 45°.8, on June 2; on the 6th the lowest temperature was 57°.5. The mean of the seven low night temperatures was 51°.4.

The greatest range of temperature in one day was 33°, on June 2; the smallest was 14°.8, on the 6th. The mean of the seven daily ranges was 25°.5.

The mean temperatures were—on May 31, 56°.7; on June 1, 56°; on the 2d, 61°; on the 3d, 64°.1; on the 4th, 69°.8; on the 5th, 66°.2, and on the 6th, 57°.9; and these were all above their averages (excepting the 1st, which was 0°.5 below) by 0°.4, 5°.3, 7°.2, 12°.7, 8°.9, and 0°.4 respectively.

The mean temperature of the week was 61°.7, being 5°.9 higher than last week, and 4°.9 above the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 147°, on the 3d. The mean of the seven readings was 132°.3.

Rain.—Rain fell on the 6th, to the amount of 0.22 inch.

ENGLAND : Temperature.—During the week ending June 6, the highest temperatures were 86°.8 at Blackheath, 86°.7 at Cambridge, 84° at Leeds; the highest at Plymouth was 69°.8, at Truro 70°, at Brighton 70°.5. The general mean was 78°.8.

The lowest temperatures were 39°.2 at Bolton, 40° at Hull, 40°.7 at Wolverhampton; the lowest at Newcastle was 48°, at Brighton 47°, at Liverpool 46°.4. The general mean was 43°.8.

The greatest ranges were 44°.1, at Cambridge, 41°.4 at Wolverhampton, 41° at Blackheath and Hull. The smallest ranges were 23°.5 at Brighton, 23°.8 at Plymouth, 27° at Newcastle. The general mean was 35°.

The mean of the seven high day temperatures was highest at Blackheath, 76°.9, at Cambridge 73°.3, at Sheffield 72°.6; and was lowest at Plymouth, 64°.4, at Liverpool 65°.5, at Truro and Brighton 67°. The general mean was 69°.4.

The mean of the seven low night temperatures was highest at Brighton, 52°, at Blackheath 51°.4, at Plymouth 51°.1; and was lowest at Bolton, 45°.1, at Wolverhampton 46°.6, and at Hull 47°.3. The general mean was 49°.4.

The mean daily range was greatest at Blackheath, 25°.5, at Cambridge 25°.3, at Wolverhampton 23°.3; and was least at Plymouth, 13°.3, at Brighton and Liverpool 15°. The general mean was 20°.

The mean temperature was greatest at Blackheath, 61°.7, at Leeds 59°.8, at Sheffield 59°.6; and was lowest at Bolton, 54°.2, at Liverpool 56°.2, at Bristol 56°.6. The general mean was 57°.7.

Rain.—The largest falls were 1.19 inch at Brighton, 0.69 inch at Wolverhampton, 0.68 inch at Bolton; the smallest falls were 0.14 inch at Plymouth, 0.17 inch at Nottingham, 0.19 inch at Bristol. The general mean fall was 0.39 inch.

SCOTLAND : Temperature.—During the week ending June 6, the highest temperature was 68°.6, at Aberdeen; at Greenock the highest temperature was 64°.2. The general mean was 66°.8.

The lowest temperature in the week was 43°.3, at Dundee; at Leith the lowest temperature was 45°.6. The general mean was 44°.4.

The mean temperature was highest at Dundee,

56°.8; and lowest at Greenock, 54°.3. The general mean was 55°.5.

Rain.—The largest fall was 0.78 inch, at Greenock; the smallest fall was 0.02 inch, at Edinburgh and Paisley. The general mean fall was 0.21 inch. No rain fell at Dundee.

JAMES GLAISHER F.R.S.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, June 8, 1885, issued by the Meteorological Office, 116, Victoria Street, London, S.W. :—The weather was at first fine in England, and unsettled in Ireland and Scotland. After the 5th, however, these conditions were entirely reversed, heavy rain falling at some of the English stations on the 6th, and still heavier amounts over our midland and south-eastern counties on the 8th. During the latter half of the week fog was general in the Channel, and thunderstorms occurred in many parts of England.

The temperature was a little below the mean in "Scotland, N.," "Scotland, W.," and "Ireland, S.," and about equal to it in "England, N.W.," and "Ireland, W.," but above the normal elsewhere, the excess in "England, E.," and "England, S.," being as much as 4°. The highest maxima were observed as a rule on the 4th, when the thermometer exceeded 80° in many parts of England. The lowest minima were observed over England on the 2d, but over Ireland and Scotland they occurred mostly on the 6th, when the thermometer fell to 33° at Mackree Castle. The range of temperature for the week was unusually large; in "England, E.," it amounted to 45°, and in the Midland Counties to 48°.

The Rainfall was less than the mean in "Scotland, E.," "Scotland, W.," "Ireland, N.," and the Channel Islands, but considerably in excess over the eastern, southern, and central parts of England.

Bright Sunshine was more prevalent than during the preceding week, the percentages ranging from 24 in "Scotland, W.," to 50 in "England, E.," and 56 in the Channel Islands.

Depressions observed.—At the commencement of the period an anti-cyclone lay over the south of England, while large depressions skirted our extreme north-west coasts in a north-easterly direction; the wind was therefore light from west in the east and south, but fresh from south-west and south in the west and north. On the 3d the anti-cyclone moved away to Central Europe, the depressions advanced nearer to our islands, and the wind backed to south-west and south generally during the night of the 5th; however, an area of relatively high pressure was formed over our more central districts, while a small hollow was developed over the south of England. The new high-pressure system eventually moved away to the eastward, and on the 7th a low-pressure area with two minima advanced over our southern districts, causing the wind to shift to the eastward in the North. One of the minima broke up, while the other passed over the south-east of England on the 8th, and in its rear the wind shifted to north-east generally.

## Answers to Correspondents.

ABUTILON : W. R. Curious, but of no value at present. If you persevere you may get something worth having.

BOOKS : A. R. Your note has been handed to our reviewer, who, in reply, sends a large number of additional errors and oversights. Whether they occur in the original we cannot say.

CORRIGENDA : MANCHESTER WHITSUN SHOW.—In our report of this meeting Mr. Broome is credited with obtaining the 1st prize for six specimen pot Roses, and 2d prize for twelve Tea Roses, when it should have been Mr. James Brown, the similarity of the names being accountable for the error.

CUCUMBER : TO PRESERVE A VARIETY OF CUCUMBER : C. G. B. Make layers of some young shoots by inserting them in pots, or in the bed, and then when they are rooted cut them off from the parent plant, and grow them on; or take cuttings 7 or 8 inches long, and treat as you would any other cutting requiring warmth to strike it.

DOUBLE BEGONIA BLOOM : Elcombe & Sons. Quite as good, as regards the bloom itself, as any of the colour which we have seen at late exhibitions.

HYACINTH : E. J. Farman. The curiosity has been engraved, and will appear in the *Gardeners' Chronicle* shortly.

INJURED SHOW CHRYSANTHEMUMS : H. H. Bourne-mouth. Under the circumstances, and at this date,



you cannot do better than to encourage a new leader, and try by disbudbing, later on, to throw the whole strength of the plant into the best-looking terminal bloom.

**MALFORMED FOXGLOVE: A. G. B.** A common occurrence in this plant, and one often figured in these columns, and due to the union of several of the terminal flowers into one large cup-shaped bloom.

**MARKET GARDENING: Jas. Burnett, Kitchen and Market Garden,** published at the Garden office, 37, Southampton Street, Strand; and *Profitable Fruit Farming*, by Chas. Whitehead, F.L.S., F.G.S. (Longman, Green & Co., London).

**MUSHROOMS: Daniels Brothers.** The species appears, from the putrid specimens that arrived, to be the edible one, but which have become very light from the bed having become exhausted—by cropping heavily, or from other cause—of the food of the Mushroom, aided probably by too high a temperature in the place where they grew.

**NAME OF SECRETARY OF SUTTON ROSE SOCIETY: A. J. S.** Mr. Ernest Wilkins, Lyndhurst, Sutton, Surrey.

**NAMES OF PLANTS: C. & S. K.** *Pyrus arbutifolia*.—*H. M. H.* 1, *Orchis bifolia*; 2, *O. mascula*; 3, *O. maculata*; 4, *O. ustulata*.—*A. P.* *Jasminum fruticosum*; *Hesperis matronalis*.—*G. A.* *Callistemon rigidus*.—*Alex. Forbes.* *Kerria (Corchorus) japonica*.—*J. May.* *Ceanothus azureus* var.—*E. V. B.* *Pan-cratiun maritimum*.—*J. O. C.* 1, *Ceanothus azureus*; 2, *Syringa Emodi*; 3, *Spirea*, unknown; 4, *Asphodelus luteus*; 5, *Ranunculus acemifolius*; 6, *Anthericum liliago*.—*C. D. & Sons.* *Pyrus crenata*.—*Hortus.* *Brassia verrucosa*; *Cattleya Mossiae*, a bad variety; the mottling is perhaps caused by damp.—*J. W.* *Paulownia imperialis*.—*T. D.* *Hyoscyamus niger* (large leaf), *Anemone rivularis*, *Oxalis rosea*.—*E. Jenkins.* *Leptospermum scoparium*.—*W. Kettlewell.* *Ribes lacustre*, *Primula cortusoides* var. *alba*.—*S. W. W.* *Lipidium Smithii*.

**NOTICE TO QUIT: J. J. M.** In cases of the kind you name, there are exceptions made to allow the nurseryman to clear his stock, but you had better consult a solicitor.

**POGONIA BARKLYANA.**—At p. 726, col. 4, an error, for which we are responsible, was committed in the last lines of the description of *Pogonia Barklyana*. Mayotte is the name of one of the Comoro Isles, and not of a collector, as would appear from the sentence as it stands.

**SPOTTED GOOSEBERRY LEAF: J. P. A.** See *Gardeners' Chronicle*, p. 77, vol. ii. for 1881, where an account of the disease is given, accompanied by figures.

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**DIED,** on June 3, at Portishead, *S. H. MUNRO*, widow of General William Munro, C.B., aged sixty-one.

## Markets.

### COVENT GARDEN, June 11.

PRICES have been well maintained, and trade is lively. English Pines are in demand, as also Strawberries, the supply of which is falling off. *James Webber, Wholesale Apple Market.*

#### FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, ½-sieve	1 6-5 0	Lemons, per case	15 0-35 0
— Nova Scotia and		Melons, each	2 6-4 0
Canadian, barrel	12 0-21 0	Peaches, per doz.	6 0-21 0
Figs, per dozen	6 0-..	Pine-apples, Eng. lb.	3 0-4 0
Gooseberries, ½-sieve	3 6-3 6	— St. Michael, each	2 6-8 0
Grapes, per lb.	2 0-5 0	Strawberries, per lb.	2 0-4 0

#### VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Articbokes, Globe,		Lettuces, Cab., doz.	1 0-..
per dozen	4 0-6 0	— English Cos, doz.	1 6-..
Asparagus, English,		Mint, green, bunch.	0 4-..
per bundle	1 6-6 0	Mushrooms, basket.	1 0-1 6
— French, bundle	1 0-5 0	Onions, per bushel.	6 0-..
Beans, Eng., per 100	2 0-..	— Spring, per bun.	0 6-..
Beet, per dozen	1 0-..	Parsley, per bunch.	0 4-..
Cabbages, per dozen	1 6-2 0	Peas, per quart.	2 0-..
Carrots, per bunch.	0 6-..	Potatoes, new, per lb.	0 3-..
Cauliflowers, Ego-		Radishes, per dozen	1 0-2 0
lish, spring, per doz.	4 0-9 0	Rhubarb, bundle	0 6-..
Celery, per bundle.	1 6-2 6	Small salad, per	
Cucumbers, each	0 6-1 0	pucet	0 4-..
Endive, per dozen	2 0-..	Spinach, per bushel	1 6-2 0
Garlic, per lb.	0 6-..	Tomatoes, per lb.	2 0-..
Herbs, per bunch	0 2-4 0	Turrips, new, bunch	1 0-..
Horse Radish, bua.	3 0-4 0		

**POTATOS.**—Old Potatoes are much lower; large supplies of new coming from Jersey, Cherbourg, and St. Malo.

#### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0-24 0	Foliage Plants, vari-	
Arbor-vitæ (golden),		ous, each	2 0-10 0
per dozen	6 0-18 0	Fuchsia, per dozen	6 0-12 0
— (common), dozen	6 0-12 0	Genista, 12 pots	6 0-9 0
Arum Lilies, dozen	8 0-12 0	Hydrangeas, dozen	12 0-18 0
Begonias, per dozen	6 0-12 0	Lilium auratum, per	
Bouvardia, dozen	9 0-18 0	dozen	30 0-40 0
Calceolarias, doz.	6 0-9 0	— longifolium, doz.	24 0-60 0
Cyperus, per dozen	4 0-12 0	Marguerite Daisy,	
Dracæna terminalis,		per dozen	8 0-15 0
per dozen	30 0-60 0	Musk, per dozen	3 0-4 0
— viridis, per doz.	12 0-24 0	Myrtles, per dozen	6 0-12 0
Erica, various, doz.	9 0-18 0	Palms in variety,	
Cavendish, doz	30 0-48 0	each	2 6-21 0
— ventricosa, doz.	18 0-60 0	Pelargoniums, per	
Euonym., in var., doz.	6 0-18 0	dozen	9 0-18 0
Evergreens, in var.,		— scarlet, dozen	3 0-9 0
per dozen	6 0-24 0	Rhodanthé, per doz.	6 0-8 0
Ficus elastica, each.	1 6-7 0	Spirea, per dozen	9 0-18 0
Ferns, in var., dozen	4 0-18 0		

#### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0-4 0	Marguerites, 12 bun.	3 0-6 0
Anemone, 12 bunch.	1 6-3 0	Myronette, 12 bun.	3 0-9 0
Arum Lilies, 12 blms.	3 0-6 0	Myositis, 12 bun.	2 0-4 0
Azalea, 12 sprays	0 6-1 0	Narcissus, various,	
Bouvardias, per bun.	1 0-1 6	12 bunches	2 0-6 0
Carnations, 12 blms.	1 0-2 0	Pelargoniums, per	
Cinerarias, per bun.	0 6-7 0	trusses	0 9-1 0
Eucharis, per dozen	4 0-6 0	— scarlet, 12 trusses	0 4-0 6
Gardenias, 12 blooms	1 6-4 0	Primula, double, bun.	0 9-1 0
Heliotropes, 12 sprs.	0 6-1 0	Rhodanthé, 12 bun.	6 0-9 0
Lapageria, white, 12		Roses (indoor), doz.	1 0-3 0
blooms	2 0-3 0	— coloured, dozen	2 0-4 0
— red, 12 blooms	1 0-2 0	— French, per doz.	0 4-0 6
Lily-of-Val., 12 bun.	3 0-9 0	Spirea, 12 bunches.	6 0-9 0
Lilium longiflorum,		Stephanotis, 12 spr.	2 6-4 0
12 blooms	6 0-8 0	Tropæolum, 12 bun.	1 0-1 6
Lilium candidum, 12		White Jasmine, bun.	0 6-1 0
blooms	1 6-2 0	Woodruffe, 12 bun.	3 0-6 0

#### SEEDS.

**LONDON: June 10.**—As usual at this period, an exceedingly quiet feeling now characterises the trade for farm seeds. Hardly any variety is for the moment actually wanted, and all speculation being dead, there is consequently just now nothing moving. A few small sowing orders for Mustard, Rape seed, and Tares come to hand, which are executed on former terms. The demand for bird seeds is very languid. Feeding Linsced is rather dearer. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

#### CORN.

At Mark Lane on Monday trade flagged, English Wheat being 1s. lower on the week, but good dry samples were not much pressed for sale. Foreign Wheats 6d. to 1s. lower, but there was rather more doing in Indian and Russian. Flour was dull, and 6d. per sack lower on the week; Barley was quoted 6d. down for the same term. Maize was 6d. easier. Oats were rather more saleable, but the common grades of Russian showed 3d. to 6d. decline from Monday se'night. Beans were unaltered, and white Peas 1s. cheaper.—On Wednesday there was but little inquiry for either Wheat or flour. Quotations remained nominally unaltered, but the tone was weak. For Oats steady rates were required. Maize was dull; Beans and Peas were without alteration; and Barley in only limited demand.—Average prices of corn for the week ending June 6:—Wheat, 34s. 6d.; Barley, 27s. 6d.; Oats, 22s. 3d. For the corresponding period last year:—Wheat, 37s.; Barley, 27s. 1d.; Oats, 21s. 4d.

#### CATTLE.

At Copenhagen Fields on Monday a good assortment of cattle met a dragging sale, at easier rates for buyers. Sheep were not a quick sale, but they upheld late value. Lambs cleared a little more readily, but not at better prices. Calves were very unsaleable, and hardly quotable, the few that sold being at wide and lower prices. Pigs were without material change in values. Quotations:—Beasts, 3s. 8d. to 4s. 6d., and 4s. 8d. to 5s.; calves, 3s. to 5s. 2d.; sheep, 4s. 4d. to 5s., and 5s. 4d. to 6s.; lambs, 6s. 4d. to 7s.; pigs, 4s. to 4s. 6d.—On Thursday quietness prevailed. Beasts met a moderate demand, but the tone was steady. Sheep and lambs, with a fair inquiry, realised full prices, the latter being a shade dearer than on Monday. Calves were neglected, and pigs quiet.

#### HAY.

Tuesday's Whitechapel Market report states that trade was very dull, with moderate supplies in consequence of the wet weather. Quotations:—Clover, prime, 80s. to 110s.; prime second cut, 85s. to 110s.; inferior, 60s. to 75s.; hay, prime, 70s. to 98s.; inferior, 40s. to 60s.; and straw 26s. to 36s. per load.—On Thursday there was a moderate supply, and trade was very dull at late rates.

#### POTATOS.

The Borough and Spitalfields Markets reports state that new Potatoes are coming in more freely. For old the trade is in a very narrow compass. Scotch Regents, 85s. to 110s.; Kent ditto, 80s. to 110s.; Magnum Bonums, 80s. to 110s. per ton; new Malta and Lisbon, 7s. to 9s.; Jersey Kidneys, 12s. to 14s. per cwt.—The imports into London last week consisted of 206 bags from Hamburg; 40 tons, 81 casks, 10 cases, 315 packages from Malta; 121 packages from Faro; and 3946 packages and 3419 half-boxes Lisbon.

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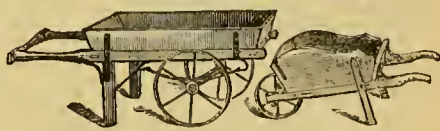
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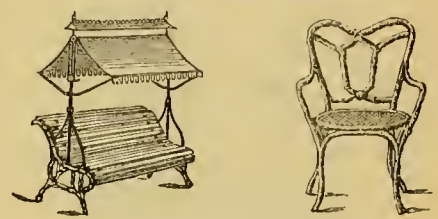
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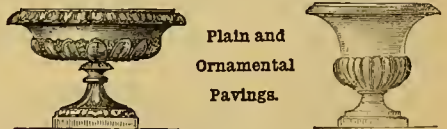
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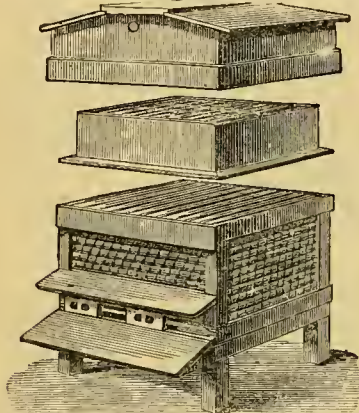
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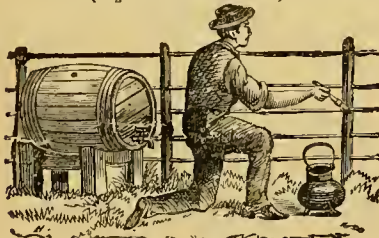
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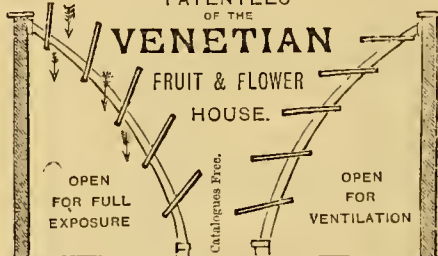
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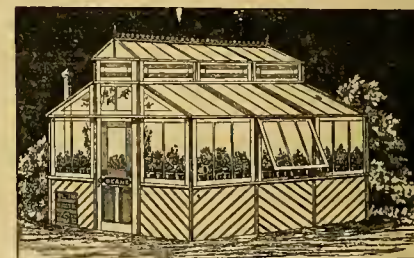
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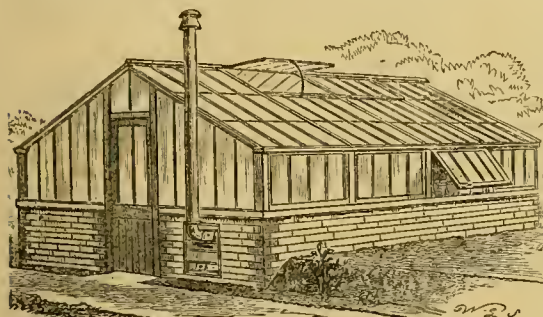
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6 in.	7 in.	8 in.	9 in.	10 in.	12 in.	14 in.	16 in.	18 in.	20 in.	24 in.	30 in.	36 in.	42 in.
30s.	40s.	50s.	60s.	70s.	90s.	110s.	130s.	150s.	170s.	190s.	£22	£26	£30

Sole Makers: JOHN CROWLEY & CO., Sheffield.



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GREENHOUSES, FORCING  
HOUSES, PITS, PLANT PRO-  
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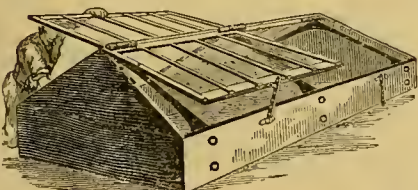
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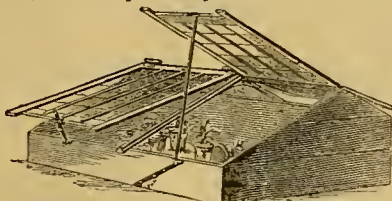


Invaluable in large gardens for protecting plants in open ground, or storing same when turned out of conservatory.

CASH PRICES, including Packing Cases.

6 feet long, 3 feet wide, including one pair of ends	£2	2	0
12 " " 3 " " " " " "	3	12	0
6 " " 4 " " " " "	2	14	6
12 " " 4 " " " " "	4	12	6
12 " " 5 " " " " "	6	0	6
12 " " 6 " " " " "	7	12	6

No. 74.—Three-quarter Span-roof Garden Frame.



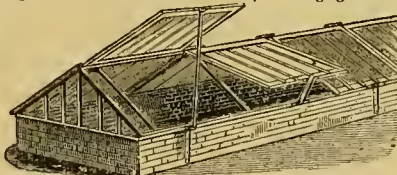
REDUCED CASH PRICES, Carriage Paid.

Size.	Length.	Width.	Price.	Packing Cases.
No. 2	8 feet	6 feet	£4 12 6	5s. 6d.
No. 3	12 "	6 "	6 0 0	6 0
No. 4	16 "	6 "	8 0 0	7 0

Height in front, 11 inches, back 22 inches, centre 32 inches.  
Lights made to turn over. Set-ops for ventilating.

No. 64.—Span-roof Plant Frame.

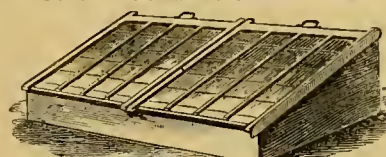
The Gardeners' favourite Frame, used for storing bedding plants in winter, and in summer for growing Melons, &c., arranged to build on brickwork as shown, including 2 glass ends



Length.	Width.	Price.	Packing Cases.
12 feet	5 feet	£5 5 0	4s. 6d.
18 "	5 "	7 5 6	6 0
24 "	5 "	9 2 6	7 6
30 "	5 "	11 2 6	9 0
12 "	6 "	6 10 0	5 0
18 "	6 "	9 0 0	6 6
24 "	6 "	11 10 0	8 0
30 "	6 "	14 0 0	9 6

Made to any length. See Catalogue for larger sizes.

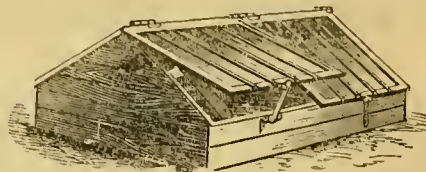
No. 75.—Melon and Cucumber Frame.



REDUCED CASH PRICES, Carriage Paid.

Size.	Length.	Width.	Price.	Packing Cases.
No. 2	8 feet	6 feet	£3 5 0	4s. 6d.
No. 3	12 "	6 "	4 12 6	5 0
No. 4	16 "	6 "	6 0 0	5 6

Depth in front 13 inches, back 24 inches. Lights 2 inches thick, strengthened with iron rod. One handle to each light. Lights only. 6 ft. x 4 ft., unglazed and unpainted, 6s. each. Glazed with 21-oz. sheet glass and painted 4 coats, 16s. each.



PORTABLE PLANT FRAMES.

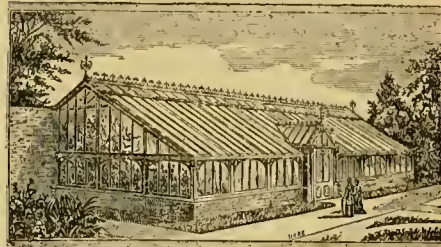
The above are without exception the most useful kind of Frame for Plant Growing, and every one with a garden should possess one. The sashes turn right over one on the other, and the boxes are put together with wedges, and can be taken apart in a few minutes. Sizes and prices, carriage paid to any station in England, ready glazed and painted:—

6 feet long, 4 feet wide, packing cases free	£2	15	0
12 feet long, 4 feet wide, " " "	4	15	0
6 feet long, 5 feet wide, " " "	3	15	0
12 feet long, 5 feet wide, " " "	6	10	0

The glass is nailed and puttied in.

R. HALLIDAY & CO.,  
Hothouse Builders and Engineers,  
ROYAL HORTICULTURAL WORKS, MIDDLETON,  
MANCHESTER.

## RICHARDSON'S



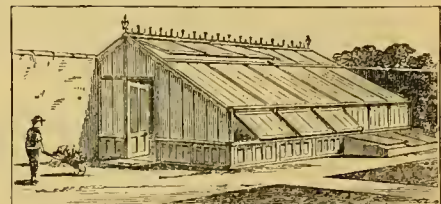
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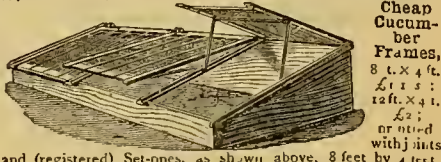
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Horticultural Builders, Norwich.



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made in lights, glazed with 21-oz. glass, and painted three coats  
of good oil colour. Tenants' Fixtures. 15 feet by 10 feet,  
£24 10s. for Brickwork. £2s.

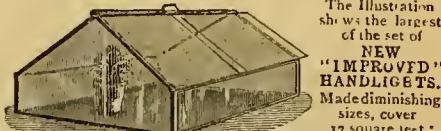


THREE-QUARTER GARDEN FRAME, with Registered  
set-ops, lights, 2 inches thick, glazed with 21-oz. glass, and  
painted four coats. 4 feet by 6 feet, £2 17s; 8 feet by 6 feet,  
£4 15s. Cases, 6s.



Cheap  
Cucumber  
Frames,  
8 ft. x 4 ft.  
£1 1 s.  
12 ft. x 4 ft.  
£2 1 s.  
or new  
with joints

and (registered) Set-ops, as shown above, 8 feet by 4 feet,  
10s. extra; and 12 feet by 4 feet, 15s. ex 12. Cases, 5s.



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"IMPROVED"  
HANDLIGHTS.  
Made diminishing  
sizes, cover  
17 square feet;  
painted 13-oz.

coats, and glazed with 21-oz. glass; per set of six. £2 7s. 6d.  
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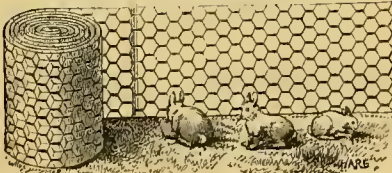
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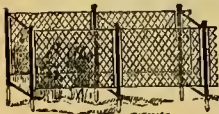
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**GARDENER (HEAD, or good SINGLE-HANDED).—**Age 25, single; well understands his work in all its branches; Early and Late Forcing. Good character. Total abstainer.—**E. H.,** 5, Smith's Court, Commercial Road, Landport, Portsmouth.

**GARDENER (SINGLE-HANDED), or where**  
help is given.—Age 38, married; seventeen years' experience. Thoroughly practical in every branch of Gardening. Good character. Total abstainer.—**E. C.,** Mr. Allee, Coffee Tavern, Waltham Cross, Herts.

**GARDENER (SINGLE-HANDED, or other-**  
wise).—Age 30, married; understands Greenhouse, Flower, and Kitchen Gardening, also Cows. Six years' character. Leaving through family going abroad.—**F. G.,** The Lodge, Felpham, Bognor, Sussex.

**GARDENER (SECOND).—**Age 24; can be well recommended.—**B. H.,** The Gardens, Clondon Park, Guildford, Surrey.

**GARDENER (SECOND),** where three or four are kept, or **SINGLE-HANDED** where help is given.—Age 24; can be highly recommended from present and previous employers.—**E. HIATT,** Powis Castle Gardens, Welshpool.

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**GARDENER (UNDER).—**Age 19; can have good reference.—**F. G.,** 5, Redcliff Gardens, South Kensington, W.

**GARDENER (UNDER), in a Gentleman's**  
place.—Age 23; good character.—**J. H.,** 17, Regent Street, Briton Ferry, Glamorganshire.

**GARDENER (UNDER).—**Age 19; two years' good character. Willing to make himself useful.—**The GARDENER,** The Lodge, Elm House, Clay Street, Walthamstow, Essex.

**GARDENER (UNDER).—**Age 18; general knowledge of Outdoor Work. Good character and well recommended.—**H. HEREMANS,** Langley Burrell, Chippenham, Wilts.

**GARDENER (UNDER), in the Houses. —**  
Age 22; good character and references. Total abstainer. Six years' experience.—**ARTHUR SARA,** Penmorva Budock, near Falmouth, Cornwall.

**GARDENER (UNDER).—**Age 20; has good knowledge of Out and Indoor Work. Steady and obliging. Can be well recommended.—**A. SMITH,** The Gardens, Seed Holme, Woking, Surrey.

**GARDENER (UNDER), in the Houses, or to**  
assist with In and Outdoor work.—Six years' experience. Good character.—**G. PROSSER,** Porthkerry, Cowbridge, Glamorganshire.

**GARDENER (UNDER), in the Houses pre-**  
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**MANAGER, FOREMAN, and PROPAGATOR.**—Can be highly recommended by London and Provincial Firms, as to ability, sobriety, &c.—**A. B.,** Ivy Terrace, Green Lanes, Stockport.

**FOREMAN, in a Nobleman's or Gentleman's**  
Garden.—Eight and a half years' good experience. Excellent references.—**FRED. CLIPSTONE,** Coddington, Newark.

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**FOREMAN, in the Houses. —**Age 27; thirteen years' practical experience in all branches. State wages and particulars to **A. T. CURTIS,** Chipstead Place, Chipstead, Kent.

**FOREMAN, in a good establishment. —**Age 27, single; thirteen years' practical experience in all branches. Excellent character.—State wages and particulars to **FOREMAN,** The Gardens, Benham Park, Newbury, Berks.

**FOREMAN, in a good establishment. —**Age 25; eight years' experience in all branches of the profession. Two years in present situation. Well recommended from present and previous places.—**G. HART,** The Gardens, High Firs, Harpenden, Herts.

**FOREMAN, or SECOND, in a Gentleman's**  
Garden.—Age 27; good testimonials as to ability, &c.—**B. W.,** Mr. G. Millar, Loft's Hall, Saffron Walden, Essex.

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establishment.—Eight years' experience, four in last situation. Good character.—**JOHN ROBINSON,** Hilton, Bridgenorth, Salop.

**PROPAGATOR and GROWER, for Market**  
or otherwise.—Age 29, single; well experienced. Good character. General knowledge of Cut Flower and Plant Trade.—Apply, stating wages, to **BIRT,** 3, Steves's Cottages, Myrtle Road, Sutton, Surrey.

**JOURNEYMAN (FIRST), in the Houses. —**  
Age 21; seven years' experience. Highly recommended. Bothy preferred.—**C. B.,** 122, Cornwall Road, Brixton, S.W.

**JOURNEYMAN, Inside and Out. —**Age 20; six years' experience. Good character.—**A. F.,** Park Cottage, Acre Road, Kingston-on-Thames.

**To Nurserymen and Market Gardeners.**  
**JOURNEYMAN. —**A young man (age 26), desires a situation. Good Plant Grower and Tyer.—State wages, &c., to **THOS. BROWN,** Post Office, Stevenage, Herts.

**JOURNEYMAN (INDOOR), in a large estab-**  
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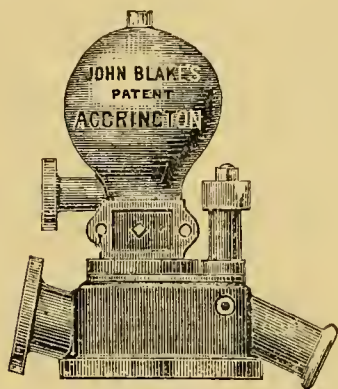
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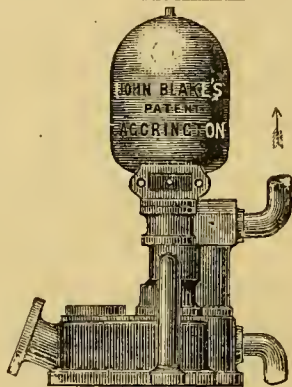
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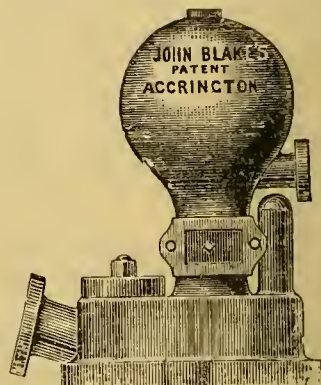
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## SALES BY AUCTION.

## Tuesday Next—Choice Orchids.

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, June 23, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., a large quantity of ORCHIDS, in the best condition, comprising Cattleya Sanderiana, Cattleyas from Columbia, in all probability Cattleya Roezlii, C. Dowiana, C. gigas, C. amethystoglossa; Cypripedium ciliolare, Dendrobium Dacot, D. crystallinum, D. thysiflorum, D. Dalhousiana, Masdevallia Haryana, Lælia elegans, Phalaenopsis amabilis, P. grandiflora, the fine Java variety, Vanda corulea, and other CHOICE ORCHIDS.

On view morning of Sale, and Catalogues had.

**Tuesday Next.**  
**ONCIDIUM JONESIANUM.**  
**ESTABLISHED ORCHIDS.**

**MESSRS. PROTHEROE AND MORRIS** will include in their SALE, at the Central Auction Rooms, on **TUESDAY NEXT**, **ESTABLISHED ORCHIDS**, from two well known private collections, including Vanda caryocaulis Boxallii, Angraecum sesquipedale, two fine plants; Lælia, Cattleyas, and others; also from Messrs. F. Horsman & Co. a fine lot of the beautiful **ONCIDIUM JONESIANUM**, guaranteed true, and other fine ORCHIDS, in lots to suit the Trade and private buyers, and 500 **EUCARIS ANAZONICA** BULBS.

On view morning of Sale, and Catalogues had.

## Friday Next—Very Valuable Importations.

**MESSRS. PROTHEROE AND MORRIS** are instructed by Mr. F. Sander to **SELL** by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, June 26, at half-past 12 o'clock precisely, a fine lot of the rare and superb **BOLLEA CÆLESTIS**; grand importation of **CATTLEYA SPECIOSISSIMA**, **ONCIDIUM CAVENDISHIANUM**, **EPIDENDRUM NEMORALE**, **ODONTOGLOSSUM ROEZLII** and **VEXILLARIUM RUBELLUM**, **SOBRALIA VIRGINALIS**, **ONCIDIUM AMPLIATUM MAJUS**, **LÆLIA PEDUNCULARIS**, many **CATTLEYAS** and **ODONTOGLOSSUMS**, &c.

On view morning of Sale, and Catalogues had.

## Flowering Orchids.

**MESSRS. PROTHEROE AND MORRIS** beg to announce that their NEXT SPECIAL SALE of **FLOWERING ORCHIDS** will take place on **TUESDAY**, June 30, for which they will be glad to receive entries as early as possible.

## New Orchids.

**ANGRÆCUM LEONI**, a magnificent novelty, for the Cattleya-house.

**ANGRÆCUM SCOTTIANUM**, rare and striking.

**ANGRÆCUM FUSCATTUM**, long spikes, covered with flowers.

**ANGRÆCUM rostellare**, Pogonia Barklyana, Eulophia megistophylla, E. pulchra, Lissocylus stylus, L. julax, &c.

**ANGRÆCUM LEONI**.—This is a most wonderful novelty, and, next to Yanda Sanderiana, we consider it the finest Orchid we have had the pleasure to offer. It was discovered and collected by Mr. Leon Humboldt in the Comoro Islands, growing at an altitude of 3000 feet. It should be grown in the Cattleya or the Dendrobium house, and it will be a plant of very easy culture; the plants, although only just imported, are beginning to grow.

**Angræcum Leoni** is a serious rival to A. sesquipedale, surpassing it, we consider, not only in its extraordinary and very beautiful form, but in its adaptability to the Cattleya-house, its cool habit, and great floriferousness, some of the plants actually showing up to fifteen flower-spikes, and each bearing six to ten of the large pure white flowers.

Our Woodcut gives the exact size of the plant. The leaves are fleshy, and are quite a remarkable feature, standing boldly sideways, and are so arranged as to form a perfect half circle, in front of which the flower-spikes arrange themselves; altogether it is a remarkable and grand thing, and nothing like it is in cultivation.

Professor Dr. REICHENBACH says in his description:—"The flowers may be well compared to Angraecum sesquipedale—a very stately thing, taking little space, bearing great flowers. Is not this sufficient to make beat a collector's heart with satisfaction?"

The importation is simply grand, and every plant in extra condition. See Flowers and Woodcut.

**MESSRS. PROTHEROE AND MORRIS** have received instructions from Mr. F. Sander to **SELL** the above and other very valuable ORCHIDS on **TUESDAY**, July 7, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

## Wednesday Next.—(Sale No. 6931.)

## IMPORTED ORCHIDS.

**MR. J. C. STEVENS** will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY NEXT**, June 24, at half-past 12 o'clock precisely, fine masses of **ODONTOGLOSSUM CRISPUM** (ALEXANDRÆ), the very best type; **O. CITROSUM**, **O. MADRENSE**, **O. INSLEAVI LEOPARDINUM**, **O. CERVANTESI**, **ONCIDIUM TIGRINUM**, and the beautiful **BARKERIA LINDLEYANA CENTERÆ**, from Messrs. Shuttleworth, Carder & Co.; also splendid importations of Mexican and other ORCHIDS, from Messrs. F. Horsman & Co.

On view morning of Sale, and Catalogues had.

## Thursday Next.—(Sale No. 6932.)

## ONCIDIUM CUCULLATUM GIGANTEUM.

**MR. J. C. STEVENS** will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., by order of Mr. F. Sander, on **THURSDAY NEXT**, June 25, at half-past 12 o'clock precisely, a fine lot of the gigantic variety of **ONCIDIUM CUCULLATUM**, in fine order. This is one of the most lovely of Orchids. Also many fine importations, among others large masses of **ONCIDIUM SUPERBIENS**, **BARKERIA BARKERIOLA**, **PESCATORIA WALLISII MAJOR**, **ODONTOGLOSSUM INSLEAVI LEOPARDINUM**, **EPIDENDRUM TOVARENSE**, **ONCIDIUM WELTONI**, **KRAMERI**, and **PAPILIO**; the rare **ODONTOGLOSSUM KRAMERI**, **EPIDENDRUM STAMFORDIANUM**, **URO-PEDUM LINDENI**; also several plants of **PAPHINIA SANDERIANA**, a most beautiful Orchid, &c.

On view morning of Sale, and Catalogues had.

Malda Vale, W.—(5758.)

Must be Sold, owing to ill health,

**HALF AN ACRE OF LAND**, with frontage of 125 feet to road, eight-roomed DWELLING-HOUSE, and SEED SHOP, eleven GREENHOUSES, and three PITS. Nominal rent, only £25. Lease 24 years unexpired. Price for Lease and Goodwill on application. A capital opening. Apply to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C.

Farnborough.—(Sale No. 6212.)

Five minutes from Aldershot Camp Railway Station.

Re Edward Smith, deceased.

**TO BE SOLD**, with Possession, the **NORTH CAMP NURSERY**, nearly 17 Acres, with Dwelling-house, Stable, Cart-shed, and Greenhouse standing thereon. May be carried on as a Nursery or a Market Garden; but the Estate having 2000 feet available frontage will ultimately be valuable for building. Price £2400.

Apply to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C.

**FOR SALE**, a Small **FRUIT NURSERY**, well stocked with excellent Trees; and valuable **FREEHOLD LAND**, in high cultivation. Address to R. M. Gardeners' Chronicle Office, 41, Wellington Street, Strand, W.C.

To Nurserymen and Others.

**TO LET**, on Wandsworth Common, **FARM BUILDINGS**, and about 20 Acres of **GROUND**, for Grazing or Nursery purposes, the latter preferred. The ground belongs to the Royal Victoria Patriotic Asylum. There are Cowhouses, Stables, Sheds, Piggeries, &c., a Greenhouse, and Cottage. The Committee reserve to themselves the right of inserting in any lease or agreement conditions to prevent the land being used in any way which would be a nuisance to the Asylum.

Offers in writing as to amount of rent which any proposed tenant is prepared to give, to be addressed to the SECRETARY of the Patriotic Fund, 51, Charing Cross, S.W.

**TO LET**, a **FLORIST'S SHOP** and **JOB-BING BUSINESS**, in main thoroughfare. Good connection. Terms moderate. Owner having taken larger business. Apply, 1, The Square, Richmond, Surrey.

Southampton.—(6209.)

About a mile from this important town.—To Market Gardeners and Others.

**TO BE LET** on **LEASE**, 25 Acres of Land, in a high state of cultivation. Rent, £160 per annum. Open to offer. Crops and Tillages at valuation, under £400. Full particulars and orders to view of Messrs. PROTHEROE AND MORRIS, Market Garden Valuers, 67 and 68, Cheapside, E.C. Personally inspected.

**To Gardeners and Gentlemen's Servants wanting a FIRST-CLASS FRUITERER and GREEN-GROCCER'S corner SHOP**, in the best position of Hackney, splendidly fitted, with two Stables, and everything for use. This is a rare chance for a business man. Same hands five years; owner has another business. No reasonable offer refused. C. N., 2 and 4, Brets Road, Hackney, E.

**PROTHEROE AND MORRIS, HORTICULTURAL MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS**, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

**JOHN KENNARD'S HORTICULTURAL SUNDRIES**, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

To Landed Proprietors, &c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the **FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS** and **REMODELLING** existing **GARDENS**. Plans prepared. 115, Listeria Park, Stamford Hill, N.

**T. HARPAM, PRACTICAL ROCK BUILDER, and GENERAL HORTICULTURAL DECORATOR** for Caves, Waterfalls, Fountains, &c., 107, Church Street, Edgware Road, London, W.

Special Offer to the Trade

**HUMEA ELEGANS**, grand plants, 5 to 6 feet high, 18s., 24s., 30s. per dozen.  
**HYDRANGEAS**, in bloom—**HORTENSIS OPAKSA**, THOS. HOOD, 50s., 75s. per 100.  
**HUGH LOW AND CO.**, Clapton Nursery, London, E.

**HYACINTHS, TULIPS, CROCUS, &c.**—The new Wholesale Trade CATALOGUE is now ready and will be forwarded post-free on application. B. J. LOMANS, Bulb Grower, Haarlem, Holland.

**PELARGONIUMS**, best Regal and Market sorts, fine plants, coming into bloom, in 4½ and 5 inch pots, 40s. per 100. Strong **FUCHSIAS**, coming into bloom, 20s. per 100.—**W. JACKSON**, Blakedown, Kidderminster.

To the Trade.

**ADIANTUM CUNEATUM**, in 48-pots, 50s. per 100; 60s., 25s. per 100; thumbs, 18s. per 100, for cash. Free on rail.  
**CHARLES HOLLINGSWORTH**, Firwood Nursery, Farnborough, Kent.

To the Trade—Roses in Pots.

**GARAWAY AND CO.** offer:—**WHITE PET**, full of flower, in 48-pots, 8s. per dozen, 50s. per 100.

Tea Roses.

**DEVONIENSIS**  
**ETOILE DE LYON**  
**FIANÇAILLES DE LA PRINCESS**  
**STEPHANIE**  
**GLOIRE DE DIJON**  
**JEAN DUCHER**  
**HOMERE**  
**MME. CHARLES**  
**FALCOT**  
**MARECHAL NIEL**  
**NIPHETOS**  
**SUNSET**  
**GRACE DARLING**  
**NEW H. P. ROSES** of 1885, our selection, 9s. per dozen.  
**GARAWAY AND CO.**, Durham Down, Clifton, Bristol.

All in 48's, 9s. per dozen, 70s. per 100

15s. per dozen.

**LOUTH ROSE, FLOWER, and DOG, &c., SHOW.**

The **THIRD ANNUAL EXHIBITION** will be held at Louth, Lincolnshire, on **JULY 7 and 8** **THREE HUNDRED and TWENTY POUND** in PRIZES. Over £80 for Flowers. Over £25 for Roses. Four Prizes amounting to £11 given for the best stand of forty-eight Cut Roses. Entries close on June 29. For Schedules and further information apply to

**B. BRIGGS** or **C. E. W. LUCAS**, Joint Secretaries.

Upgate, Louth.

**WINCHESTER SOCIETY.**

**PLANT, ROSE, and FRUIT SHOW, JULY 16.** ONE HUNDRED and FORTY POUNDS offered in PRIZES, £43 for Roses and Cut Blooms. Schedules on application to

**R. PORTER**, } Hon. Secs.  
**JOHN B. COLSON**, }

45, Jewry Street, Winchester.

**NOTTINGHAMSHIRE HORTICULTURAL and BOTANICAL SOCIETY'S GRAND FLOWER SHOW and HORTICULTURAL EXHIBITION** will be held on **THURSDAY, FRIDAY, and SATURDAY**, July 23, 24, and 25, in Mapperley Park, Nottingham. ONE HUNDRED and FIFTY POUNDS and numerous Special PRIZES will be given. Schedules and all information may be obtained on application to

**E. STEWARD**, Hon. Secretary.

2, Exchange Row, Nottingham.

**CALNE HORTICULTURAL SOCIETY.**

Under the Patronage of HER MOST GRACIOUS MAJESTY.

The **TWENTY-FIRST ANNUAL EXHIBITION** will be held in Bowood Park, Calne, Wilts, on **TUESDAY**, July 28.

Special Prizes, open to all England:

12 vars. **STOVE and GREENHOUSE PLANTS**, £15 £10, £5.

6 vars. **ORNAMENTAL FOLIAGE**, " £0, £5, £1 10s.

35 vars. **ROSES**, Cup or £5, £2 10s. £1 10s.

For Schedules and other particulars apply to

**FRED. C. HENLY**, } Hon. Secs.  
**HERBERT HARRIS**, }

**LIVERPOOL HORTICULTURAL ASSOCIATION, 1885.**

The **SEVENTH EXHIBITION of PLANTS, FLOWERS, FRUIT, and VEGETABLES** will be held in Sefton Park on **SATURDAY and MONDAY**, August 1 and 3. Entries close July 25.

The **SIXTH EXHIBITION of CHRYSANTHEMUMS and FRUIT** will be held on **TUESDAY and WEDNESDAY**, November 24 and 25. Schedules on application to

**Huyton, Liverpool.** **EDWARD BRIDGE**, Secretary.

**GLAMORGANSHIRE HORTICULTURAL SOCIETY.**

The **TWENTY-SECOND SHOW** will be held, at Cardiff, on **WEDNESDAY**, August 19, when upwards of TWO HUNDRED POUNDS will be given in Prizes. For Schedules and full particulars apply to

**W. P. JAMES**, Hon. Sec.

7 and 8, Working Street, Cardiff.

**FINE ART EXHIBITION BUILDING, YORK, NOVEMBER 25, 26, and 27.**

The **SIXTH GRAND EXHIBITION of CHRYSANTHEMUMS, FRUITS, and VEGETABLES**. Group of Chrysanthemums, arranged for effect, in space of 81 square feet, 1st prize a Silver Cup, given by the Rt. Hon. the Lord Mayor of York. Thirty-six Chrysanthemums (cut), 1st prize a Silver Cup, or £4, given by the Sheriff of York. Six bunches of Grapes, three varieties, 1st prize, a Silver Cup, or £5, given by the Vice-President and Stewards. Other special and liberal Prizes offered. Schedules, &c., to be obtained of

**J. LAZENBY**, Secretary.

8, Spurreargate, York.

**HERMAN BUDDENBORG, BULB GROWER**, Hillegom, near Haarlem, Holland (formerly BUDDENBORG BROS.), begs to inform his numerous Friends in Great Britain that he has established himself under his own name, and for his own account, as **BULB GROWER, NURSERYMAN and SEEDSMAN**; and kindly solicits the continuance of the same protection and confidence as was entrusted to him for so many years. He will be pleased to receive the Wholesale Price LISTS of his Commercial Friends, and will mail his free on demand.

**ADIANTUM CUNEATUM**, 5-inch pots, 9s. per dozen, 56s. per 100; thumbs, strong, 3s. per dozen, 18s. per 100.  
**GARDENIA INTERMEDIA**, 5-inch pots, 18s. per dozen 100s. per 100; large 50-pots, 9s. per dozen, 50s. per 100; well-rooted thumbs, 4s. per dozen, 30s. per 100.  
**PRIMULA SINENSIS** (Williams' strain), 2s. per dozen, 15s. per 100.  
**CINERARIA** (best Erfurt strain), 2s. per dozen, 15s. per 100.  
**PALMS**, *Latania borbonica*, strong Seedlings, 4s. per dozen, 25s. per 100; 5-inch pots, 12s. per dozen, 80s. per 100.  
**SEAFORTHIA ELEGANS**, strong Seedlings, 4s. per dozen, 25s. per 100; 5-inch pots, 12s. per dozen, 80s. per 100.  
**EUTERPE EDULIS**, strong Seedlings, 2s. per dozen.  
**COCOS WEDDELIANA**, strong Seedlings, 6s. per dozen, 45s. per 100.

All strong, healthy plants

**GARDENER**, Holly Lodge, Stamford Hill, London, N.

**CHEAP BEDDING, &c., PLANTS.**

All Out of Single Pots.  
*Mezembryanthemum variegatum*, *Scellaria graminea aurea*, *Echeveria secunda glauca*, *Mimulus Harrisoni*, *Coleus Verschaffeltii*, *Iresine*, *Heliotropes*, *Lobelia* (blue and white), *Calceolarias* (yellow or dark), *Dactylis elegantissima*, 1s. 6d. per dozen, 10s. per 100.

*Dell's Beet*, *Perilla*, *Sedums lydium* and *glutatum*, *Agrotarums*, 1s. per dozen, 6s. per 100.

*Centaurea ragusina*, *Kleinia repens*, *Santolina incana*, 2s. 6d. per dozen, 18s. per 100.

*Golden Pyrethrum*, 4s. per 100.

*Primula sinensis*, splendid strain, 1s. 6d. per doz., 10s. per 100.

*WM. CLIBAN and SON*, Oldfield Nursery, Altrincham.

**PRIMULAS—PRIMULAS—PRIMULAS.**

Sixteenth year of distribution.

**WILLIAMS' SUPERB STRAIN**, 1s. 6d. per doz., 10s. per 100.

*CINERARIAS* same price. Package and carriage free for cash with order. Above are strong, and fit for potting into 3-inch pots.

**JOHN STEVENS**, The Nurseries, Coventry.



**WHEELER'S IMPERIAL CABBAGE.**—From the original stock, as raised by the late Mr. Wheeler Warmister, and re-selected by ourselves. Especially recommended for growing for market. Price 7s. 6d. per pound. **HURST AND SON, 152, Houndsditch, London, E.**

**S. SHEPPERSON, FLORIST, Prospect House, Belper, Derbyshire,** begs to offer the following, which he makes a specialty of:  
**PRIMULAS!! PRIMULAS!!!**—Grand premier prize strain of the finest new colors, as White, Carmine, Rose, Salmon, Crimson, Mauve, &c.; fine large trusses and beautifully fringed flowers. Strong plants, to bloom well, 5s. 3d. per dozen; extra strong, 15s. 6d., all free.  
**CINERARIAS!! CINERARIAS!!!**—CINERARIAS!!!—Bull's celebrated prize strain, dwarf compact habit, and most brilliant colours; cannot possibly be excelled. Good plants, 5s. 3d. per dozen; extra strong, 15s. 6d., all free.  
**CYCLAMEN!! CYCLAMEN!!!**—CYCLAMEN GIGANTEUM!!!—Grand prize strain, warranted. All the finest new colours, 15s. 6d., free; extra strong, 25s., free.  
**S. SHEPPERSON, Florist, Prospect House, Belper, Derbyshire.**

**NEW CACTUS SINGLE and POMPOON DAHLIAS, and SELECT PLANTS,** by parcel post or rail. Plants sent Gratis for carriage.  
**NEW CACTUS DAHLIA, picta formosissima, 9d. each, two for 1s. 3d.**  
" " " Mr. Tait, 1s. 3d. each, two for 2s.  
" " " White Constance, 3s. per dozen.  
" " " Scarlet Juvenet, 3s. per dozen.  
The finest **SINGLE and POMPOON DAHLIAS, 3s. per doz.**  
Terms cash with order.  
**JAMES HUNT, Nurseryman and Florist, Great Yarmouth.**

**ANTHONY WATERER** begs to announce that the **AMERICAN PLANTS** at Knap Hill will be in their greatest beauty during June, and will afford unquestionably the finest display of its kind that can be seen in any Nursery in the World. May be seen daily, Sundays excepted.

The Standard and other Rhododendrons and Azaleas in the Royal Reg. Hyde Park, are supplied by Anthony Waterer. The Exhibition of American Plants in the Royal Botanic Gardens, Regent's Park, will be on view daily throughout June. Admission by order of Fellows of the Society, or from the Exhibitor.  
**ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.**



By Special Warrant.

"Superb SEEDS FOR PRESENT and Later Sowing."  
**DICKSON'S CHOICEST strains of**  
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**JAMES DICKSON AND SONS, 108, Eastgate Street, Chester.**

#### ALPINE AND HARDY HERBACEOUS PLANTS.

**STANSFIELD BROTHERS**  
Invite special attention to their unrivalled collections. Descriptive CATALOGUE, with Cultural Notes, Free on application.  
100 CHOICE PLANTS, our selection, 25s.  
100 SAXIFRAGES, 25s.; 200, 60s.; distinct species.  
25 PRIMULAS, 20s.; 50, 50s.; 70, 70s.  
12 ERYNGIUMS, 6s.  
**SOUTHPORT.**

**DAFFODILS—TO THE TRADE**  
**PRINCEPS, GRAND TRUMPETER.**  
One of the very earliest to bloom.  
May be had in large quantity. For park planting one of the best.  
"Twenty other good sorts to offer the Trade, and"  
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**Come and See.**

**IT IS FULLY ADMITTED** that the "HOME OF FLOWERS" has much the most complete stock, and the best display of all popular flowers. Just now Pelargoniums, Roses, Pansies, Begonias, Ixias, Achimenes, Coleus, Violas, Pæonies, Hardy and Alpine Plants are a grand sight. The Garden, March 7, says:—"No matter at what season one visits the 'Home of Flowers' at Swanley, whether in the dead of winter or height of summer, one is sure to be treated to a rare sight of some kind of flower just in the height of perfection."

ALL LOVERS OF FLOWERS ARE CORDIALLY INVITED.

Entrance from the Station.

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**THE HOME FOR FLOWERS**

**Hooper's**  
The Covent Garden Seed Warehouse  
Splendid Seeds and Bulbs at low prices  
Catalogues free to lovers

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### COCOA-NUT FIBRE REFUSE.

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons), 40s.; 4-bushel bags, 4d. each.  
**LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks 25s.; sacks, 4d. each.**  
**BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 25s.; sacks, 4d. each.**  
**COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton in 2-bushel bags, 4d. each.**  
**YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-MOULD, 1s. per bushel.**  
**SPHAGNUM MOSS, 8s. 6d. per sack.**  
**MANURES, GARDEN STICKS, VIRGIN CORK, TOBACCO CLOTH, RUSSIA MATS, &c.** Write for Price LIST.—**H. G. SMYTH, 21, Goldsmith's Street, Drury Lane (lately called 17A, Coal Yard), W.C.**

### 12-oz. Sample Packets, free by post, 12 Stamps.

**FIBROUS PEAT FOR ORCHIDS, &c.**—**BROWN FIBROUS PEAT,** best quality for Orchids, Stove Plants, &c., 26s. 6d. per Truck. **BLACK FIBROUS PEAT,** for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton per Truck. Sample Bag, 5s.; 5 Bags, 22s. 6d.; 10 Bags, 45s. Bags included. **FRESH SPHAGNUM, 10s. 6d. per Bag.**  
**SILVER SAND, Coarse or Fine, 5s. per Truck of 4 Tons.**  
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**GENUINE GARDEN REQUISITES, as** supplied to the Royal Gardens.—**Fresh Cocoa-Nut Fibre Refuse, 4 bushel bags, 1s. each; 30 for 25s.—bags included.** **Two-Ton Truck, free on Rail, 25s.** **Best Brown Fibrous Kent Peat, 5s. per sack; 5 for 22s. 6d.; 10 for 35s.; 20 for 65s.** **Best Black Fibrous Peat, 4s. 6d. per sack; 5 for 20s.; 10 for 30s.** **Coarse Bedford Sand, 1s. 6d. per bushel; 14s. per ½ ton; 25s. per ton.** **SPECIALITY TOBACCO PAPER, 10d. per lb.; 28 lb., 21s.; cwt., 70s.** **Second quality, 7d. per lb.; 28 lb., 16s.** **Finest Tobacco Cloth, 8d. per lb.; 28 lb. for 18s.** **Leaf-mould, 5s. per sack.** **Peat Mould, 4s. per sack.** **Yellow Fibrous Loam, 3s. per sack.** **Charcoal, 2s. 6d. per bushel.** **Bones, Guano, Sphagnum, &c.** **LIST free.** Special prices to the Trade for cash.  
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Composed of Pure Flesh and Bone of Cod and Herring and Refined Potash.

A Perfect Fertiliser for Garden and Greenhouse, Lawns and Tennis Courts, Vegetables, Flowers, Exotics and Fruit Trees.

Prices, carriage paid, on receipt of Post-office Order:  
28 lb., 6s. 6d.; 56 lb., 10s. 6d.; 1½ cwt., 20s.; 2 cwt., 30s.; 5 cwt., 60s. Bags free.

Larger Quantities at Special Prices, for which, and for Analysis, &c., apply to

**J. JENSEN & CO.,**  
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Manufactory—  
**BRETENES, LOFFOTEN ISLANDS, NORWAY.**



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TWO PRIZE MEDALS.

**Quality, THE BEST in the Market.** (All sacks included.)  
**PEAT, best brown fibrous .. 4s. 6d. per sack; 5 sacks for 20s.**  
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**SILVER SAND, coarse, 1s. 3d. per bush., 12s. half ton, 22s. ton.**  
**RAFFIA FIBRE, best only .. 1s. per lb.**  
**TOBACCO CLOTH, finest imported .. 8d. lb., 28 lb. 18s.**  
**TOBACCO PAPER .. 10d. lb., 28 lb. 18s.**  
**MUSHROOM SPAWN, finest Milltrack .. 5s. per bushel.**  
**SPHAGNUM MOSS, all selected, 2s. per bush., 6s. per sack.**  
**COCOA-NUT FIBRE REFUSE** (by Chubb's special process), sacks, 12s. each; 10 sacks, 9s.; 15 sacks, 13s.; 20 sacks, 17s.; 30 sacks, 25s.; 40 sacks, 30s. Truck-load, loose, free on rail, 25s. Limited quantities of G., special quality, granulated, in sacks only, 2s. each. Terms, strictly Cash with order.

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## BEESON'S MANURE

Is the best for all Horticultural Purposes.

Sold in Tins at 1s., 2s. 6d., and 10s. 6d. each; also in Sealed Air-tight Bags, containing 1 cwt., 13s.

The 10s. 6d. Tins serve as a strong substantial receptacle to refill from the 1 cwt. bags.

Supplies can be obtained through all respectable Nurserymen, Seedsmen, and Florists in the Kingdom; or, in districts where no Agents reside—Carriage Paid for Cash with Order—direct from the MANUFACTURER.

**W. H. BEESON, Carbrook Bone Mills, Sheffield.**

Testimonials from the Rev. Canon Hole, and most of the leading Gardeners, free on application.

Pure Crushed Unboiled BONES, any size, for Yine Borders, &c.

**WHOLESALE AGENTS IN LONDON,**  
**CORRY, SOPER, FOWLER & CO. (Limited).**

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**COCOA-NUT FIBRE REFUSE:** newly made.—Truck-load of 2 tons, 20s.; twenty sacks of same, 14s.; forty, 25s.; sacks included. All Free on to Rail. Cash with orders.—**J. STEVENS AND CO., Cocoa Nut Fibre Merchants, "Greyhound Yard," and 153, High Street, Battersea, S.W.**

**EPSS'S SELECTED PEAT.**—Forty sacks, 2s. 6d. per sack; 30 ditto, 2s. 9d.; 20 ditto, 3s. 6d.; 10 ditto, 4s. 6d.; sacks, 6d. each. In trucks of 14 cubic yards, 11s. per yard. For Rhododendrons and common purposes, 15s. per ton, not less than four tons; sample sack, 2s. 6d. **LOAM, SAND, LEAF-MOULD, SPHAGNUM, &c.** See Special List, also for the Trade. Ringwood, Hants.

Weeds. How to Destroy them.—Use **SMITH'S Celebrated WEED KILLER,** the cheapest and most effectual preparation ever invented. For testimonials and prices address

**MARK SMITH, Manufacturing Chemist, Louth, Lincolnshire.**

**SLUG TRAPS, 3s. per dozen, 30s. per gross, free.**

**F. COLE, 53, Pear Tree Road, Derby.**

**Mr. G. BROUGHTON, Derby writes:**—"Traps have done excellent work among my Beans, superseding soot and lime."

### A GREAT SUCCESS.

**JEYES' "GARDENER'S FRIEND."**

One Gallon of this Fluid, diluted with water according to directions, and applied with an ordinary watering-can, Effectually Removes all Weeds, Moss, Worms, and Insects on Gravel Walks, Lawns, &c.

Price, 3s. 6d. per Gallon, including drum; 40-gallon Casks, 44 10s. Carriage paid.

**JEYES' SANITARY COMPOUNDS CO. (Limited),**  
43, Cannon Street, London, E.C.

**GISHURST COMPOUND,** used by leading Gardeners since 1859 against Red Spider, Mildew, Thrips, Green Fly, and other Blights. 1 to 2 ounces to the gallon of soft water; 4 to 16 ounces as winter dressing for Vines and Orchard-horse Trees; and in later from the cake against American Blight. Has outlived many preparations intended to supersede it. Boxes, 1s., 3s., and 10s. 6d.

**GISHURSTINE** keeps Boots dry and soft on wet ground. Boxes, 6d. and 12s., from the Trade. Wholesale from **PRICE'S PATENT CANDLE COMPANY (Limited), London.**

**TOBACCO CLOTH and PAPER,** finest and most effective, 14 lb. for 9s.; 28 lb., 18s.; cwt., 70s. Special quotations for the Trade.  
**DENYN, Manufacturer, 73, Rendslesham Road, Clapton, E.**

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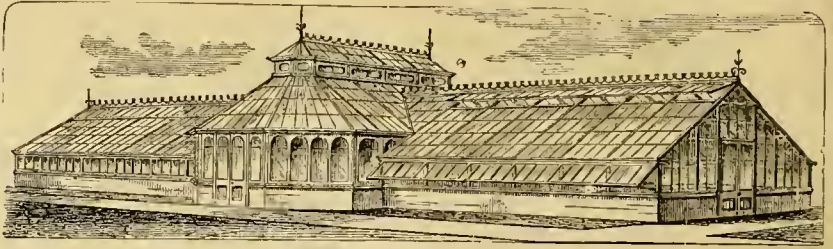
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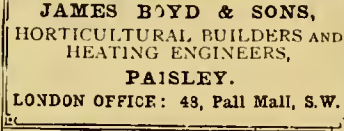
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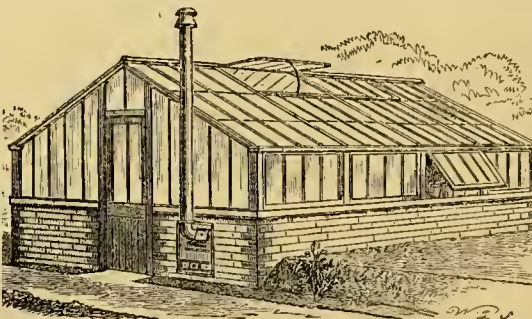
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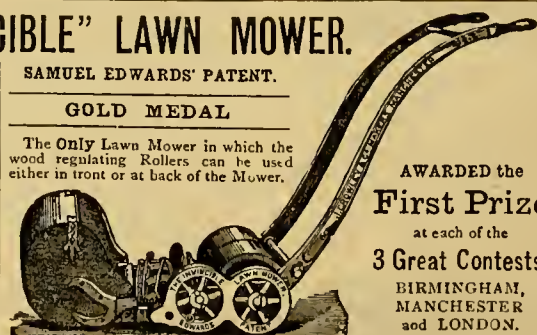
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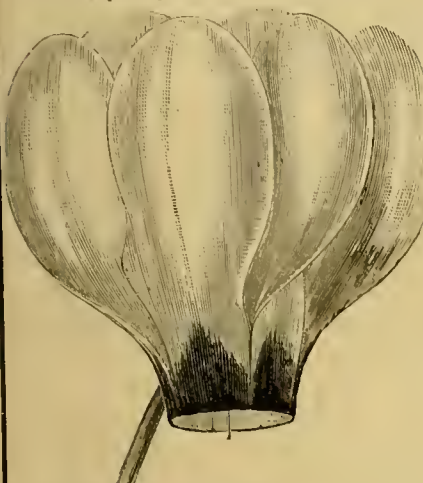
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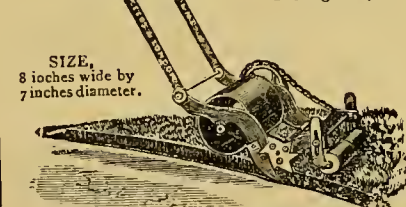
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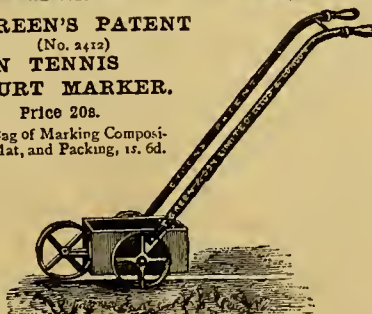


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THE

## Gardeners' Chronicle.

SATURDAY, JUNE 20, 1885.

## INSECTS.

INSECTS play a most important part in the economy of Nature. The average townsman, whose knowledge of them is confined to certain lectural and household pests, can scarcely appreciate the fact, or have any other feeling than repugnance and contempt for the annoying hexapods of his acquaintance. Yet, as scavengers, as pollenisers of our flowers and fruits, or as food for other animals, they not only vitally concern man, but, philosophically considered, are seen to be essential to his very existence.

We receive, also, some direct benefits from insects. They supply us with the sweetest of sweets, our very best inks and dyes, and our finest robes and tapers, to say nothing of various acids, lacs, and waxes; while few, who have not studied the subject, have any just idea of the importance of insects and their products as articles of human diet. But the benefits, whether direct or indirect, which man derives from insects, must always appear trifling compared to the injury they inflict on our agriculture.

In the primitive condition of the country, as the white man found it, insects, doubtless, took their proper place in Nature's economy, and rarely preponderated in any direction to the injury of the wild plants, scattered, for the most part, sparsely throughout their range. Harmony between organisms, in the sense of the widest inter-relation and inter-dependence, had resulted in the long course of ages. But civilised man violated this primitive harmony. His agriculture, which is essentially the encouragement and cultivation, in large tracts of one species of plant to the exclusion of others which he denominates weeds, gave exceptional facilities for the multiplication of such insects as naturally fed on such plants. In addition to this inevitable increase of species thus encouraged, many others have been unwittingly imported from other countries, chiefly through the instrumentality of commerce with those countries; for it is a most significant fact that the worst weeds and the worst insect pests of American agriculture are importations from Europe. Thus, in addition to the undue increase in our native species, as above noted, we have to contend with these introduced foreigners, and it is no wonder that Dr. Fitch declared America to be the land of insects, for, as compared to Europe, we are truly bug-ridden.

As I have stated (*Encyclopædia Americana*, "Agricultural Entomology"):—"The losses occasioned by insects injurious to agriculture in the United States are, in the aggregate, enormous, and have been variously estimated at from 300,000,000 dols. to 400,000,000 dols. annually. It will never be possible to fully protect our crops from the ravages of the many species that injuriously affect them: but it is the aim of the economic entomologist to prevent as much of the loss as possible and at the very least expense. To do so effectually the chief



knowledge required is of an entomological nature, *i.e.*, the full life-history and habits of the different species; and this implies a great deal of close and accurate work in field and laboratory. By means of it we learn which species are beneficial, and which injurious; and the ability to distinguish between friend and foe is of the first importance in coping with the latter, for it is a notorious fact that the farmer often does more harm than good by destroying the former in his blind efforts to save his crops.

... The economic entomologist, to do effectual work, must possess, not merely a knowledge of the particular injurious species and its habits with which he wishes to deal, but must study its relations to wild plants as well as to the particular cultivated crops it affects. He must also study it in its relations to other animals. Indeed, its whole environment must be considered, especially in connection with the farmer's wants, the natural checks which surround it, and the methods of culture that most affect it. The habits of birds, the nature and development of minute parasitic organisms, such as fungi, the bearing of meteorology, must all be considered, and yet, with the knowledge that a study of all these bearings implies, he will frequently fail of practical results, without experiment and mechanical ingenuity." ... Mere study of [insects], however, while essential, is not often productive of those important practical results which follow when it is combined with field work and experiment by competent persons and upon scientific principles. Many of the remedies proposed and recommended in the agricultural Press are either ridiculous or else based on misleading empiricism; and economic entomology, as a science, is of comparatively recent date.

The time limit of this paper will permit but the briefest reference, by way of illustration, to some of the means alluded to. I have already indicated the prime importance of a knowledge of the life-history of the species to be dealt with—a knowledge that can come only by direct and careful inductive research carried on sometimes during many years; for every insect exists, in the course of its development, in four different states, three of them more or less abruptly marked by metamorphosis and each with habit and environment peculiar to it. Thus the same species may inhabit earth, air, and water at one or the other period of life, and yet be quite incapable of a change of environment at any one period. It took me five years, with a number of observers at command, to definitely settle some points in the life-history of the Cotton-worm (*Aletia xyliana*, Say), and with all the resources of the French Government—its liberal premium, its superior and sub-commissions appointed for the purpose and at work for the past fifteen years—there is much that is yet mooted in reference to the Grape Phylloxera. You have all heard of this insect, and perhaps a brief statement of its habits will serve to illustrate the complicated problems with which the economic entomologist often has to deal. I quote in substance from one of my reports:—

"The full life-history of the species exhibits to us no less than five different kinds of eggs. 1. The regularly ovoid egg, 3.25 mm. long and half that in diameter, of the normal, agamic, and apterous female, as it is found upon the roots. 2. The similar but somewhat smaller egg of the gall-inhabiting mother. 3. The female egg from the winged mother, rather more elliptical and 0.4 mm. long when matured. 4. The male egg from same, quarter less in length, and rather stouter. 5. The impregnated egg 0.32 mm. long, still more ellipsoidal and with peculiar sculpture and anal point. We have also the peculiar spectacle of an egg from the winged mother increasing from 0.34 mm. (its size when laid) to 0.4 mm. (its size just before hatching), giving birth to a perfect insect 0.4 mm. long, and this, without any nourishment, laying an egg 0.32 mm. long. A being thus born, and without food whatsoever, lays an egg very nearly as large as that from which she came.

"We have, further, the spectacle of an underground insect possessing the power of existence even when confined to its subterranean retreats. It spreads in the wingless state from Vine to Vine, and from vineyard to vineyard, when these are adjacent, either

through passages in the ground itself, or over the surface; at the same time it is able in the winged condition to migrate to much more distant points."

The recent advance in our knowledge of the life-history and habits of species has been great, but leaves yet an immense field for future research.

Insects probably outnumber in species all other animals combined, some 350,000 having already been described, and fully as many more remaining yet to be characterised. The proper and conscientious characterisation of a genus or species of some microscopic creature involves as much labour as that of one of the higher animals. Of the above number a goodly proportion are injurious to cultivated crops. Lintner recently records no less than 176 affecting the Apple.

#### INSECTICIDES.

Of insecticides any number of substances have been recommended, and many of them tried with more or less satisfaction. Of these may be mentioned lime, sulphur, soot, salt, wood-ashes, corrosive sublimate, naphtha, naphthaline, turpentine, alum, carbolic acid, phenyle, cyanide of potassium, blue vitriol, ammonia, alkalis, benzine, vinegar, sulphuric acid, quassia, vitriol (the sulphate of copper), hot water, &c. Most of these may be safely used for specific purposes, either dry, in liquid, or in vapour; but the three most useful insecticides of general application in use during the early days of economic entomology in this country and up to within a few years, were undoubtedly tobacco, white Hellebore, and soap. Tobacco-water and tobacco-smoke have long been employed against aphides and other delicate insects, and are most useful. A quite recent advance in its use is by vapourising. The vapour of nicotine is most effectual in destroying insects wherever it can be confined, as in greenhouses. Thus the boiling of tobacco in such a greenhouse is as effectual as, and less injurious to the plants than, the older methods of syringing with a decoction, or of fumigating by burning; while experience by Mr. William Saunders at the Department of Agriculture during the past two summers shows that the vapour gradually arising from tobacco-stems strewn on the ground and regularly moistened is likewise effectual.

White Hellebore, either dry or in liquid, has long been one of the most satisfactory insecticides against Tenthredinid larvæ, otherwise known as false-caterpillars, of which the imported Currant-worm (*Nematus ventricosus*) is a familiar type; while soap, syringed in strong suds, will kill some soft-bodied plant-destroyers, and when used as a paint on the trunks of trees is an excellent repellent against the parents of different borers.

Transcending in importance, however, any of these older insecticides are the three now most commonly used because most satisfactory. They are:—(1) arsenical compounds, (2) petroleum, and (3) Pyrethrum. The first act through the stomach, and are effectual chiefly against mandibular insects; the second and third act by contact, and are, therefore, of more general application, affecting both mandibular and haustellate species.

#### ARSENIC.

The use of arsenic as an insecticide in the field dates from the year 1871. At the rate of 50 grains of arseniate of soda and 200 grains of dextrine dissolved in a gallon of water, and this diluted at the rate of about 1 oz. to 10 gallons of water, it furnishes one of the cheapest of insecticides at command, and various patented combinations of it have been extensively sold and used. Again, 1 lb. of arsenic and 1 lb. of sal-soda boiled in 1 gallon of water till the arsenic is dissolved, and diluted at the rate of 1 quart to 40 gallons of water, is also a good formula. The chief merits of arsenic are cheapness and solubility. Its demerits are its white colour, which makes it liable to be mistaken for harmless substances of the same colour, and its tendency to burn the plant. Paris green, or Scheele's green, has been more extensively used than any other arsenical compound, and is, on the whole, one of the most satisfactory insecticides. I first used this poison against the Colorado Potato-beetle (*Doryphora 10-lineata*) in the summer of 1868, but owing, doubtless, to the use of an inferior article, reported adversely upon it ("First Report on Insects of Missouri for 1868," p. 116). George Liddle, jun., of Fairplay, Wis., experimented with it the same summer, and with one part of the green to two of flour found it eminently satisfactory (*American Entomologist*, i., p. 219); and from the time he

announced his experience—May 25, 1869—in the *Galena, Ill., Gazette*, the green became rapidly popular against the *Doryphora*. I first recommended it in 1872 for the Cotton-worm, and its use gradually extended to other leaf-eating insects, until hundreds of tons have been sold for insecticide purposes in a single year. It is used dry with various diluents, as ashes, plaster, flour, &c., at the rate of one part of the green (if pure) to twenty-five up to one hundred parts of the diluent. Flour as a diluent has the great advantage of causing greater adhesiveness and permanence. In liquid suspension Paris green can be used at the rate of 1 lb. to from 40 up to 100 gallons of water. The liquid should be kept constantly stirred, and a little dextrine or other substance added to give adhesiveness is an advantage.

A refuse obtained in the manufacture of aniline dyes, and known as "London purple," is the third important arsenical compound that I will mention in this connection. It consists of lime, arsenious acid, and carbonaceous matter, and was first used by me against the Cotton-worm and other insects in 1878, and more fully and thoroughly in 1879. It is used with diluents, either wet or dry, in the same manner as Paris green; while for some insects experience has shown it to be less satisfactory than Paris green, for many others it is equally effective, and has the great advantage over Paris green of being vastly cheaper (costing on an average but five cents against sixty cents per pound); of covering twice the ground, weight for weight; of being more soluble, less poisonous, more adhesive and permanent in its effects, and of decided colour, so that when intelligently used it is in all ways preferable. C. V. Riley, in "*American Entomologist*."

(To be continued.)

## New Garden Plants.

LISSOCHILUS STYLITES, *Rehb. f.*

IN the way of *Lissochilus arearius*, Lindl. Sepals triangular acuminate reflexed; petals oblong, wide; lip grand, nearly square, blunt-edged, with a very short conical angled spur, and two styliform processes in the mouth. There are numerous dark spots on the base of the lip inside. Flower equal to that of a good *Zygopetalum intermedium*, rose coloured.

It would be a great triumph for English gardeners to grow well these *Lissochilus*, which form the pride of so many places in the Black Continent. An immense supply of water in the time of growth, and nearly absolute dryness in the state of rest, with an exceptional shower of water just to prevent death, are the conditions under which they grow, as several African travellers have told me. Mons. Léon Humblot brought home living plants, as well as some of *Lissochilus fallax*. Our plant is comparable to *Lissochilus roseus*, Lindl. (see *Bot. Reg.*, xxx., 12). This flowered at Mr. Rucker's in February, 1843. *H. G. Rehb. f.*

*LÆLIA PURPUREA* (Lindl.) VAR. *SCHROEDERI* AND VAR. *PALLIDA*, *Rehb. f. (Xenia, ii., p. 53).*

I have two fine varieties of *Lælia purpurea* before me, both recognised by Mr. Edward Low, who kindly forwarded me these freshest beauties of the old firm, of Hugh Low & Co.—1, Schœderi; 2, pallida. As to the second I can fully vouch for it, having named it myself. It has the anterior part of the lip of the lightest purple colour. As to Schœderi, I do not feel quite so certain, but I am sure Mr. Edward Low is right in his opinion. It might have been the original of the flower represented on the left hand in the *Orchid Album*, vol. i., pl. 2. The two other flowers want the two large light purple spots standing near each angle of the lip. Whether this deficiency is accidental, or the result of an oversight, I cannot say, the more since, to my great regret, I never had an authentic flower of the plant which bears so highly regarded a name. The lip is white, with a horseshoe-like, lightest orange-coloured blotch, locked in front on the median and basilar parts of the disc. The veins of the disc are of a fine dark purple colour, and similarly tinted veins traverse the disc in the sinus in front of the lateral angles, and there they have a purple hue. Of course all the margin is white. The base of the column is lightest yellow, with some



dark purple spots on the sides of the top of the androclonium in its interior and under the fovea.

Speaking of *Lælia purpurata* I may mention that I saw a specimen in the Hamburg Botanic Garden, with open well formed flowers, lasting for two days, during clear weather, of light green colour (so-called Schweinfurt's green) and then suddenly turning to white. *H. G. Rehb. f.*

*ANGRÆCUM FLORULENTUM, n. sp.\**

A discovery of M. Léon Humblot. It has the fine flowers of *Angræcum Ellisi* in numerous racemes of one to three flowers. In one specimen I saw five such racemes in full flower at once, which must look very effective in a living state. The zigzag stem is strong, and the sheaths wrinkled. The leaves are very leathery, lanceolate, unequally blunt, bilobed at the apex. You might compare the growth to that of *Aëranthus gladiifolius*; but all the parts are stronger, of an extraordinary solidity, as if made of metal. The flowers are much larger than could be expected from a plant the leaves of which reach 3 inches in length. *H. G. Rehb. f.*

*EULOPHIA MEGISTOPHYLLA, n. sp.†*

This is very near *Eulophia pulchra*, Lindl., yet its enormous leaves, panicle inflorescence, lip and spur separate it very distinctly. It has, probably, the largest leaves in the whole affinity if you consider both the breadth and length at once. It is a discovery of Mons. Léon Humblot. *H. G. Rehb. f.*

*ODONTOGLOSSUM CORADINEI KINLESIDIANUM, n. var.*

This was imported with *Odontoglossum Pescatorei* by Mr. F. Sander, who sent it to me. It is, however, now in the possession of the Rev. Mr. Kinleside, Sunbury House, Tunbridge Wells, who is stated to be one of the most ardent orchidists of Kent so that his name is appended to the plant. The large anterior calli are retuse and emarginate. This is peculiar, but it was just so in an *Odontoglossum Coradinei*, kindly forwarded by Mr. W. Bull in April, 1882. The lovely quality is that it has sepals and petals white, bordered only with yellow, which produces a fine effect. *H. G. Rehb. f.*

*ODONTOGLOSSUM CORADINEI ALBIDULUM, n. var.*

A new variety of this well known plant, having the flowers with a certain yellowish-white ground colour, far more white and only light sulphur at the base of the lip.

It is a very bad plant, inasmuch as it might almost as well be regarded as a form of *Andersonianum*, although the shanks of the calli are so elongated that I thought it more nearly allied to *Coradinei*. This is, however, nearly a matter of opinion. All these—let me say "things," to avoid any exact statement—run one into another. It is very easy to name the first. "*Sed post equitem (viz., autorem) sedet atra cura.*" When the connecting links arrive in a long series then the naming ceases to be easy. On the other hand it is no wonder if rich amateurs pay extravagant sums for extra fine specimens with extraordinary colours. As to these the investment of money is perhaps much safer than in the case of well defined species. You need not expect such importations of masses of *Odontoglossum Schroederianum*, *Pescatorei*, *Veitchianum*, *crispum*, *Sanderianum*, *Percivalianum*, as of good species (remember *Cypripedium Spicerianum*).

This flowered with Mr. Smith, of Stirling Park. I had at first only a single flower from Mr. F. Sander, sent by Mr. Smith. This gentleman luckily reconsidered the matter, and sent me a rich supply of flowers. If one is condemned to name such "things" one should have at least good materials. How agreeable it is to get a great cigar-box full of twenty

flowers, one of each, and the labels loose. Shocking! *H. G. Rehb. f.*

*ANTHURIUM INCONSPICUUM (N. E. Brown), n. sp.*

Stem probably elongating. Scale-leaves 1—2 inches long, deltoid, oblong, or lanceolate oblong, obtuse, with a short mucro, with one or two keels down the back, at first pallid and somewhat transparent, membranous, soon becoming brown and fibrous. Petioles 6—9 inches long,  $1\frac{1}{4}$  line thick, nearly terete, with a slight flattening down the face, green; geniculus  $\frac{1}{2}$  inch long, often incurved; lamina 9—12 inches long,  $1\frac{1}{2}$ —3 inches broad, narrowly elongate-elliptic, gradually and equally narrowed from the middle in a slightly curved line to an acutish apex and base, green on both sides, but a little paler beneath, scarcely shining; midrib equally prominent and rounded on both sides, primary lateral veins 11—13 on each side of the midrib, not prominent either above or beneath, about level with the general surface, and but little stouter than the secondary veins, straight, making an angle of about 40°—45° with the midrib, uniting in a continuous intramarginal vein at a distance of 3—4 lines from the margin. Scape as long as the petioles, scarcely 1 line thick, terete, green. Spathe  $\frac{1}{2}$ —1 inch long, 3—3 $\frac{1}{4}$  lines broad, reflexed, oblong, with a convolute-acute apex, bright green. Spadix  $\frac{1}{2}$ —1 inch long, 2 lines thick, dark brown-violet, the individual flowers about  $\frac{1}{4}$  line in diameter. This species was sent to Kew by Mr. Glaziov from Rio Janeiro, but whether it is a native of that place or of some other part of Brazil I do not know, as although his plants are all labelled Rio Janeiro it is quite certain that some of them come originally from other parts of Brazil. From a horticultural point of view this plant is neither better nor worse as a foliage plant than many others in cultivation. *N. E. Brown.*

## LUTON HOO PARK, LUTON.

THIS extensive demesne takes a high place among the "ancestral homes of England." For many years past it has been the residence of Mrs. Gerard Leigh, now, by reason of her recent marriage with His Excellency the Danish Minister, Madame de Falbe. The Manor of Hoo is very ancient, and was possessed by the family of that name long before the Norman Conquest, mention being made of the fact in old records so far back as the time of King Canute. The estate seems to have remained in the possession of this family for many years after, although the residents took an active part in the stirring events of the period. Many of the old knights are buried in Luton Church, and their tombs still remain objects of interest to the archaeologist. In the days of Henry VI. one of the family so distinguished himself by his services in France and Normandy that he was created a baron of the realm by the title of Lord Hoo and Hastings, and was also elected a Knight of the Garter. After the year 1523 the manor passed through several hands, but in 1611 the seat and park were purchased by Lord Napier, who was knighted by James I., and a year later advanced to the dignity of a baronet. From the family of Napier the estate passed to a Mr. Herne, who sold it to John, Earl of Bute. It is recorded in the *Gentleman's Magazine* of 1763 that this nobleman gave £111,000 for the house and grounds. It was held by the Bute family until 1844, and then sold to Mr. Ward, who disposed of it immediately after to Mr. John Shaw Leigh, the father of Mrs. Gerard Leigh's late husband. During all these years, and under successive owners, the house and grounds have been enlarged and improved, until there are now so many features of interest that an adequate description is almost impossible.

The Park contained about 300 acres when Sir Robert Napier was the possessor; it was enlarged to 1200 acres by the Earl of Bute, the succeeding Marquis of the same name added 300 acres more, and it is now, therefore, a very extensive desmesne. Great improvements have been made since the estate became the property of the Leigh family. Many small adjacent and intermingled properties were bought and thrown into the Park, or exchanged for outlying portions; the roads were relaid and remade, and the general arrangement of the grounds has been considerably improved.

There are several entrances to the Park, one of the principal being situated only a short distance from Luton. The distance to the house from this spot is

only a mile and a half, and along the carriage drive a very fine view of the property may be obtained. The river Lea, which leaves Luton in the form of a dirty stream, is temporarily transformed into a broad current, running through the valley along the whole length of the grounds, and widening into a beautiful lake at the foot of the eminance on which the house stands. The lake is rich in fish, and many waterfowl resort to it. There are also entrances at New Mile End and on the St. Alban's Road.

The mansion itself is situated on an elevated spot, and has a very imposing appearance from the front. Years ago it was comparatively small. In 1762 considerable additions were made to it by the Earl of Bute, and the last Marquis of that name who lived there rebuilt the greater part of the edifice. A considerable portion of it was destroyed by fire in 1843, but since then it has been thoroughly renovated at an enormous cost and the grounds laid out with excellent judgment. The Park is finely undulated as well as of very large extent, the drives wind through in graceful curves, and the Beech, which abounds here, and of which there are many very fine specimens, is fine. The Oaks are small, a great deal of the fine Oak timber having been felled many years ago. Elm is well represented, but does not compare in size and vigour with the Beech. In proximity to the house are fine specimens of the copper and scarlet Beeches, for they are decidedly distinct in colour and stand out prominently against the tints of green. In a shrubbery of considerable extent near to the mansion may be seen one or two remarkably fine specimens of Copper Beech. Very pleasant walks wind about this shrubbery, a great deal of the undergrowth of which is Laurel, with a fringe of Rhododendrons, and at intervals there are bays of Rhododendrons and hardy Azaleas, &c., that supply charming patches of colour in spring. It is scarcely necessary to say this part of the grounds is admirably kept.

The pleasure grounds and flower garden are at the south side of the mansion, and they fall away down a gentle declivity towards a valley, and rise again towards the house-level beyond. There is a large extent of greensward, which is admirably kept. Dotted about the garden and on the terrace may be seen a number of standard Bays in tubs, in perfect condition, with large and solid heads of foliage of great size. On either side of a winding gravel walk is a long border of hardy plants and which contain something of interest all the year round. The flower gardens and pleasure grounds comprise in all about 8 acres, a considerable addition having been made during the past autumn and winter. At a point farther east there is to be seen a good and varied collection of specimen Conifers, Wellingtonia gigantea, Abies Douglasii, Abies Nordmanniana, A. Pinsapo, Cedrus Deodara, Cupressus Lawsoniana, Thuia orientalis, and others. The situation is somewhat open, and fierce north-westerly winds leave marks of their effects on the trees. Close by is a charming sunken roseroy with climbing Roses trained over arches and in festoons—a lovely spot when the Roses bloom, all the plants breaking into a fine growth, as if soil and situation alike suited them. Then a descending path leads to a half wild fernery forming a charming dell within a block of shrubbery—a deliciously cool and inviting spot in hot summer weather; and leaving this, an ascending path leads to another roseroy enclosed within a belt of shrubbery, planted mainly with Gloire de Dijon Roses for cutting.

Then passing on to the south-east front, the visitor is attracted by the number of specimen trees, some fifty in all, planted by distinguished persons and members of the family to commemorate their visit to Luton Hoo.

Further south, on the high ground, lies the extensive walled-in kitchen gardens and fruit and plant-houses. A rapid run through the latter shows the Vines to be in the best condition—a luxuriant clean growth, and highly promising crops of fruit. The early vinery has Black Hamburg as the first crop. In the second vineries Black Hamburg, Muscat of Alexandria, and Buckland Sweetwater. The third have Black Hamburg, Gros Colmar, Frankenthal, Madresfield Court, Ferdinand de Lesseps, and Alnwick Seedling. Pot-Vines are in several houses, admirably grown, and carrying excellent crops; the sorts Foster's Seedling, Hamburg, and Gros Colmar. Strawberries abound, about 2500 pots being grown for forcing, and they are seen to be carrying fine crops of fruit; the forced varieties are Keen's Seedling and Vicomtesse Hericart de Thury for the

\* *Angræcum florulentum* (No. 4).—Caulis elato fractiflexo; vaginis rugosis; laminis lanceolatis apice inæqualiter bilobis; racemis uni-trifloris basi vaginatis; bracteis ovatis minutis; sepalis lanceis; tepalibus latioribus, labello oblongo-lanceolato apiculato; calcaris filiformi ovarium pedicellatum prope iter excedente, nunc curvula; columna pollinariorum exacte Angreæci. *H. G. Rehb. f.*

† *Eulophia megistophylla*, n. sp.—Folio membranaceo petiolato cuneato oblongo acuto nervis ternis validissimis, reliquis tenuissimis, ultra pedali, spithamam lato; panicula succedanea, ramis inferioribus distantibus serius floridis; vaginis amplis ochreatis oblongis acutis; bracteis lanceis acuminatis deflexis deciduis; sepalis lanceis; tepalibus latioribus; labello quadrilobis, lobis obtusis, sinu antico magno profundo; calcaris brevissimo cylindricato didymo crasso callis angulatis geminis in basi. *H. G. Rehb. f.*



earliest; the main pickings from forced plants being taken from President and Sir Joseph Paxton.

In the Fig-house the trees are in splendid condition, and have been fruiting freely since the third week in April; the principal sort is Brown Turkey. In this house is raised the earliest crop of Tomatos, the plants being in pots trained up the roof near the glass. Excellent crops have been gathered for some time. Tomatos are largely grown, and are seen to abound in other houses, trained up the back walls and other places, and thus a good succession is maintained. The Peach and Nectarine-houses show the trees in rare condition, and carrying good crops of fruit. In a range of three Melon-pits can be seen admirable crops of fruit; the leading sorts are Scarlet Perfection, Hero of Lackinge, Blenheim Orange, Dickson's Best of All, one of the best varieties grown. Here was also growing an Egyptian Melon; last year one fruit of this kind weighed 22 lb. The Cucumber-houses were in full bearing, remarkable crops being produced; the sorts being Rollisson's Improved Telegraph, and Carter's Model; but it is difficult to perceive any difference between them.

The plant-houses are numerous, and well filled with subjects in good condition. Tree Carnations are a special feature, these being in so much demand for cut purposes. Such an extensive and fine lot of Souvenir de Malmaison is rarely seen; there is the old form, another with pale pinkish flowers, and Lady Middleton, flaked and suffused with rose, but all bearing the unmistakable habit of the old type. Another house was filled with a collection of Tree Carnations in pots, from which flowers are obtained all the year round. Earl of Beaconsfield, a very fine rose flake; Mary Morris and Sir Beauchamp Seymour were particularly attractive. In the Camellia-house was a good selection of varieties, and flowers can be cut from September until February. A large quantity of Liliun candidum—single roots in pots—is grown for cutting, and found to be very acceptable. There is then a range of three houses—viz., a stove, a Palm, and an Azalea-house. The first has Gardenias planted out, and Mr. Butters claims to have been one of the first to have adopted the practice of planting-out Gardenias. The roof is covered with Stephanotis floribunda. Some good specimens of Palms are to be seen—*Areca lutescens*, *Kentia Baueri*, *Seaforthia elegans*, &c. The Azalea-house has some useful specimen Azaleas that are forced into flower, and on the roof are white and red *Lapagerias*. Then comes a house containing a rare collection of *Eucharis* and *Pancratiums* in the best condition. Here, too, is a good lot of small handy plants of *Cypripedium insigne*, grown for table decoration. Next to this is a small Gardenia-house, the plants bearing large quantities of fine blooms, and a few Orchids also are here. Overhead is *Stephanotis floribunda* planted in the Gardenia bed, and which is reverely pruned back to spurs, when it comes laden with flowers.

The commodious Rose-house, with ridge-and-furrow roof, is a fine structure, 50 by 35 feet; the Roses are planted in beds and side borders with gravelled walks between, and there are about sixty varieties in it. Some are dwarfs, others standards; some are grown as pillar Roses, reaching up to the roof, and some climb over the archways. Here, as in the open air, the vigorous cleanly growth of the foliage was most noticeable. Large quantities of flowers are cut at this season of the year. The fernery is another striking feature: of large size, with huge Tree Ferns in the centre, and raised rocky banks round on which Ferns are growing, and with ledges for standing pots upon. There is a magnificent *Cyathus princeps* over 20 feet in height, with nine large fronds; and two more of the same species rising from the centre, a very fine *Alsophila australis*, a grand *Cibotium regale*, *C. Schiedei*, *Alsophila Williamsii*, good specimens of *Adiantum gracillimum*, and other *Adiantums*, &c. The back wall is heavily draped with *Ficus repens*, from among which rises the leaves of foliaged *Begonias*. In order to keep the massive fronds of the Tree Ferns from touching the glass roof they have to be brought down by means of weights suspended from their points.

At the back of one of the vineries *Passiflora edulis* grows against the wall. It is found very useful when large desserts are required. It is cut back very hard before being allowed to break into growth.

The kitchen garden is spacious, and well planted with fruit trees on the walls, all of which appear to do well with the exception of Apricots; apparently there is something in the subsoil which does

not suit them, and the trees decline. This has been going on for years, and many attempts to prevent it have failed. There are spacious orchards filled with fruit trees in good bearing condition. The vegetable garden is fully cropped, and from beginning to end it is in admirable order.

During the ten years that Mr. C. Butters has had charge of the gardens at Luton Hoo he has carried out many important improvements. Owing to circumstances he is now leaving Luton Hoo, amid general regret. It must be said of him that he has left his impress on the place as that of an able, painstaking, and intelligent gardener.

## BENTLEY PRIORY.

It is doubtful, if within the radius of a dozen miles from St. Paul's, an estate could be named combining so many and varied attractions as "Bentley," or, as it is sometimes called, "Stanmore" Priory. Nearly all the accessories of picturesque landscape are present, from the richly hued parterre in front of the stately residence to the huge thickets of *Rhododendrons*, the sloping lawns, the magnificent Cedars, the belts of varied woodland, the lake, the picturesque hill, on which stands the church, and the distant downs and Surrey hills.

The estate, which comprises an area of about 460 acres, is situated on the southern slope of a hill near to the village of Stanmore. It is sheltered from the north by thick belts of woodland, among which the Scotch Fir is conspicuous. The high road from Harrow to Bushey forms its western boundary, and the Edgware and Watford broad highway lies on the north of it; picturesque commons covered with gorse and bracken stretch away beyond these.

Bentley Priory was purchased by the first Marquis of Abercorn in 1788. In 1848 it was leased by the Dowager Queen Adelaide, widow of William IV. After the death of the Queen Dowager, which took place within a year and a half, the mansion remained unoccupied until 1852, when the estate was purchased by Mr. (now Sir John) Kelk, the great railway contractor and engineer. Sir John enlarged and beautified the mansion, adding thereto a lofty clock tower, covered skating rink, and spacious and elegant conservatory—the subject of our illustration (fig. 172, p. 789). The structure forms a western wing to the house, and is connected by glazed corridors with the various orchard-houses, vineries, and cool-houses of the adjacent gardens. The corridors just referred to are furnished with enormous Camellias, loaded in winter and early spring with hundreds of blooms. The conservatory is 126 feet long by 24 feet wide, with a hipped roof and transept. In the centre is the circular marble fountain and statuary shown in the accompanying woodcut. The path is of white marble inlaid with purple and orange encaustic tiles. The dark masses of foliage consist of branches of the graceful *Araucaria excelsis*. The Orange trees, which are splendid specimens, are now loaded with swelling fruit and opening blossoms. On either side of the principal entrance there is a fine Tree Fern (*Dicksonia antarctica*). Camellias, *Agapanthus*, foliage plants and Ferns fill up the borders. The roof girders are wreathed and festooned with the variegated *Cobaea scandens*, one of the most free growing, elegant, and effective climbers for the roof of a large house. The leaves of this plant are now used at the flower-shops for decorating epergnes, &c. The back of the transept, facing the fountain and doors, forms an apse, decorated with mural paintings of birds and flowers. From a seat here, when the doors are open, the magnificent panorama can be surveyed at leisure, with the accompaniment of dripping fountains and groves full of singing birds.

In the spacious grounds, which are studded with picturesque groups and single specimens of coniferous trees, there are cricket and tennis grounds, a roserie, a cleverly constructed fernery, and several rustic arbours and summer-houses. In one of the latter, on the margin of the lake, Scott is said to have corrected the proofs of "Marmion," and Rogers to have written his "Pleasures of Memory." There are some splendid standard *Rhododendrons* by the walk beneath the terrace: these are now in their glory. The mansion has only recently been opened as a first-class hotel, in connection with the "Avenue" and "Metropole," and under the directorship of Mr. Frederic Gordon, the proprietor of the famous Holborn Restaurant. T. W. Harrow.

## THE NEW ZEALAND CORDYLINES.

In New Zealand the Cabbage trees (*Cordylines*) form a conspicuous feature in the flora. The common Cabbage tree, *C. australis*, abounds in all open lands below 2000 feet altitude, above which it is rarely found. Groups of these give a peculiarly semi-tropical aspect to the country, but they are rapidly being cleared from the lowest grounds as cultivation extends. However, unlike most native plants, they are favourites with gardeners, and considerable numbers are grown in villa gardens throughout the colony. The tree forms a stout trunk with rough scaly bark, more or less covered with the fibrous remains of old leaf-sheaths. The trunk is frequently 20 feet high, and sometimes more than twice that. Young trees have simple stems, but old ones are always branched, sometimes as many as forty or fifty branches being produced. This branching is caused by the inflorescence being terminal, and all the trees grown here produce a branch for each panicle of flowers. They will branch, however, if wounded or if the crown is cut out. The leaves are collected together at the tips of the branches, where they form dense crowns composed of 100 to 200 leaves, the lower ones dead for several series. The leaves are from 2 to 4 feet long and 2 inches wide, light green in colour, ensiform or lanceolate in form, quite entire, leathery but not rigid in texture, and very finely striated. In some varieties the midrib is very evident, and of a fine red colour, but usually it is absent. The flowers are produced in a long broad panicle, which appears in early summer from the centre of the crown, and grows with great rapidity to a length of 4 to 6 feet (less in young plants). The flowers are very small, are very strongly perfumed, dull white or pale blue in colour (according to variety), and are succeeded by large masses of whitish berries, which are 3-celled, and contain several small black angular seeds.

The cultivation of this *Cordylina* is simple enough in its native country. Seedlings can be raised by the thousand out-of-doors; indeed, they often germinate freely under the parent trees, and are fast in growth—some young trees in the public gardens here having reached a height of 18 feet in ten years. The root-stock and larger roots soon make plants if cut up into small pieces and placed in pots in a frame, and plants so produced bloom earlier than those raised from seeds. Besides the common Cabbage tree we have three other species accepted by authors, and two of doubtful validity.

*C. indivisa* is the grandest looking of the New Zealand species, but is scarcely so generally useful as the common species. It is found in mountain woods in both islands at 1000–3000 feet altitude, most commonly at about 2000 feet. Owing to its natural habitat it stands drought badly, and hence is unsuited for cultivation on our dry plains, a peaty or humid soil being, moreover, essential. But this sort is probably less susceptible to cold than any other *Cordylina*, and therefore more useful in England. Its appearance generally assimilates to that of *C. australis*, but the trunk is shorter, more leafy, and less inclined to branch, and the leaves are very much broader, thicker, and are glaucous below. On young plants they are not infrequently 5 feet long and about 6 inches broad. The nerves are numerous, yellowish or reddish, and give the plant a variegated appearance. The panicle is lateral, smaller than in *C. australis*, but the individual flowers are more than twice as large. This is the *Ti Palm*, or great *Ti* of the settlers, *Ti* being a Maori name for the genus. The leaves of this species yield a fine elastic fibre of great strength, which was formerly used by the Maories for making mats, called *Toiis*.

*C. Banksii* is the most graceful New Zealand species, and is found in moist woods, especially near watercourses. In this species the trunk is slender, about 10 or 12 feet high, and surmounted by a large head of leaves, arranged in numerous fan-like crowns, the whole not a little resembling a bush of *Phormium tenax* elevated on a stalk. The leaves differ from the other species in being petioled, and are frequently 6 feet long and 2 to 4 inches broad. They are striated, as in *C. indivisa*, but the striations are whitish or pink. The panicle is lateral (terminal in the var. *Gouldiana*), sub-erect, and 4 to 6 feet long, with small scattered flowers, followed by blue berries. Like *C. indivisa* this species does not thrive in Christchurch out-of-doors, requiring to be grown in a moist



sheltered position. It does not reach a great elevation, and is tender as regards frost.

*C. Pumilio* is a miniature of *C. Banksii*, and does not appear to be known in England. It is a small grass-like plant, with the stem only a few inches in length, much branched, and bearing leaves about 18 inches long and about  $\frac{1}{4}$  inch wide. The panicle is about 2 feet high, erect, and carrying a number of

forms a mass of crowns, as in *Yucca filamentosa*. A plant in cultivation in this garden for over 12 years has never flowered, and is not yet 1 yard high; I think this will eventually turn out to be a form of *C. australis*.

Another Cabbage tree has lately been sent out by a North Island nurseryman under the name of *C. Sturmii*, and described as a fine new species from the

## THE ORCHID CONFERENCE.

THE great success of the Orchid Conference held last month under the auspices of the Royal Horticultural Society, tempts Orchidologists to hope that the Society will institute regular meetings of the same kind. I hear with regret that it is the intention of the Society to postpone a second Orchid Conference *sine*



FIG. 172.—THE CONSERVATORY AT BENTLEY PRIORY. (SEE P. 788.)

small scattered dirty-white flowers. Though curious, it has not much to recommend it as an ornamental plant. It is an inhabitant of shady woods.

Besides these four species there are many varieties of *C. australis* and *C. Banksii* which may repay the researches of future collectors, and also two so-called species which are imperfectly known. *C. edulis* is a name given by Colenso to a plant cultivated by the Maories, and known as the Sugar Ti. In foliage it resembles *C. australis*, except that the leaves are rather shorter. The trunk, however, branches below the ground, or just at the ground level, and the plant

Waikato. A plant procured for this garden bears a suspicious resemblance to the Australian *C. nutans*, but is at present too young to be determined with any certainty. *J. B. Armstrong, Christchurch, New Zealand.*

**WACHENDORFIA THYRSIFLORA.**—An Iris-like plant, with erect green sword-shaped leaves, and tall erect racemes of yellow flowers, reminding one of those of *Gentiana lutea*, but arranged in long clusters, not in whorls. It is now in flower on the rockwork at Kew.

*die.* There are so many important points in which the experiences of Orchid growers need comparison, and the number of those who are now interested in Orchids is so great, that there is a distinct need for regular and periodical meetings. I am surprised that no society exists where those who are specially interested in Orchids can compare their experiences. I should be sorry to see a society of orchidologists formed which would have interests separate from those of the Royal Horticultural Society, for assuredly, now the experiment has been once tried, such a society will speedily spring into existence, unless the Royal



Horticultural Society takes the initiative by instituting a permanent section devoted to the interests of orchidologists having regular meetings say three or four times in each year.

The nomenclature and cultivation of Orchids alone need open discussion. Synonyms of the most misleading nature daily come to light, and the most simple questions of culture are questions which are not definitely settled. Nothing but the actual comparison of results can set such matters at rest.

I am sure that both amateur and professional growers would gladly take part in such meetings, as they could not fail to afford mutual benefits. The grand show of Orchids on the 9th inst., following closely as it did on the Conference, shows that such meetings would not fail to draw large numbers of exhibits; and I believe if the scope and nature of the last Conference had been fairly understood by the large number of amateurs, so many papers would have been forthcoming that the postponement of a second meeting *sine die* would have been an impossibility.

I trust that you will use your large influence to induce the Royal Horticultural Society to meet the views of a considerable section of the Fellows, and institute a committee for the purpose of arranging matters of detail. *Benjamin T. Lowe, F.R.H.S.*

[We hope the Society will see its way to establish another Conference, next year, as we know it to be the desire of a large number of Orchid growers. We deprecate the formation of a special society. Breadth of view is apt to be lost in special societies. ED.]

## INDIAN NOTES.

THE LUCKNOW HORTICULTURAL GARDENS (*continued from p. 763*).—MANGOS.—I also undertook experiments with Mango seedlings of good strains. I always considered the fine cultivated varieties as descendants of the indigenous and wild *Mangifera indica*. Natives have no fancy for sowing Mango seeds (excepting for stock to be grafted on), simply because they have already fine kinds, which can be propagated by inarching. But in the same way that new Roses, new Camellias, new Vines, Apples, &c., are created, so can new Mangos be originated. To get new sorts seeds must be sown and those of good sorts are as likely, or more so, to produce good varieties, as "wildlings." The mistake people make is that they think by sowing one or a few seeds of Malda or Bombay Mangos, they will get a similar fruit. It is like taking one ticket in a lottery of 10,000 tickets. You may get the prize, but much more likely you will not. To be of use, Mango seeds must be grown by the thousand, of the best sorts, which have been grown together in the same orchard, so that these seeds would have had a chance of being crossed by other good kinds; and this has to be continued for years or generations, giving the young plants favourable conditions of growth, selecting those which are worth keeping and destroying or rejecting the remainder. Of course this process is at first expensive, and can only be done either by Government, by a society, or some wealthy native with a fancy for such a pursuit. When I quitted Lucknow I left some seedling Mango trees which had arrived at a fruiting age. Mr. Ridley, in one of his reports, stated that out of four of my seedlings that fruited, one was good and worth keeping. To get one worth keeping out of four is very good luck, and means a proportion of twenty-five per hundred. Many raisers of new plants would, I daresay, be glad to get one "trump" in a hundred chances. The great advantage of new kinds of Mangos is this: the soils and climates of India are infinite, and it would be to the advantage of every one to have one or another kind that will suit any soil or climate of India, and so grow this choice fruit as extensively as possible.

### CHICK-HOUSES.

About the year 1873 I constructed the first "chick-house" for growing Ferns and other delicate plants which cannot live in the open air during the hot winds. It made quite an era. The advantage of such a structure and its success were undoubted. It was afterwards adopted in many places, both private and public, and now one can scarcely visit any Indian station without seeing a "chick-house." The above house had "chicks" on the top and on all sides, so that by keeping the soil moist during hot winds an artificial atmosphere was produced. A

modification of this—having only the roof covered with reeds, and the sides left open—was also made, which was found of immense value for germinating seeds, for raising and nursing seedlings of all sorts, and other semi-tropical plants. The reed-roof shaded the young plants in the hot weather, and screened them from the frost in winter, while the open sides allowed an unlimited amount of air.

The Maréchal Niel Rose especially can be grown here as well as in England. The name Lucknow acquired for Roses was due to one of my assistants, Mr. Hodges, who died in March, 1873. Mr. Ridley joined in March, 1874, and in 1877-78 my connection with this garden ceased. Owing to the amalgamation of Oudh with the North-Western Provinces the appointment I then held was abolished. The above-named gentlemen were only my assistants in a small way, as their principal charge was always the Wingfield Park—a totally different institution. Mr. Ridley had been my assistant for about four years. When I left, at my recommendation, he got sole charge of the Horticultural Garden in addition to his former charge. Under his judicious care its usefulness has increased, and I am sure will continue to do so. He is now undertaking the uphill task of improving native fruit trees. If Government do not expect wonders in too short a time, there is no reason why he should not succeed if he live long enough.

My charge of this garden lasted for about seventeen years from the turning of the first sod. As I said, this garden belonged first to a Society, which after a time ceased to exist for want of support. Then it continued to be kept up by the local Government, and by the income derived from the sale of seeds, plants, fruit, and other produce. Eventually it was recognised by Government as a very useful institution; as a centre from which seeds and plants could be disseminated, and as an experimental and acclimatising garden.

The original soil of this garden was all but barren. By manure and water I got things to grow, and as soon as I had trees and shrubs about the place my constant care was to prevent the fallen leaves from being swept away from under the trees and shrubs. I thus allowed their own decayed leaves to become their manure, and whenever I had an opportunity I brought more dried leaves from the outside, and strewed them under the plants. In this way, in the course of some years, a layer of leaf-mould covered the soil, which, while it added to the nourishment of the plants, was yearly added to by the fall of leaves. By the time I left some persons were accustomed to describe the garden as a "tangle," so luxuriantly did things grow. Without interfering much with the picturesqueness of the vegetation, my object was to allow plants to grow naturally without clipping or chopping, but only trimming where necessary. By the moisture and shade of the trees, and by screening off the hot wind, which scorches everything in May and June, I succeeded in producing there an artificial climate, by which many plants that years ago refused to exist in this garden, now thrive with luxuriance. In addition to this it is one of the few gardens in India which pays a large portion of its expenses. In no part of India before, was the uphill task of raising good acclimatised seed seriously tried. *E. Bonavia, M.D., Etawah, February 10.*

## KEROSENE EMULSIONS.

It cannot be too strongly impressed upon all who use kerosene as an insecticide that it can be considered a safe remedy only when properly emulsified. The formula for the kerosene and soap emulsion, as found most satisfactory by Mr. Hubbard, is as follows:—

Kerosene .. .. .	2 gals. = 67 per cent.
Common soap or whale-oil soap .. .. .	$\frac{1}{2}$ lb. }
Water .. .. .	1 gal. } = 33 per cent.

Heat the solution of soap and add it boiling hot to the kerosene. Churn the mixture by means of a force-pump and spray-nozzle for five or ten minutes. The emulsion, if perfect, forms a cream, which thickens on cooling, and should adhere without oiliness to the surface of glass. Dilute, before using, one part of the emulsion with nine parts of cold water. The above formula gives 3 gals. of emulsions, and makes, when diluted, 30 gals. of wash.

The kerosene and soap mixture, especially when the latter is warmed, forms upon very moderate agitation, an apparent union; but the mixture is not stable, and separates on standing, or when cooled or diluted by the addition of water. A proper emulsion

of kerosene is obtained only upon violent agitation. It is formed not gradually, but suddenly; in short, to use a familiar phrase, "it comes" like butter. The time required in churning depends somewhat upon the violence of the agitation, but still more upon the temperature, which, however, need not be much above blood-heat.

When obtained, an emulsion of kerosene and soap is known by the perfect union of the ingredients and the absence of oiliness, so that the liquid clings to the surface of glass or metal. It resembles a rich cream, more or less thickened, according to the proportion of soap used in the mixture. *Mr. Hubbard, in "American Entomologist."*

## ORCHIDS AT COL. GASCOIGNE'S, PARLINGTON HALL, LEEDS.

DURING the past few years Col. Gascoigne has got together a very select collection of Orchids at Parlington Hall, Leeds. The collection includes good varieties of most of the leading genera of Orchids, viz., East Indian, Brazilian, and what are termed cool varieties; they are growing in three small sunken span-roof houses about 10 feet in width, the path being down the centre and the plants arranged on the side stages, well up to the glass. There are no side lights, and the plants stand about on a level with the ground outside. The houses in question were originally erected for Melon and Cucumber culture, and with some simple additions to the side ventilation which Mr. Dunn, the gardener, has himself carried out, they appear to be exceedingly well adapted to the purpose for which they are now used. In the compartment used for Cattleyas, I noticed the other day some very nice plants and good varieties of *C. Mossiae*; one small plant had nine flowers on two spikes, the flowers measuring fully 8 inches across; a small plant of a fine variety of *C. Skinneri* had 8 flowers open on one of its spikes; of *C. Mendelii*, too, there were some nice varieties, one in particular, which had a dash of magenta running along the centre of its broad pale lilac petals, was very handsome, reminding one of *C. Trianae* Backhouseiana. Of *Trianae* there were some nice plants, but the flowers were past. I noticed one plant had seven breaks coming away; this, Mr. Dunn informed me, was only a 7s. 6d. plant two years ago. There was a very fine variety of *Laelia purpurata* amongst several others of this excellent Orchid. It had a deep port-wine coloured lip with a patch of white on its front and pure white uncurled sepals and petals. The cool varieties are grown in an adjoining compartment of the same house. There were some twenty spikes of *O. Pescatorei* in flower, several of them being very beautiful varieties with purple spots on the lip. They averaged about fourteen flowers on a spike, and the plants were growing in 4-inch pots. *O. cordatum maculatum* and *Uro-Skioneri* were showing nice spikes, but not fully open. In the East Indian-house there were nice healthy plants in flower of *Sobralia macrantha*, *Cypripedium laevigatum*, *C. Dominianum*, *C. barbatum*, and *C. caudatum*; *Pescatorea Klavochiana*, *Bollea celestis*, and *Angraecum sesquipedale*. At the end of this house there was placed against the brick wall a large rustic mass of wood, around which was growing a fine plant of *Anthurium Andreanum* with several spathes open. The plant in question seemed quite at home, and had a striking appearance. *H. J. C.*

## FORMATION OF STARCH IN VINE LEAVES.

PROFESSOR G. CARBONI has recently been conducting a series of experiments to determine the formation of starch in Vine leaves. It is known that the decomposition of carbonic acid takes place only by day and under the influence of sunlight, and that the carbonic acid thus acquired is absorbed within the chlorophyll cells of the plant-leaves, and that starch composed of carbon and the elements of water is undoubtedly among the earliest products. Professor Carboni found that none of the Vine leaves examined contained starch before April 28, but by May 12, when the growth was most vigorous, the formation of starch was very general, and it continued until November. It was further discovered that the starch formed in the Vine leaves during the sunshine of the day disappeared again in the night. At 4 o'clock on the morning of June 25, 1884, half of a leaf was removed, the other half being left attached to the midrib. The



half removed contained no starch whatever, but two hours afterwards the half which remained was found fully charged with starch, which, however, disappeared again with the return of sunshine the next morning. The youngest leaves of the Vine do not produce starch, and the older leaves cease to form it after a certain period.

From these exceedingly interesting experiments Professor Carboni reasons the justification of pinching out the young Vine shoots which are formed too late to be of any permanent use to the fruit-bearing plant, and also the propriety of removing the old leaves which are produced below the Grape clusters. *J. J. W.* [This is interesting in connection with Sach's experiments on starch formation in leaves, previously recorded in our columns. ED.]

## JAMAICA PRODUCE.

THE following table, published in Mr. Morris' last Report of the Botanic Gardens of Jamaica, will show the great strides taken in the export of fruit from Jamaica to the United States during the last ten years:—

FRUIT EXPORTED IN 1884 AS COMPARED WITH 1875.

Article.	Quantity.		Value.	
	1875.	1884.	1875.	1884.
Cocoa nuts (number) .. .. .	2,007,893	5,439,730	£ 599 7 3	£ 20,670 19 4
Bananas (bushels) .. .. .	58,411	1,842,934	5,590 0 0	191,972 5 10
Limes (barrels) .. .. .	635	670	254 0 0	268 0 0
Mangos (number) .. .. .	57,820	126,968	43 7 4	180 6 3
Oranges (number) .. .. .	4,673,820	41,639,500	3,271 13 5	58,295 6 0
Pine-apples (dozen) .. .. .	389½	14,070½	116 16 0	2,110 11 6
Plantains (number) .. .. .	14,250	?	35 10 0	31 3 0
Shaddocks (barrels) .. .. .	6	11	0 17 6	5 5 0
			£14,911 11 6	£273,533 16 11

If the New Orleans market (within four days by steamer) were open to Jamaica there is no doubt the exports under this head might be considerably increased. New Orleans could very conveniently take all the Jamaica fruit during the winter months when the trade with the northern ports is comparatively low. The chief elements which have contributed more than any other to the small trade now existing between this island and New Orleans are the very irksome and unnecessary quarantine restrictions imposed during six months of every year upon all vessels arriving at the latter port from this island.

### ORANGES.

The export of Oranges is increasing by rapid strides, as will be seen from the table. The demand for Orange plants is in excess of all other plants from the public gardens, and this would indicate that the regular cultivation of the Orange tree is being taken up with spirit and energy.

### BANANAS.

The rapid growth of the export of this essentially tropical fruit is most remarkable and suggestive. Nearly the whole of the Bananas at present are shipped to the Northern parts of the United States, viz., New York, Philadelphia, and Baltimore. The trade with New Orleans is small and irregular. If, however, this important market could be fairly opened to Jamaica there is no reason to doubt the trade might assume still larger proportions. As noted below, the export of Bananas (which is our chief fruit industry) last year, viz., 1884, was 1,842,934 bunches, of the value of £191,972. Ten years ago the exports were only 85,083 bunches of the value of £6381. The development of this industry has brought into cultivation large tracts of lands formerly lying useless or poorly cultivated; and it has also been the means of circulating nearly £200,000 per annum in ready money amongst all classes of the community. The particular kind of Banana chiefly cultivated is the yellow kind, sometimes known as the Martinique, but now known in the United States as the Jamaica Banana, to distinguish it from the large red Banana formerly exported in large quantities from Cuba. The Cuba Banana has now been almost entirely replaced by the brighter and more attractive as well as the more luscious fruit from Jamaica.

### COCOA-NUTS (COCOS NUCIFERA).

The largest export of Cocoa-nuts from Jamaica ever recorded was in 1880, when over 6,000,000 green nuts, of the value of £20,500, were shipped to England and America.

The hurricane of August 18, 1880, so severely damaged the trees, especially in the eastern and northern districts of the island, and so injured the blossom and crop of young nuts that were then showing, that the exports of the year 1881 fell to two and a half millions, or nearly one-third of that of 1880.

The severe droughts of the last three years have also contributed their quota to reduce crop on Cocoa-nut plantations, but happily now there are indications that these adverse influences are beginning to be less felt, and the Cocoa-nut crops are assuming almost their former proportions.

### VANILLA (VANILLA PLANIFOLIA).

The cultivation of this economic Orchid, which produces the valuable Vanilla beans or pods of commerce, is being taken up very widely. To encourage it as much as possible cuttings are distributed by post, with plain hints as to their treatment.

### BLACK PEPPER (PIPER NIGRUM).

The Pepper vine is indigenous to the forests of Malabar and Travancore (Southern India), and although black Pepper is exported from many countries, that which comes from Malabar is acknowledged the best. By the valuable aid of the Royal Gardens, Kew, some black Pepper plants have been obtained direct from Southern India, which are now being established and propagated at the Castleton Gardens. The three varieties received are:—Piper nigrum, "Ballam cotta"; Piper nigrum, "Culla vully"; and Piper nigrum, "Kew variety." These new sorts, in addition to those already in the island, will enable interesting experiments to be carried out as to the value of each and the conditions under which they may best be cultivated. In 1882 Mr. Syme reported that "the black Pepper vine was perfectly naturalised, run wild, and fruiting profusely on the Her Boreale estate, near Annotta Bay.



## The Rosery.

### PEGGED-DOWN ROSES.

A GREAT many years ago I paid a visit to that ardent and successful florist, the late Mr. C. J. Perry, at his residence near Birmingham, where many things were grown in a style that one rarely sees, Roses and Verbenas being especially well managed. Amongst other methods of growing Roses was that of pegging them down instead of growing them upright. Dwarfs, whether on their own roots, Manetti or seedling Briers, are apt to throw up long vigorous shoots. At one time these were called robbers, and were considered rather damaging to the plant than otherwise, and they were cut away. Now, on the other hand, these are regarded as the flower-bearers of the following year, being at pruning time cut back to three or four eyes, while the old bearing wood is cut out. Mr. Perry's plan was different. The old wood was cut out, but these long shoots were left, and were then turned down and pegged

to the ground; every eye then started, and the result was such a profusion of bloom as could be obtained in no other way, and it was certainly a grand sight to see these beds in full bloom. In the *Rosarians' Year Book* for 1885 Mr. George Paul has reverted to the subject, and has given directions much in the same direction as the system pursued by Mr. Perry, only, if I recollect aright, he used merely to top the long shoots, and not to cut them back, as Mr. Paul recommends; nor should I be inclined to do as he recommends—allow the strong vigorous shoots to flower; indeed, in my limited experience, they rarely attempt to do so, but when they do I should nip out the flower-buds, so as to throw as much strength as possible into the growth of the plant.

A system which I have lately seen, and which is analogous to this, with Mr. Foster, silversmith, at Asbford, the inventor of the tube and support for showing Roses in, which has obtained so much favour amongst exhibitors, and deserves, I think, a notice. It is in its main features the same, the treatment of the plant is exactly similar, but instead of the shoots being pegged down to the ground, they are tied out about 1 foot from it, the shoot being secured to a short support just high enough to hold the shoots, and then when the foliage grows these supports are hidden. I saw the other day in his garden a number of Roses thus treated, having shoots 5 feet long, and a profusion of buds showing all the way along them. The advantage of this plan over the pegged-down system seemed to me to lie in the fact that, not being so near the ground, the flowers are not so likely to be splashed by the heavy rains, and they are, moreover, nearer to see and to handle, which to some of us is not a matter of slight importance.

All Roses are not amenable to this treatment; some are too delicate—in fact, rarely throw up those strong shoots which are the foundation of the whole system, while others are almost too vigorous. The following list, given by Mr. George Paul, is perhaps as trustworthy a one as can be had of those which fall under the category of vigorous but not rampant growers:—Camille de Roban, Charles Darwin, Charles Lefevbre, A. K. Williams, Beauty of Waltham, Duke of Teck, Duc de Rohan, Camille Bernardin, Dr. Audrey, Elie Morel, Fisher Holmes, Etienne Levet, Général Jacqueminot, Henri Ledechaux, La France, Maurice Bernardin, Marie Baumann, Mdlle. Eugénie Verdier, Abel Grand, Comtesse d'Oxford, Comte Rambaud, Duchess of Bedford, Countess of Rosebery, Duke of Connaught, Egeria, Madame Lacharme, Madame Victor Verdier, Mdlle. Thérèse Levet, Marie Rady, Mons. E. Y. Teas, Pride of Waltham, Victor Verdier. I have left out a few which I do not think suitable or good enough for the purpose.

I would take this opportunity for replying to a question of my friend Mr. G. F. Wilson, with regard to the use of *Rosa rugosa* as a stock for Roses—a question which I do not think that any one has answered. I cannot answer it either as to reporting on its capabilities from experience, but I have had a letter from a correspondent in Boston, Mass., U.S.A., who says that "they are going in for it largely as a stock in America." *Wild Rose.*

## HARDY FRUIT TREES IN THEIR ORNAMENTAL ASPECT.

THE face of Nature presents fewer more beautiful and interesting features during the months of April and May than that offered by hardy fruit trees. This has been exemplified in an unusual degree during the present season, although the weather during the greater part of the month of May was very ungenial. It is to the ornamental aspect of our hardy fruit trees when in bloom that I should wish to call attention, and to suggest the desirability of rendering the orchard more attractive and more enjoyable during the flowering season and throughout the entire year than is usually found to be the case, and this I am inclined to think could be easily accomplished. The beauty of the Apple, the Pear, and the Cherry tree, &c., when in flower seldom fail to command admiration, but the orchard is seldom laid out and kept in such condition as to render it attractive as a promenade, or enjoyable as a garden.

Standard fruit trees, such as the Apple and the Plum, &c., are not infrequently found in the kitchen or vegetable garden, where they are often out of place, unless it be in the form of cordons or espaliers; while in orchards such trees are



generally found in the form of standards, planted in lines or irregularly, and often little cared for further than as regards the gathering of their fruit. But when the beauty of the trees is taken into consideration it suggests the advisability of giving more consideration to their disposal, or the planting, laying out, and the keeping of the orchard, which, instead of being placed in some out-of-the-way place, might readily be rendered an interesting, attractive, as well as a valuable adjunct. Let an orchard be supposed to be formed, or laid down on grass, with gravel paths intersecting or surrounding it, and instead of planting the trees in lines, let clumps or groups be formed, which might be made to assume any desired form, and be of any desired dimensions; and in these clumps or beds the trees may be planted at proper distances from each other. In the case of the Apple, tall or standard trees might occupy the central portion of the plots, while pyramidal or dwarf-trained trees might be planted between them and the margin, which could be formed by single or double cordon trees. Similar, or if desired smaller beds might be formed of the various other kinds of fruit trees, such as the Cherry, the Plum, and the Pear, &c.; while single specimens or standards might be made to occupy suitable positions upon the greensward: and, to still further increase the beauty and attractiveness of the orchard, beds or clumps of spring flowering plants, and bulbs might readily be introduced, so as to render it a pleasing combination of the spring flower garden and orchard, which could hardly fail to be interesting throughout the spring and early summer months. As regards such fruits as the Apple and the Pear it is too generally considered that further assistance after the planting of the trees is unnecessary, or indeed injurious rather than otherwise. It need hardly be said, however, that this is far from being the case, as the desired form and healthy development of such trees can be materially assisted by the careful application of timely pruning, and the thinning out of the branches. And it should be borne in mind that such trees are planted for the production of fruit rather than of timber.

Not a few of our most useful varieties of the Apple and the Pear are found, irrespective of the character of the season, to bear only in alternate years, *i.e.*, if a tree produces a heavy crop of fruit in one season it will be in vain to expect the same to furnish a large crop the succeeding one—a result, doubtless, to be ascribed to exhaustion, a condition that might in some measure be counteracted by thinning out the fruit as soon as it is fairly set, on all trees inclined to crop heavily in alternate years. All the varieties of Apple are, when in full bloom, very beautiful objects; some of them are, however, on account of the large size of their flowers, even more so than others, as for instance the New Hawthornden, some varieties of the Codlin, such as Nelson's Codlin; while the profusion of bloom generally borne by standard trees of the Morello Cherry, combined with the purity of its colour, renders such trees objects of the greatest beauty. *P. G.* [We think that the decorative treatment of orchards deserves some more attention than is usually given it, but the paying part of the question must not be lost sight of in these economising days. *ED.*]

### ADIANTUM NOVÆ CALEDONIÆ.

OUR illustration (fig. 173) gives a good idea of the habit of growth of this new species of Adiantum, which was shown by Messrs. Birkenhead, of Sale, Manchester, at the Whitsuntide show of the Royal Manchester Botanical and Horticultural Society in 1883. Adiantums in their endless diversity of form, and from their elegant habit and generally enduring character, have become quite indispensable to the gardener of the present day, who has much indoor decoration to carry out, and this variety will be very useful by reason of its succeeding in the temperature of a greenhouse. A full descriptive account of this Fern, by Mr. T. Moore, will be found in the *Gardeners' Chronicle* for June 9, 1883, p. 720.

**CODONOPSIS OVATA.**—A dwarf hoary Campanulad, with small entire ovate leaves and erect thread-like flower-stalk, bearing a solitary nodding flower about 1 inch long, bell-shaped, pale lilac, with darker spots at the base of the tube. Very graceful and pretty.

## Orchid Notes and gleanings.

### THE CULTIVATION OF ORCHIDS.

TWENTY-FIVE years ago I had six or seven Orchids in a collection of stove plants under my charge, and few as these were, they awoke in me a deep and lasting interest in their culture. As opportunities occurred I visited places in the neighbourhood where Orchids were grown, and always and everywhere I saw a large number of old leafless back growths, more especially on the larger specimens of Cattleyas and Dendrobiums. Sometimes I ventured a question as to the use of these old dry things, and was very seriously informed that Orchids were very curious things, and that these old bulbs added strength as well as value to the specimen. Ah! I now regard many of them

largest blooms and strongest spikes are from the smallest plant.

Having mastered the art of management with this species my next special effort was with the Dove Orchid (*Peristeria elata*). I attended to what I considered its requirements with unflagging attention, and watched its growth with the deepest interest, aiming to get as large bulbs as possible. But by slow degrees I discovered my mistake, for though I got good bulbs they did not all produce blooming spikes. And I found that the conditions suitable to bringing Phaius to perfection failed in this case. One secret in Orchid life, however, I learned from this species, and that was that every new growth soon produced roots, and thus became an independent plant. And acting upon this fact I felt sure that I ought to discard the worn-out bulbs. This was about sixteen years ago, when the *Dendrobium nobile*, which has been already described, came in for special treatment, I was not so confident on the point with



FIG. 173.—ADIANTUM NOVÆ CALEDONIÆ.

as ruins of former glory, or as evidences of Nature inviting the assistance of the cultivator, and at the same time showing the skill of past handling; but some I regard as monuments of the truth uttered by these veteran Orchid growers, and will therefore hold their names in reverence. But these answers set me thinking and searching out some of the secrets of Orchid nature and life. My opportunities were few and the material scanty; as a consequence, my progress was slow.

My first step was taken with a small specimen of *Phaius grandifolius*, then generally called *Bletia Tankervilleæ*. I aimed to get the finest foliage and strongest flowering spikes possible, and I got rewarded by two spikes from one bulb. At potting time I cut away all the old bulbs which had lost their leaves, and I have continued to do so till the present time. We have now two plants, one of two bulbs bearing three spikes; another of five bulbs, which carried seven spikes. The tallest spike is 5 feet high; it commenced to bloom the last week in January, and had still ten good blooms on it on May 16. The

the *Dendrobium* at first, for habit, growth, and production of bloom were altogether different in the two plants. With *Phaius* the pruning had been mere guesswork up to this time, and with the *Dendrobium* I was somewhat doubtful for the first year or two after trying it, but my doubts have vanished now for some years. But to follow *Peristeria*. At every potting time I cut away all the back bulbs which had lost their leaves, leaving only the last newly formed one, and that which had produced it. These were, as a rule, potted on in 24-size pots.

The old bulbs were thrown away, when not required for increasing stock. Here, however, I would say that this Orchid is very obliging to the propagator, for every old bulb will soon become a parent again if well handled. This practice was continued, then, every year, and I began to find out more secrets as time passed. One other was to get two spikes of bloom from one bulb. This leads me up to the date July, 1879, when we exhibited a specimen at the Bittern show having five spikes of bloom; four of these were the production of two bulbs. The three



new bulbs had produced five spikes. This plant was mentioned in the report of the show in the *Gardeners' Chronicle* of July 12 of that year. Two blooming spikes is now the rule with me when special efforts are made. I once had a bulb with three, and by relating its history I will bring my present note to a close. The specimen just mentioned was treated as I have already described, as to pruning and potting. In the spring of 1881 a very promising looking bulb was cut clean away, from the one which produced it, and potted up singly. In August of the same year this bulb was taken to Southampton show and worked into a group of plants for "effect." No one seemed to notice it except Mr. E. Tudgey. His keen eye saw something more than a Dove

besides many in bud, and the other had fourteen open, besides many in the bud. I have just potted this plant, but not pruned away any of the old growths, for I want to have a large specimen (*bonâ fide*), and I want also to get each growth to produce two spikes of bloom, that from the five growths now rising I may get ten spikes next year. I can do this with single bulbs, as I have before said, but with larger plants unpruned I have not yet obtained the two spikes to every bulb. But this may be attained by the non-pruning growers; perhaps it has, only I have never heard of it. We have this year but three specimens, besides the one I have been describing, and two of them are pushing up two spikes, and a growth from each bulb; the other a plant of four

sort this bulb anticipated in one year the growth of twelve! As may be gleaned from what was said about the growth of bulbs in general in the article on "Double Daffodils," in the "indefinite" type of bulbs such a condition is possible, but in the definite type, such as that of the Tulip, it is difficult to imagine such a state of things.

## Foreign Correspondence.

### THE FRUITS OF THE ARGENTINE REPUBLIC.

THE United States Consul at Buenos Ayres has recently furnished to his Government a very full report on the climate, soil, and fruits of the Argentine Republic. In the matter of fruits he points out that with such a soil and such a diversity of climate nearly all the fruits of the world may be grown. Many grow so abundantly in a natural state that it is not necessary to cultivate them. Others are cultivated in the sense that they are planted in orchards or belts and are then left to take care of themselves, while others still have some degree of attention devoted to them.

The Orange, for instance, was originally imported into the basin of the River Plate, but it soon multiplied to a great extent, and now, in certain localities, grows wild, sometimes forming veritable forests. The lower Parana and the islands which form its delta are covered with these trees. They are also found more or less numerous on the islands of the upper Parana, on those of the Uruguay, and sometimes even on the borders of those rivers. Farther up those rivers the Orange becomes more frequent, in the forest of the Misiones as well as those of Paraguay.

On the lower islands of the Parana and Uruguay the fruit which the tree yields is somewhat bitter, sour, and acid, but farther north, and especially in the province of Corrientes, in the Misiones, and in Paraguay, they are deliciously sweet and of very large size. The Orange is produced perfectly from the seeds and these being scattered everywhere by the parrots, which are exceedingly fond of the fruit, explains the fact of its general dissemination. In the Misiones and Paraguay many of the inhabitants content themselves with gathering their supply of Oranges from the wild trees of the forests rather than trouble to plant their own orchards. The tree commences to bear fruit at the age of six years, and is in full bearing at eight years. It is of very robust habit and is perfectly proof against drought and locusts, the two worst plagues of agriculture in the Argentine Republic. The shipments to market from the upper rivers begin in April and May and run through July and August. The steamers which ply between Buenos Ayres and Asencion, all return laden with the delicious fruit, a half a million of Oranges sometimes being piled up on their hurricane-decks and are free during the voyage to all passengers who choose to partake.

Some little movement toward the utilisation of the surplus Orange crop in the preparation of preserves and sweetmeats has been made, but the industry is yet very insignificant. The Lemon is grown all over the Republic, and is very prolific, not merely producing two crops per annum, but maturing a continual succession of crops. The Sweet Lemon is also grown in the northern provinces. It is eaten like an Orange, and is most deliciously refreshing.

The Olive (*Olea europæa*) is also thoroughly at home in the Argentine Republic, where it grows to an immense tree. The trees are planted in orchards from 10 to 20 feet apart, and are kept down by pruning and heading-in, but they require no further care. They come into bearing in about five years after planting, and they continue to bear almost for an indefinite period. At present the home-grown trees only in part supply the local consumption, pickled Olives and olive oil being imported into the country from Europe. It is calculated that if the Olive cultivation were prosecuted with energy it would become in a comparatively short space of time a very important branch of commerce.

The Fig is described as a favourite and generally distributed fruit of the country, which grows indigenous. It thrives everywhere, and gives the best results, especially in the regions bordering the Parana River. The tree often grows to a height of



FIG. 174.—A PROLIFEROUS HYACINTH.

flower, and he questioned me to ascertain whether it was an imported or a home-grown bulb; he said he had never seen anything like it before. It was carrying three spikes of blooms, and was also making three young growths. These bulbs were small at the end of the season, but were about equal in size and strength. My object has been to make as good a specimen as possible from this plant. In 1882 it was repotted and grown on; the same also the following year. And last year (1884) it was exhibited at Southampton as a single specimen, and took the honours, though two others competed for the prize, and, moreover, it drew forth a special mark of commendation from Mr. Williams of the Holloway Nurseries, who visited the show. It had five new, or flowering bulbs, with six spikes of bloom, five of which had twelve open,

bulbs, one spike, and a growth from each. Now, with my knowledge of these facts, I think I am justified in defending the pruning system. If pruning away the old back-growth weakens the plants, how is it that ours are still so strong, and so free to bloom? *Lælias*, *Cattleyas*, and *Ansellias*, will be the subject of next note. *N. Blandford*.

### PROLIFEROUS HYACINTH.

MR. JARMAN, nurseryman, of Chard, sent us some time since the Hyacinth from which our illustration (fig. 174) is taken. It will be seen that no fewer than twelve flower-spikes were produced from one bulb. This was brought about by the development of lateral spikes in the axils of the bulb-scales, so that in some



40 feet, forming a massive trunk. In the provinces of San Juan, Rioja, and Catamarca, the crop attains to large proportions, and considerable quantities are dried for commerce and find a ready sale all through the interior of the country. While in the provinces bordering on Parana the fruits are produced abundantly, no movement has ever been made to dry them, the people being content to consume the Figs while fresh; though it is an industry that will sooner or later become developed. Two kinds of Figs are grown—the white, which are properly called figs, and the violet or purple-coloured, which are called *brevas*.

The Date Palm (*Phoenix dactylifera*) has been introduced, and is cultivated slightly, but the Dates are of a very inferior quality. The Banana, Chirimoyer (*Annona cherimolia*), Papaw (*Carica papaya*), Nispero (*Psidium guajava*, var. *pomiferum*), Cherries, Pears, Apples, Peaches, Almonds, and Plums are all more or less cultivated, also the Pomegranate (*Punica granatum*) which is stated to become quite a large and robust tree, growing to a height of 20 to 30 feet. The Pistachio nut (*Pistacia vera*) is sometimes seen in private gardens, and appears to thrive well, also the Mulberry (*Morus alba*) which is stated to bear fruit very abundantly. *F. R. ?*

## HARDY SHRUBS.

**ASTER ARGOPHYLLUS.**—A specimen of this old-fashioned greenhouse shrub has been sent us from Cornwall, where it has produced its flowers in the open air. Its large lanceolate sharply toothed leaves are white on the under-surface, and have a delicious perfume of Musk. The flower-heads are small, whitish, and arranged in loose branching panicles. The shrub is a native of Tasmania.

### CHOISYA TERNATA,

popularly known as the Mexican Orange, is one of the most ornamental shrubs now in bloom. The silvery stars, which are singularly like Orange-blossom and on the Continent commonly grown as a substitute for that popular bridal flower, are deliciously sweet-scented, and produced in rich profusion at the apices of the last year's growth. It is perfectly hardy, and is never injured even by the severest winters, although occasionally we have seen it damaged by late spring frosts. As an ornamental wall plant it is particularly deserving of notice, not only on account of its flowers, but fresh evergreen foliage as well. It is readily propagated by inserting in sandy soil cuttings of the last year's growth as soon as the new growth is completed, and before it becomes hard and woody. They should be placed indoors, and on no account allowed to flag, as if that happens the greater number will refuse to root.

### THE DUTCHMAN'S PIPE (*ARISTOLOCHIA SIPHO*)

is in many respects a distinct form of climber. The large glabrescent leaves render this plant one of the most conspicuous coverings for a wall that can be imagined. The flowers, which are small and inconspicuous, resemble a siphon, and are usually hidden beneath the foliage, thus rendering the plant well suited for occupying a place over a path, as nowhere else are these remarkable flowers seen to better advantage. Being a native of North America, it is perfectly hardy and well suited for our climate, the only drawback being that, as a wall plant where sufficient space is given for its ramifications, one sees it far too seldom. It is rather difficult to propagate, but cuttings of it inserted in loam and sand and placed under glass generally do well.

### PIPTANTHUS NEPALENSIS, OR THE EVERGREEN LABURNUM.

In this will be found at present a very desirable flowering shrub. It has trifoliate leaves and large yellow flowers in terminal bracteate racemes. Being somewhat tender, hailing from the Himalayas, this handsome plant should be placed in a rather warm sheltered situation, indeed it is perhaps seen to best advantage when trained to a wall, as not only is it there somewhat sheltered during severe weather, but late spring frosts, to which this country is very susceptible, are not so likely to cut off the flowers. Being earlier in flower than the Laburnum it is very desirable, and is a valuable addition to our early flowering shrubs. Here, at Penrhyn Castle, it is perfectly hardy in all situations, but I am informed that in the neighbourhood of London, as well as many

other parts, it is not unfrequently cut down to the ground. It is readily propagated from seed, which it bears in great abundance.

### CEANOTHUSES.

Beautiful as are many of the *Ceanothuses*, their liability to be killed during severe winters has doubtless caused them to be much neglected. As wall plants they, however, usually stand uncathed, more especially *C. dentatus* and its variety *grandiflora*. The latter is a distinct and lovely plant, indeed one of the most profuse bloomers with which I am acquainted, which, coupled with the peculiar evergreen foliage, renders the plant when in bloom a most conspicuous object. In a compost of good rich loam, with an addition of peat or leaf-mould, this plant grows freely, and if suitably situated the young wood becomes well matured during summer and passes through the winter unharmed. Pruning back is very advantageous to this plant, and will cause it to bloom more freely than if left alone. *A. D. Webster.*

### CERCIS SILIQUASTRUM (JUDAS TREE).

This is one of the most beautiful of ornamental trees, and is a most striking object when in flower. It has been many years in English gardens, but is, nevertheless, singularly scarce. It grows freely in ordinary garden soil, and in almost any situation. It is perfectly hardy, grows well as a specimen on the lawn or trained to a wall or trellis, and deserves to be more generally cultivated. The specimen, 30 feet in height and about 25 feet through, grown at Muntham Gardens, Worthing, must be a very striking object when in flower. It is strange that a tree of such striking beauty should be so little grown. If nurserymen were to introduce it more to the notice of planters they might extend its cultivation, as it only needs to be seen to be appreciated. *M. S.*

## Notices of Books.

**Introduction à la Botanique.** Par J. L. de Lanesan. Paris: Felix Alcan, 1885.

This work is intended to furnish the educated reader some knowledge of the general principles of botanical science, without the necessity of wading through numberless details. The author chooses the Spruce Fir as a text, and describes pretty fully its organisation and histological structure, with constant reference to other types and with frequent allusion to the physiological office of the several structures. M. de Lanesan contrives in this way to give a great deal of general information respecting the organisation of plants in general. In a popular work of this character, however, he might well have been more didactic, and not puzzled his readers with controverted points about the nature of the inferior ovary, or the seed of Conifers. A discussion of the different views held by various botanists is out of place in such a treatise.

### Yarrell's British Birds.

The fourth edition of this invaluable treatise is now completed with the publication of the thirtieth part (Van Voorst). The first two volumes were revised by Prof. Newton, the two latter ones by Mr. Howard Saunders. Copious indices are attached.

### Clematis.

Dr. Otto Kunze has published in Germany a monograph of the genus *Clematis*, in which he admits sixty species. The main subdivisions are founded on the erect or climbing habit, and the presence or absence of bud-scales. Of our common *Clematis Vitalba*, some twenty subspecies or varieties or forms are enumerated, which will serve to show the method upon which the author has worked. *C. Jackmanni*, hort., is considered as a hybrid between *C. florida* and *C. viticella*. A good index is appended.

**Where to Find Ferns.** By F. G. Heath. Society for Promoting Christian Knowledge.

A pretty little book, giving not only indications where to find Ferns, but also illustrations and brief descriptions of the Ferns themselves. We could almost wish the author had confined to a chosen few only the localities for certain Ferns. Extinction

is the certain and not remote fate of some species. Needless to say that those who are indirectly responsible for this are those Fern lovers, whose love is on the surface, and whose requirements at any rate would be much better supplied by the nurseryman. Some future Chancellor of the Exchequer will have to put a tax on wild plants brought to market; many of them stand in greater need of a "close time" than do the birds. Meanwhile it is, we admit, selfish to wish to keep such innocent delights to ourselves. With the author we would fain see the appreciation of Nature become universal, and we have not the heart to quarrel with an author who gives us such a pretty book, and one which awakens such pleasant associations.

### The Forest Flora of South Australia.

The last part of Mr. J. S. Brown's useful publication contains folio coloured plates and botanical descriptions of *Eucalyptus gracilis*, one of the "Mallee" trees of the colonists, the word being applied to those species which branch from the base, like a shrub, rather than those which have one distinct trunk; *Myoporum insulare*, or Blue Berry, a tree with a very rough bark, obovate leaves, inconspicuous flowers, succeeded by numerous purple berries each the size of a Pea, which are more attractive to the eye than to the palate. The tree is mentioned as suitable for planting in the vicinity of the sea. *Melaleuca squarrosa* is one of the so-called Bottle-brush trees, so called from the aggregation of numerous yellow flowers in cylindrical masses round the ends of the branches. It is one of the so-called Tea Trees of the colonists. *Pittosporum phylliræoides* is a shrub with slender pendulous branches, narrow green leaves, small yellow flowers in loose clusters, and succeeded by ovate, pointed, yellowish, capsular fruit. It grows in exposed sterile parts of the country, and is of elegant habit. The foliage is eaten by stock.

## THE COLOURING MATTERS OF FLOWERS AND FRUITS.

A VERY interesting communication has recently appeared in the *Verhandlungen der Physik. Med. Gesellschaft zu Würzburg* on the subject of the colouring matter in flowers and fruits, contributed by Dr. A. Hansen. It appears that a relatively small number of pigments serves for the production of the seemingly endless variety of colour in flowers and fruits. The white and black shades which we encounter there are not due to any special colouring matter. White is due merely to the reflection of light through colourless tissues containing air. Blacks owe their origin merely to the dense concentration of violet pigments. If we set aside chlorophyll-green, which is rarely met with in flowers, we may recognise the three following groups of colours:—(1) Yellows, (2) reds, (3) blues and violets. Hildebrand has previously demonstrated that the yellows are mostly in combination with the plasmic substance, whilst the colours of the second and third group are generally found existing in the cell-sap. The yellow of flowers forms an insoluble compound with fatty matters, as was demonstrated by Krukenberg in the animal kingdom under the name of lipochrome (this may go far to account for the general comparative permanence of the yellow colours both of plants and animals). The yellow pigment, obtained by Hansen in a pure crystalline state by saponification with soda and extraction with petroleum ether, agrees in its behaviour with lipochromes. The spectra of the pigments of different yellow flowers agree with each other so closely as to lead to the conclusion of their mutual identity. Between the F and G lines there occur two absorption bands, which do not, however, always occupy exactly the same position. The solutions are not fluorescent. Orange is formed by a denser deposit of the yellow pigment. Thus the colour of the rind of an Orange is due to the same pigment as is found in the yellow flowers of *Ranunculus repens* (Buttercup, Kingcup). The colour of yellow Dahlias and of Lemon-rind is not a lipochrome. It is soluble in water, and behaves differently both chemically and spectroscopically, displaying, for instance, no absorption bands. It is very similar to the pigment of *Æthelium septicum* (the yellow fungus or mould on rotten wood) examined by Krukenberg. The reds of flowers may be reduced to a single pigment—the rose-dye of Roses, Carnations, Pæonies, &c. It is soluble in water, and is decolourised in



alcohol, probably in consequence of dehydration. On the addition of an acid the colour is restored. The spectrum displays a broad absorption-band between D and F. The varying intensity of the colours of Roses, Carnations, and Pæonies depends probably on the presence of acids. The scarlets and brick-reds of Poppies, scarlet Lilies, the berries of the Dog-Rose, &c., are produced by the simultaneous presence of lipochrome.

The blue violet pigments turn pale also in alcohol. The solution is reddened by the addition of an acid, as was noticed by Fremy and Marquardt. They assumed, therefore, that the red colours were merely the pigments modified by acids. Hansen, on the other hand, holds that the blue and violet colours are derivatives of the red. In favour of this view is the fact that certain blue and violet flowers (Boraginæ) are at first red. The flowers *Erica cinerea* (Pine-leaved Heath) are on opening red, but turn more to a violet on fading. On the contrary, the corolla of many *Fuchsias* passes from a bluish violet to a red. Salts of iron turn the red of Pæony flowers to a violet. It is well known that gardeners can produce blue *Hydrangeas* by adding iron to the soil. Pæony-red is turned to a violet by the addition of sodium phosphate, and larger quantities of the same reagent render it blue. The spectrum of the blue and violet pigments has two absorption bands between D and  $\delta$ . These pigments also may be combined with lipochrome-yellow, they producing the colour of the berries of *Ampelopsis* (Virginia creeper). Hansen does not refer to the red, blue, and violet colour granules which occur here and there in flowers and fruits. He assumes, therefore, only four fundamental pigments—soluble yellow, lipochrome-yellow, flower-red, and chlorophyll-green. He opposes the view that all colours are derived from chlorophyll-green, since their spectra do not agree. The change of colours of green fruits and green leaves in autumn he accounts for by the destruction of the chlorophyll, and either the simultaneous formation of new pigments, or the unmasking of lipochrome which existed previously, but which was concealed by the chlorophyll. Brown decomposition products co-operate in the production of the autumnal colours. *English Mechanic*.

thoroughly rotten manure is given over the surface, *Calceolarias* and similar plants will derive much benefit therefrom, and much labour otherwise spent in watering will be saved.

#### EDGING AND WALKS.

Box edging should now be trimmed as neatly as possible. Gravel-walks should receive a sprinkling of new gravel over the surface, and be then well rolled. Cleanliness and order should be maintained throughout, so as to make the garden as pleasing as possible.

#### TREE OR PERPETUAL CARNATIONS.

These should be carefully attended to, and well supplied with manure water, and if already mulched with decayed manure will be much benefited by its application, which assists them to develop their blooms and prolongs their flowering season. I find the Tree Carnations far the best for bedding out, as they last so much longer in bloom than the ordinary border kinds, and are so much freer flowerers than those; and as there are so many splendid new varieties to select from, they are most useful for cut flowers. They should be exclusively grown, as they are favourites with every one. *W. Smythe, Basing Park, Alton*.

## The Hardy Fruit Garden.

APPLE trees on hot gravelly soil will require attention as to watering, otherwise they will suffer, and in many cases mildew will appear with the hot weather. This should by no means be allowed to become established. Sulphur dusted over the affected parts is a good remedy.

#### SMALL FRUITS.

Gooseberries, Red Currants, and Black Currants would be all the better for the young shoots being thinned out, leaving only sufficient to form good bushes, the best and largest fruit being always borne on the young shoots or spurs of the current year's growth; hence the importance of having these vigorous and well ripened, and this cannot be expected if all the young shoots are allowed to grow until winter pruning. All kinds of fruit trees are better for the summer shoots being well thinned out; it not only allows the sun to ripen the wood for next year's crop, but allows the sun and air to colour and ripen the fruit. This is an important point where fruit has to be kept any length of time, more especially with Apples and Pears. It is well known that a thoroughly ripened Apple or Pear will keep much better than a green or half-ripened one.

#### WALL TREES.

These now require constant care and attention: the most important points are keeping the trees free from insects, the most effectual means of which we know, are careful syringing with clear rain-water, pinching in any misplaced shoots that may have been overlooked when disbudding the trees, nailing up the strongest to the wall. Any weakly shoots that it is desirable to encourage are better left unnailed for a time—they will grow stronger if left at liberty. Morello Cherries should be gone over again, and all wood not required should be pinched-back or cut away. When the shoots are thio, a certain number of them might be pinched back to form fruit spurs for next year's fruiting. Pinch back to one eye above the fruit all Vines on walls, and stop the laterals; water with manure water when dry. Fig trees on walls should have all the young bearing shoots stopped at five or six joints, and all weakly shoots cut clean away.

#### STRAWBERRIES.

Where the fruit is now ripening fast the beds will require netting from birds. Very light nets laid on the beds will as a rule keep them away; but where the fruit is used for dessert, and has to be gathered two or three times a day, I prefer having the nets placed a sufficient distance above the beds so as to allow of the fruit being gathered without having to remove the nets. For this purpose I use light poles placed all round the beds, driven sufficiently firm into the ground to bear cross pieces to be placed on the top of them, so as to carry the nets about 3 feet clear of the ground. The first variety to ripen here is King of the Earlies, on the 12th inst. *J. Smith, Mentmore, Bucks*.

## Plants and their Culture.

#### FERNS: ADIANTUM CUNEATUM.

THE stock of this most indispensable Fern that is relied upon for decorative uses both on the plant and in a cut state should receive every attention during the next few weeks, in order to have plants of compact habit and hard durable fronds by the autumn. This cannot be achieved if the plants are kept in a moist stove temperature with comparatively little ventilation, and more likely than not a somewhat dense shade; these results may produce fronds of a dark verdant green, but not such as will be found of lasting properties, and consequently of the greatest value in a cut state. If we could select our own idea of a good house for them it would be one of such as are used by the trade growers for Cyclamen and other dwarf plants; here they would be near the glass, and provision could be made for abundant ventilation. Shading should only be applied during very bright sunshine, but an abundant supply of water would be needed at the roots. Failing such suitable houses we are compelled to use the best means we possess to obtain the best possible results. Our own plants are now standing thinly arranged on the staging of a lateinery, which, so far, seems to suit them very well, and gives a pleasing effect to the interior of the house likewise. Rather than allow them to be in the stove at this season we would prefer to keep them in cold pits or frames, and if they could there stand on a bed of coal-ashes a good quantity of seedlings might be had by the autumn. Any stock that has of late been severely drawn upon for cut fronds should be kept moderately dry at the root for a while; then after a rest the old fronds may all be cut away, the plants re-potted if needful, and started into fresh growth again, but not in a high moist temperature, for reasons already given. Two or three batches in different stages of growth would be found the most useful for a constant supply in the case of a large demand. These remarks will also apply to many other decorative Ferns, several other *Adiantums*, and *Pteris* in particular, likewise those that are most useful from among the *Davallias*, which for durability can hardly be surpassed. *James Hudson, Gunnersbury House, Acton*.

## The Flower Garden.

#### HERBACEOUS BORDERS.

THESE are now very gay, and to keep them in perfect order no labour should be spared in regard to staking and tying; the hoe should be used freely in dry weather, so that the weeds make no progress. A good supply of liquid manure will be very beneficial to most of the plants in these borders. Bulbous plants which have matured their growth may now be taken up and gradually dried and stored away in cool dry quarters till the autumn. The Persian Ranunculuses which are now showing bloom should be freely watered should the weather prove dry. Lawns will now require constant and regular attention in mowing, sweeping, and rolling, for if neglected at this period the effects will be visible throughout the summer. All large and broad-leaved weeds should be taken out as soon as seen; I find hand-weeding is the best method and safest, after having tried all others. The shrubberies much crowded with shrubs, and all recently planted subjects should, if the weather be dry, be freely watered, and afterwards mulched with short litter, &c. Care should be taken that they cannot be swayed about by the wind, till they become thoroughly established.

#### THE FLOWER BEDS.

The fine weather and bountiful rains have proved beneficial to the many newly-planted subjects in the flower garden. Even the tenderest kinds have already made satisfactory progress, and will soon fill their allotted spaces, and bedding plants are looking well and very promising, and many of the beds are already full. Every attention will be required in pegging, tying, and training into the proper form, and in pinching and stopping exuberant growths and such shoots as have already filled their spaces. Constant attention should be paid to watering if the weather continue hot and dry; and if a good mulching of

## The Kitchen Garden.

#### PLANTING OUT.

THIS work is out of the question so long as the present dry weather continues. The first early Broccoli will have now been in permanent quarters for some time. As soon as a favourable change takes place in the weather for planting, the second sown lot of Broccoli plants should be got out. There is no better system than drawing drills in which to place the plants, as during the time they remain open they offer a good receptacle for water, and after being filled in when the plants are further advanced. The additional soil about the roots and stems will steady the plants and protect them against wind-rocking, and another earthing-up later on should again take place. The main plantation of Brussels Sprouts, if not already put out, should be attended to on the first favourable change in the weather. A good plantation of purple sprouting Broccoli would be found most useful during March and April of next year, especially if the winter prove severe; and it will be wise to make a provision for a supply of this hardy variety. It should be allowed more space (when planting out) than other varieties, say to the extent of 6 or 9 inches. The same remarks apply to Cottagers' and Asparagus Kale, both of the greatest utility during severe weather, when the supply of Broccoli and Spinach is taxed to the utmost. One yard each way is not too much for Cottagers' on good land, 2 feet 6 inches or 2 feet on poorer land. Should these not be required for the dining-room they will be certain to come in useful, for the many other demands which the gardener has to meet. They will succeed well on north borders or under the partial shade of trees. A good plantation of Leeks should soon be planted out either in trenches or in deeply drawn drills on well manured soil. The young plants should be planted as deeply as the leaves will allow, the object being to obtain a long blanched stem, which will ultimately be secured by earthing-up, as for Celery. Spinach must be sown frequently (in various positions) until the time arrives for making the main winter sowing. A semi-shady place is best for it during hot dry weather. *G. H. Richards, Somerley Gardens, Ringwood, Hants*.



## POINTMENTS FOR THE ENSUING WEEK.

TUESDAY, June 23	Meeting of the Royal Horticultural Society's Committee; Show of Roses, Pelargoniums, and other Plants.
WEDNESDAY, June 24	Sale of Imported and Established Orchids, at Protheroe & Morris' Rooms. Richmond Horticultural Show.
THURSDAY, June 25	Sale of Imported Orchids from Messrs. Shuttleworth, Carder & Co., at Stevens' Rooms.
FRIDAY, June 26	Sale of Orchids from Messrs. Horsman & Co., at Stevens' Rooms.
SATURDAY, June 27	Sale of Imported Orchids from Mr. F. Sander, at Albans, at Stevens' Rooms.
	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
	Canterbury Rose Show.
	General Meeting of the Royal Botanic Society, at 3.45 P.M.

IT is probable that one of the reasons why natural or home-made manures are considered so valuable by the gardener, and so much more useful for general purposes than any ARTIFICIAL MANURES, is that the effects of the latter are not fully understood.

Purely chemical manures are usually classed by those who know but little of the subject as stimulants, but a stimulant is something which causes temporary excitement, but does not produce any permanent good.

To the human race alcohol is called a stimulant. We hear of old people being sometimes kept alive by the aid of stimulants, but never of young people growing and thriving on them. Sir J. B. LAWES says: "Light and heat are the only stimulants to vegetation, all other things must be classed as foods." Therefore chemical fertilisers are not stimulants, but real plant-foods.

Let us examine the matter a little more fully. The food of plants consists of certain ingredients. Some of these are derived from atmospheric sources, the rest are furnished in solution in water from the soil. No plant can attain full development without a sufficient supply from the soil through its roots of potash, phosphoric acid, and some compound of nitrogen. Besides these lime, magnesia, sulphuric acid, chlorine, and perhaps silica, are sometimes, if not always, indispensable, though in some cases in fractionally proportions, to produce perfect growth.

The largest constituent of plants in the fresh state is water, which makes up from nearly three-fourths to over nine-tenths of the weight of most of our common garden plants. The next largest is the organic matter, which constitutes from 7 to 25 per cent.; and finally we have the ash constituents, which remain after the plant is burnt, forming from 1 to 6 per cent. of the plant in its natural condition.

The roots of a plant are the organs by which it absorbs water from the soil, and with this water a variety of food elements is introduced into the structure of the plant. The feeding power of roots and their fibrils is not, however, confined to the taking up of ready formed solutions, they are also capable of attacking some of the solid ingredients of the soil, which they render soluble, and then appropriate for their nutrition. This important function of roots is carried on in different degrees in different plants, and takes place only at the point of contact between the rootlets and the particles of the soil, and is brought about by the exudation of an acid juice which the roots contain. This action of roots plays an important part in the supply of phosphoric acid, potash, lime, and nitrogen to the plant; the latter being nearly always taken up in the form of nitrates. When we remove the crop we necessarily take away the materials the plants have gathered from the soil. Soil exhaustion is, in other words, therefore, the removal of plant food.

A worn-out soil is generally one from which the available supply of soluble plant-food has been reduced so low that it can no longer produce good and paying crops. We find, however, from data furnished by the invaluable experiments of Sir J. B. LAWES at Rothamsted, that even a worn-out soil may do some-

thing towards supporting vegetation. It does this by virtue of what Sir JOHN has very aptly termed its "natural strength." This quality is what the soil has to fall back upon after it has been reduced by cropping, and is practically constant, because it depends, not upon stimulants, but upon the chemical and physical processes that, with the aid of air and moisture, warmth and frost, and the agency of minute "bacteria" which render the nitrogen in the soil available for plant-food, and which are, some or all, more or less, continually going on in every soil.

Now these actions go on whether the soil is cultivated or not; at the same time proper tillage aids the work wonderfully. But even without it the stock of food accumulates so long as less is removed than is supplied. It is in this way that fallow ground recuperates, and that virgin soils have acquired their richness. And what the soil will thus do for itself slowly the gardener may do for it more quickly by manuring.

For this purpose we have at command—(1) stable-dung, and various animal manures, house, farm, and garden refuse generally; (2) rubbish of all kinds, ashes, marl, lime, and other cheap materials; and (3) commercial fertilisers.

The natural or home-made manures, stable and yard dung, night-soil, and the like, contain all the soil-ingredients of plant-food. They are, however, usually slow in their action, although lasting in their effects, and besides supplying plant-food directly, they have an indirect action of improving the texture of the soil.

Marls and lime supply less plant-food than dung, but their property of improving the texture of the soil, and changing the stores of inert and dormant constituents into assimilable forms, is far greater.

Commercial fertilisers, like potash salts, phosphates, bones, guano, ammonium salts, and nitrate of soda, contain plant-food in very concentrated and readily available conditions. Their principal ingredients are phosphoric acid, potash, lime, and nitrogen.

The rule in purchasing such manures should be to select those which supply most economically the materials that garden plants need, and which the soil fails to furnish in sufficient amount.

Of the very numerous artificial manures so freely advertised few seem, so far as the analyses which were undertaken for us some few years ago, testify to be absolutely bad, many are excellent, but nearly all are preposterously high-priced—a matter of little moment when used on a small scale in the garden, but which would become serious if they were used on a large scale, as they would be by a farmer or market grower. A necessary caution in all cases is to use the manure at the right season, and always in a very dilute state.

— ANTWERP EXHIBITION. — Great efforts are being made to secure a first-class exhibition in August next. In conjunction with the exhibition an International Congress of Botanists and Horticulturists will be held under the auspices of the Botanical Society of Belgium, the Cercle Floral of Antwerp, the Chambre Syndicale of Ghent, and other public bodies. Various botanists and horticulturists have been requested to send in reports on the various subjects mentioned in the programme before alluded to by us. The International Association of the Congo has promised its concurrence, and there is every probability that both Exhibition and Congress will prove successful. Four hundred visitors from various nations have announced their intention to be present, and it is hoped that Great Britain will be well represented on the occasion. M. CHARLES DE BOSSCHÈRE, Liège, near Antwerp, is the President of the committee, to whom communications should be sent.

— "BOTANICAL MAGAZINE." — The plants figured in the June number of this magazine are:—

*Bauhinia variegata*, t. 6818.—A stove tree, with roundish bifid leaves, the lobes obtuse. The flowers are in short clusters, each about 4 inches in diameter, with fine spreading, stalked, obovate pink petals, one rather larger than the rest, and of a darker colour, like the lip of an Orchid.

*Cytisus hirsutus*, t. 6820.—A low spineless bush, softly hirsute, with ternate leaves, leaflets obovate, and dense axillary clusters of yellow Pea-shaped flowers. It is a hardy shrub, native of Southern and Eastern Europe.

*Odontoglossum Oerstedii*, t. 6821.—See *Gardeners' Chronicle*, vii., 1877, pp. 302 and 811.

*Costus igneus*, t. 6821.—A brilliant Brazilian Ginger-wort, recently figured in the *Illustration Horticole*.

*Hyacinthus azureus*, t. 6822.—This plant has the habit of Muscari, but the perianth-segments are not incurved, so that it forms a link between the two genera.

— ORCHID PRICES. — At Messrs. STEVENS' sale of Mr. EDWARD WALLACE'S Orchids on the 17th, one plant of *Cattleya Reineckiana* was sold for 76 guineas, a fine plant of *C. Wagneri* for 90 guineas, and two smaller pieces for 19 and 12 guineas.

— FROST. — On Wednesday night, June 10, there was a sharp frost in the Dunstable district, with all the water derived from the rain of the previous Monday covered with ice, the foliage of Bean and some Potatoes being in consequence much blackened.

— SOUTH KENSINGTON SHOWS. — Owing to the almost or quite invisible dividing lines between the groups of exhibitors' plants, &c., at these meetings, frequent mistakes occur in reports, as in our own of the show on the 9th ult., where Mr. DE B. CRAWSHAY was asserted to be the possessor of Mr. LITTLE'S two plants, *Cattleya Mendelii* and *C. imbricata*. Something more is wanted than a faint and frequently fast vanishing line made with chalk on the green baize. Coloured rods that would not be mistaken for flower-sticks, and which would not run a risk of being used as such by exhibitors' employees, would be the best kind of thing to mark the extent of the groups, together with fixed conspicuous tickets placed in suitable positions.

— BROCCOLI LATE QUEEN. — This fine variety, sent out by Mr. GILBERT, of Bughley Gardens, Stamford, is well worthy of all praise as a kind which well fills up the gap frequently observed just before the coming in of the Cauliflower in May and early June. It is large, close, creamy-white, tender, and almost devoid of the strong aroma peculiar to other Broccoli.

— YUCCA WHIPPLEI. — Of the pure white original form of this very interesting species a fine plant was in flower the first fortnight of June in the nursery of Messrs. E. H. KRELAGE & SON, Haarlem, Holland. It will be remembered that this Yucca flowered for the first time in Europe in the summer of 1876 at the above mentioned nursery of Messrs. KRELAGE, and almost at the same time with Mr. PEACOCK, of Hammersmith. A description and a sketch of that plant was then given by Mr. J. G. BAKER in the *Gardeners' Chronicle* (August 12, 1876, pp. 196, 197). Recently a variegated variety of this plant has been figured and described in the *Revue Horticole* (1884, pp. 324, 325), from a plant flowered in the Jardins d'Acclimatation of Hyères.

— CHISWICK HORTICULTURAL SOCIETY. — The exhibition of this Society will take place on July 16, in the historical grounds of the Royal Horticultural Society, thanks to the kindness of the Council. Numerous prizes are offered, varying in value from a 1st prize of £5 for the best group of plants to the 6th prize of 1s. offered to the Board-school children for a bouquet of wild flowers. Chiswick is such a good centre, and the gardens are so well adapted for an exhibition of this kind, that it is to be hoped success will crown the endeavours of



the committee. Mr. JOHN BARRY, whose experience at the Royal Horticultural Society should render his services specially valuable, is the Assistant Secretary to the Chiswick Society, which has the support countenance of the Duke of DEVONSHIRE and the officers of the Royal Horticultural Society.

— THE KEW ROCKERY is now very charming—so many plants of beauty and interest being now in bloom. The object of the designer is being more completely fulfilled as time advances, and the success which was recognised when it was first planted has become more decided. The little nooks wherein are clumps of Ferns, or of hardy Bamboos, or terrestrial Orchids, or what not, are very interesting, though some of them are on too small a scale; perhaps this might be remedied, in appearance at least, by re-arrangement of the rock-masses at particular places, so as to prevent the whole nook being seen at one time. The geological sections, now covered with pendent sprays

their expansion. Not unfrequently a second crop of bloom is produced in the autumn; but in this case it is produced on the ends of the long slender shoots formed in spring. This year a tree of some age has been an object of interest, as while it has produced very few clusters in the ordinary way, from spurs, it has borne numerous racemes from the shoots of the year (like a Rose). Generally speaking, when this mode of blooming occurs in the Laburnum it does so in early autumn, but in this particular case the blooms were expanded at the same time as those of the ordinary character on spurs.

— HARDY SHRUBS.—Mr. KETTLEWELL, The Gardens, Balrath Bury, Co. Meath, sends us flowering sprays of *Spiræa Houttei*, with slender branches, small oblong leaves, toothed near the apex, and dense corymbs of pure white flowers, each nearly half an inch in diameter. *S. trilobata* is similar, but has roundish 3-lobed leaves and smaller flowers. *Ceano-*

illustration of what can be secured in the direction of early flowering by means of careful and persistent selection, and Mr. DAVIES' new early flowering varieties must prove a distinct gain in the North.

— BRUNONIA AUSTRALIS.—Although introduced as long ago as 1834, we seldom see this interesting little plant in cultivation. Furthermore, the natural order Goodenovia, to which it belongs, is seldom represented in gardens, notwithstanding the fact of its containing over 200 known species. Seeds of the *Brunonia* were sent to Kew in 1883, and the plants (some of which have been developing their flower-scapes for months) are now in their most attractive condition in the Heath-house. The flowers are small, bright blue, and collected in heads at the end of naked flower-stalks, resembling superficially those of a *Jasione* or a *Phyteuma* belonging to the Campanula order. The silky hairy spatulate leaves are arranged in a rosette, and remind one of a *Myosotis*.

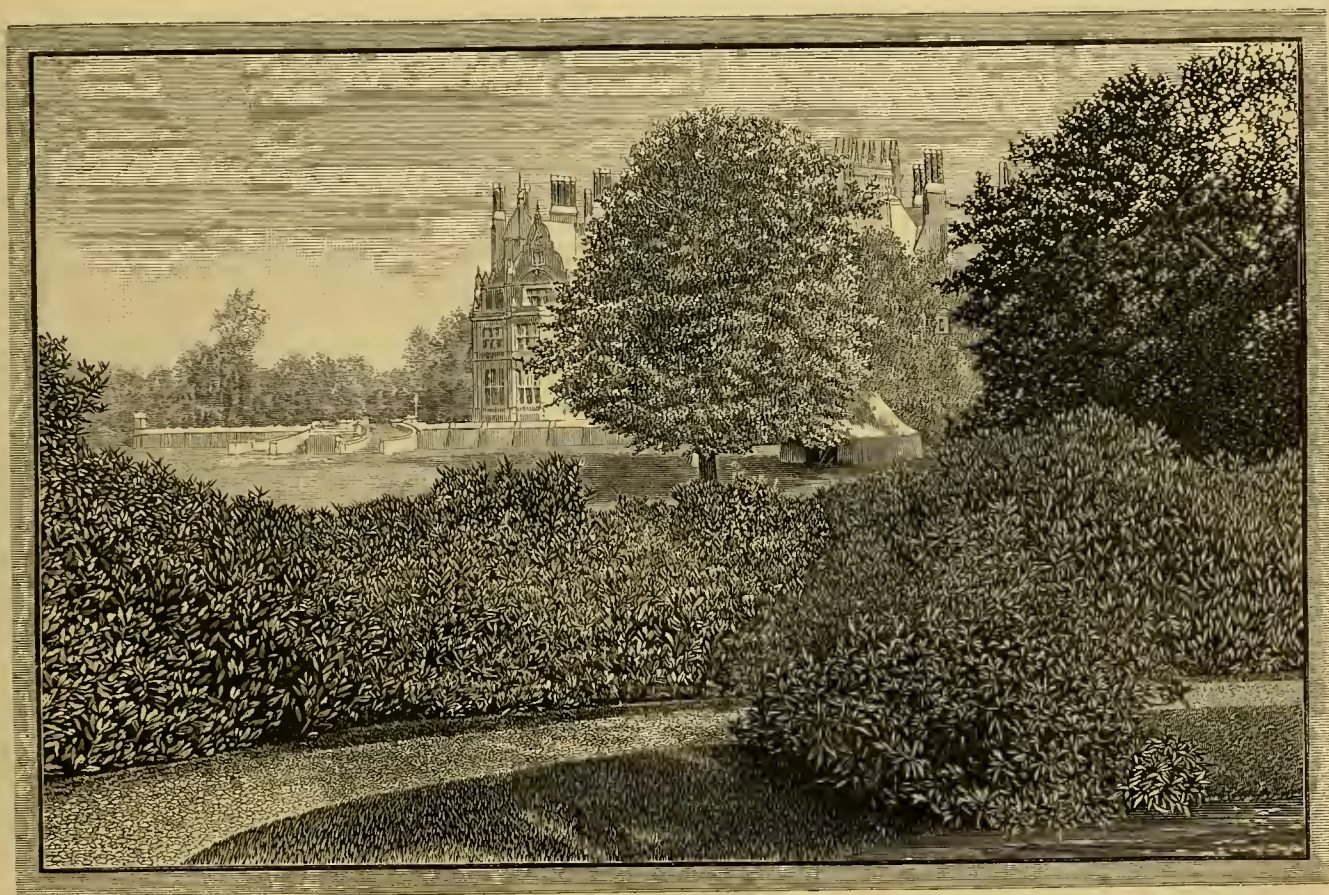


FIG. 175.—BEARWOOD. (SEE P. 798.)

of *Saxifraga pyramidalis*, &c., are very beautiful, but here also as time goes on and the plants become more luxuriant, there is a lack of "breadth," which was not so apparent at first. *Kniphofia caulescens* is at present one of the most striking plants in bloom. It resembles one of the tree Aloes, having a short, stout erect stem, and strap-shaped acute leaves, glaucous, and somewhat reflexed, and terminal stalked spikes of red flowers, as in most of the other species of the genus. Altogether the rockery is more beautiful and attractive than ever to our thinking, though that was not the opinion of two ladies—one of whom we overheard complaining that so much space should be given up to weeds and wild flowers! There is no pleasing every one. A Regent Street milliner's window would doubtless have proved more attractive to the visitors in question.

— INFLORESCENCE OF THE LABURNUM.—This tree, as is well known, usually produces its flowers on short spurs corresponding to those of the Apple or Pear, and which are formed in the autumn preceding

thus *Veitchii* has numerous dense oblong racemes of slaty-blue flowers. From the massiveness of the inflorescence and the size of the individual blooms this constitutes one of the best of its class.

— EARLY-FLOWERING HARDY RHODODENDRONS.—For some years past Mr. ISAAC DAYLES, nurseryman, of Ormskirk, has been labouring to produce a section of hardy Rhododendrons that shall bloom much earlier than the majority of the fine hybrid varieties familiar to visitors to the Bagshot and Knap-hill Nurseries. Ormskirk is a very late district—probably three weeks later than the London district; and the late period at which the hardy Rhododendrons flowered induced Mr. DAVIES to set about the production of varieties showing greater precocity in regard to the time of flowering. Fully a month ago a box of flowers of seedlings was sent to us, taken from plants growing in the open air that had bloomed much in advance of the ordinary hybrids. They were very bright and pretty, and of excellent quality. This affords another

But the most curious character about this plant, as well as the whole order, is a cup-like indusium or covering surrounding the apex of the style. The plants named after great botanists are frequently small and insignificant, and this one is no exception to the rule with regard to size; but the flowers are not only interesting but attractive. A figure of this, the only species, is given in the *Botanical Register*, t. 1833.

— LUISIA PSYCHE.—Few of the ten known species of this genus have been introduced to cultivation, probably on account of the not very conspicuous character of the flowers. In habit they somewhat resemble *Vanda teres*, with similar foliage, but much dwarfer stems. The present species, flowering in the warm division of the Orchid-house at Kew, has medium-sized flowers of a fleshy consistency and creamy-white colour, with a blackish-purple blotch at the base of the labellum. The latter is flattened and  $\frac{1}{8}$  inch long, and  $\frac{1}{2}$  inch broad. The flowers possess a faint but agreeable fragrance, and are interesting on account of the manner they are seated in



clusters on the stems at the base of the leaves. The species are variously described under the names of Vanda, Cymbidium, and Epidendrum.

— EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY.—It is announced that a special great anniversary exhibition in celebration of the above Society having attained to the twenty-first year of its existence, will take place in the grounds of Gunnersbury Park, Ealing, on Tuesday, July 7 and Wednesday, July 8. In addition to granting the use of these beautiful grounds for the purposes of the show, Sir N. M. DE ROTHSCHILD, Bart., M.P., and his brothers have given the sum of fifty guineas towards the Special Prize Fund, the classes being open to all England; and Lady DE ROTHSCHILD will present the prizes to the successful cottagers and allotment holders on the afternoon of July 8.

— HARDY ORCHIDS.—Mr. WARE sends us fine blooms of the lovely *Cypripedium spectabile*, the white segments and rosy-lilac lip of which render it a formidable rival of the most beautiful of its stove congeners. In the same consignment are various specimens of *Orchis foliosa*, showing a range of colour from pale rose-lilac to deep lilac.

— SENEIO CONCOLOR.—This is a very pretty species, with the habit and foliage of *Lychnis flos cuculi*. The flower-heads are  $\frac{3}{4}$ –1 inch across, the rays lilac, the disc whitish. It is now in flower on the rockwork at Kew.

— ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER.—A Chrysanthemum and fruit show, on a large scale, will be held, under the auspices of the above Society, in St. James' Hall, Manchester, on November 17, 18, and 19.

— CALOTROPIS GIGANTEA.—Two out of the three known species of this genus are flowering for the first time at Kew. They are natives of the hotter parts of Asia, Arabia, and Africa, and dislike a superabundance of moisture which would rot and destroy them. They occupy the warm end of the Succulent-house, which seems to be according to their liking. The foliage of both species presents a whitish or hoary appearance, contrasting well with other kinds of vegetation. The flowers are produced in extra-axillary umbels on the same level as the leaves, but half way round the stem. Those of *C. procera* are white with a purple blotch on the corolla segments, and the plant is figured in the *Botanical Register*, 1792. The flowers of *C. gigantea* are much larger than those of its congener just mentioned. The segments of the corolla are reflexed and twisted, suffused purple and white, and less attractive than those of the others. The spur-like appendages of the corona of *C. grandiflora*, however, are violet-purple, very largely developed and more conspicuous than all the rest of the flower. This species is figured in the *Botanical Register*, i., 58. The flowers of both on the whole are attractive for the order Asclepiadaceæ, and rarely seen in gardens.

— PRICKLY PEAR IN AMERICA.—In some recently published Consular reports of the United States the following interesting paragraph on the Nopal, or Prickly Pear (*Opuntia cochinillifera*) occurs:—"The plant abounds in the whole territory of Mexico, Texas, New Mexico, Arizona, and California, and extends much farther north. It has flat oval leaves, about 6 inches long and nearly half an inch thick, covered by long sharp thorns, and bears a fruit of a purple colour resembling a Pear, filled with numerous small seeds. The plant grows from 3 to 6 feet high. Its fruit is eaten freely by cattle, and the leaves, after having been burnt in a fire to get rid of the thorns, are thrown by the cartmen in place of fodder to their oxen by means of a long sharp-pointed stick, especially when on the road where there is no grass. It also makes an excellent hedge, and once planted will last for ever. There is another species of Nopal called Nopal de Castilla, which has no thorns, and which is cultivated for the sake of its fruit. This Nopal has much larger leaves than the wild species, and grows to the height of 10 and 20 feet, and the fruit is much larger. Of this species there are a great many different kinds, each having its distinct name. They are of different colours—green, red, yellow, white, and purple. The fruit is delicious, and in the interior of Mexico forms one of the principal means of sustenance for the inhabitants. From the purple

Tuna a liquor is made called *colonche*, and a sort of sweet cheese (*queso de Tuna*). There is a small red Tuna growing wild in the mountains near to Zacatecas, called Cardona, which is highly prized on account of its fine flavour and digestible qualities, and several cartloads of which are sold daily in Zacatecas. They are sold at 6 cents for four dozen. Besides serving as food for men and beasts, its leaves form the food of the cochineal insect."

— MR. CUTLER.—We are informed that it is the intention of the members of the Committee of the Royal Gardeners' Benevolent Institution to present Mr. CUTLER with a testimonial, in recognition of the great efforts that he put forth to secure the sum necessary to augment the pensions. The subscription list will close on Tuesday, June 30. It is believed that the testimonial will be presented on the occasion of the annual dinner, on July 3.

— COMING SHOWS.—At South Kensington, in the Royal Horticultural Society's Garden, June 23, there will be a great show, comprising Roses, Pelargoniums, and other flowers. The grand Bath Rose Show is fixed for Thursday, July 2. Some good prizes are offered in the best classes to both nurserymen and amateurs. At Grantham a show will be held on August 13, at which the now favourite method of arranging groups of plants for effect will form a leading feature. The Rose Show at the Crystal Palace will take place on Saturday, July 4, at which a large special exhibition of Roses will be made by Messrs. W. PAUL & SONS, of Waltham Cross, and which will be on view from that date till July 11.

— GARDENING APPOINTMENTS, &c.—Mr. H. C. WILSON, formerly of Heveningham Hall Gardens, Suffolk, goes with H. V. HAIG, Esq., from Cameron Bridge, Fife, to his newly purchased estate, Ramoonie, Ladybank, Fife.—W. CLARKE, formerly with the late P. CAZENOVE, Esq., Clapham Common, has been appointed Head Gardener to the Earl of Bessborough, Bessborough Park, Piltown, Ireland.—Mr. JOHN DOWLEY, for over forty years connected with the Royal Parks and Gardens, and for the past four years chief Foreman in Kensington Gardens, has retired on a pension from the Commissioners of Her Majesty's Works. As a mark of respect, his colleagues and the *employés* in Kensington Gardens, St. James', the Green and Hyde Parks, have presented him with a purse of money on his retirement.—Mr. GEORGE WARD, for the past ten years principal Foreman in the gardens of the Marquis of NORTHAMPTON, at Castle Ashby, succeeds to the post vacated by Mr. DOWLEY.

## PLANT PORTRAITS.

CAMELLIA CATERINA REDOLPHE, *Bulletino della Società Toscana di Orticultura*, May.—A rose-coloured self, with well formed imbricating petals.

CHERRY GRIOTTE DE SCHAARBEK, *Bulletin d'Arboriculture*, April.

CYPRIPEDIUM CARDINALE, *Garden*, June 6.—A cross between *C. Sedeni* and *C. Schlumii* album.

ECHINOCACTUS CYLINDRATUS, *Garten Zeitung*, May 28.

ECHINOCACTUS LECONTEI, *Garten Zeitung*, May 28.

IPOMEEA RUBRO CÆRULEA, *Garden*, May 23.

MAPANIA LUCIDA, *Illustration Horticole*, t. 557.—A remarkable *Carex*, with sheathing leaves in three ranks, long petioles, and broad acuminate leaves, dark green above, pink beneath. It is a native of Borneo.

MASDEVALLIA CHIMERA, *Revue de l'Horticulture Belge*, May.

MICROSTYLIS METALLICA LOWII, *Belgique Horticole*, t. xiv., 1884.

PIERIS (ANDROMEDA) JAPONICA, *Revue de l'Horticulture Belge*, May.

ROSE COQUETTE DES BLANCHES, *Journal des Roses*, June.

THOMASIA GLUTINOSA (Lindley) var. LATIFOLIA. — *Gartenflora*, t. 1186.

VRIESEA METHYSTINA, E. Morren.—This is a new Bromeliad, with tufted leaves dilated at the base and prolonged into a long narrow blade pointed at the end, and of reddish colour beneath. The long yellow flowers are loosely disposed in two ranks on an erect raceme. The plant is a native of Brazil, and is figured in the *Belgique Horticole*, t. xv.—xvi.

## BEARWOOD, WOKINGHAM.

TRAVELLERS by the railway or road which runs from Wokingham to Reading can hardly fail to note, projecting above the noble mass of woodland which crowns the rising ground some three miles from the former town, the chimneys of what is undoubtedly a fine mansion, and inquiry elicits the fact that it is Bearwood, and that the palatial residence thus embossed in trees is Mr. John Walter's residence, erected by him within the past twenty years, and practically by himself, for all the work was performed on the estate, and carried out in a way that would have done honour to any of our largest building firms. The approach to the grounds from Wokingham is by a delightful roadway, a large portion of which runs through the estate, and affords in passing delightful views of a beautiful country in the distance, with much that is high-class in agriculture in the foreground. Alighting near to the fine church, which stands in finely planted ornamental grounds, a private entrance conducts to the splendid grounds and the mansion close at hand. This latter has its chief front looking on to a bold broad south terrace, and is built of red brick with stone facings, which being new has a fresh look, not at present happily consorting with the dense masses of greenery surrounding. Time will, however, tone down the garishness of the brickwork. There is also a handsome bold western front, which, looking down a broad and singularly beautiful glade of lawn and tree, overlooks in the distance the town of Reading and much beautiful country beyond. On the north side of the house is a vast quadrangle with bold entrance-way, opening on to the broad road bordered by masses of *Cupressus Lawsoniana* first, and farther on of noble *Wellingtonias*, of which (having been transplanted after this portion of the park was rescued from chaos) Mr. Tegg has good reason to be proud. The grassy glade to which we have made reference—a beautiful expanse of turf of several acres, without tree or shrub to mar its vista—is on each side bounded by marvellous masses of *Rhododendrons*, *Azaleas*, *Kalmias*, &c., that for the past few weeks have been grandly blooming, and to see which Mr. Walter most kindly admits those who may obtain tickets during the month of June. Fronting the southern side, however, is a clump of superb *Deodars* which form a beautiful item in the picture, and shows that, pleasing as this elegant *Pine* may be singly, it is far more effective when growing in groups as in this instance. Opposite to these *Deodars* may be seen the entrance to the rockery, marked by an imitation rocking stone. Here out of a bed of clay, or rather what was once a huge ugly hole, has been formed, at no inconsiderable cost, certainly a very charming arrangement of rock, cascade and rivulet, and associated with which is seen some decorative gardening as well as much that is rugged and natural. This rockery is one of Pulham's efforts, and presents a most interesting feature, showing in what way even the ugliest holes may be converted into artistic and pleasing objects. The rockwork is planted with an interesting variety of suitable plants, rock Roses especially prominent. At the extreme end of the grassy glade there are prominent fine plants of the *Rhododendrons* Mr. and Mrs. John Walter, both rich deep colours, but the latter has the most robust habit; these are very striking objects: between them stands the late John Standish's charming white variety *ascotensis*, still one of the best of its class.

The south, or principal front of the mansion, looks out upon a grand lake of some 90 acres in extent, presenting a water view of the most picturesque kind. Immediately fronting the broad terrace the lawn slopes down irregularly to the edge of the lake, which is surrounded by noble masses of trees and shrubs, broken here and there by peaceful grassy glades, whilst in the distance a charmingly wooded island dots the lake, and far beyond rise woods and verdure, the whole forming an exquisitely beautiful picture.

It is one of the special charms of Bearwood that its planting has enabled diverse views of this fine expanse of water to crop up continually, yet in every case bringing into prominence some new and interesting feature or object. If to the right of the lake we see wondrous masses of flowering shrubs, backed by the most gigantic growth of *Hollies*, and towering above all noble trees, closely set; to the left are found, if still dense shrub growth, more open spaces of verdure,



and constantly may be seen singularly perfect specimens of *Conifera*, *Cryptomerias*, *Deodars*, *Wellingtonias*, *Araucarias*, &c., in almost endless variety—all noble trees. It is due to these to say that though there may be larger ones in the kingdom there are few more beautiful or more perfectly formed. This portion of the pleasure-grounds is a perfect maze, in the intricacies of which a stranger might easily be lost, but under Mr. Tegg's guidance we feel secure, and are taken here and led there to see now a grand Birch, a huge Stone Pine, a lovely Purple Beech, or some delightful vista, in rapid succession, until even the most devoted admirer of beauty becomes satisfied.

The kitchen garden department is remote from the mansion, and forms a complete block adjoining the gardeners' residence. Here are glasshouses devoted to the growth of plants in quantity for the house decoration and for the production of cut bloom, for the demands on this department are heavy. *Lapageria rosea* and *alba* growing overhead in one house and intermixed bloom superbly, and produce a very pleasing combination. Pines in the pits are first-rate: we have seldom seen so many fruiting at once in any private garden, but Mr. Tegg has always done Pines well. These houses and pits, with myriads of frames, stand in a large but admirably sheltered space, and in all respects are as neatly supervised as their contents are excellent. The long range of fruit-houses which look down the large walled-in kitchen garden is being employed to the utmost in the production of fine crops of Grapes, now cutting and for latest keeping, and also of stone fruit, Figs, and other special products. A very fine range of buildings, Mushroom, Potato, fruit-packing, and gardeners' houses back the glass-houses, and affords excellent accommodation.

The kitchen garden has a very stiff clay soil, and, being situate rather below the level of the lake, is sometimes difficult to cultivate, but still it produces splendid crops of vegetables, and Apple and Pear bush trees do well, and are carrying wonderful crops of fruit. On the walls Peach trees, usually so fine here, have somewhat suffered from the late frosts, but still have fair crops of fruit, and are now coming round. Plums on walls are a grand crop, and the outer Pear wall is a fine feature, of which any gardener may well be proud. It is not possible to note other features in detail, suffice it to say that in every part Bearwood presents a princely aspect; it is a truly noble domain, a grandly kept garden, and an honour to British horticulture.

## MARKET GARDENING.

(Continued from p. 694.)

**HARDY GREENS.**—The early and successional planting of these from beds of 1 to 2 or 3 acres in extent, is an important matter with market garden farmers. The seedlings when hoed between with the hand-hoe rapidly attain a very stiff, sturdy form, and gradually cover the soil in process of time, making "stocky" material for the purpose. The operator is in a stooping position day after day at the work, as the handles of the hoes are little over 12 inches in length.

However forward the seedlings may be, the grower generally awaits an opportunity for transplanting them, which seldom occurs until some early summer crop matures and is marketed. Yet, though the plants, even after they are large enough for the process, have to wait until a space is vacant whereon to plant them, they do not seem to suffer in any marked degree. The reason for this is doubtless to be found in the fact that they enjoy full exposure and abundant light and air. For this reason I have always advised such seeds to be sown on open, exposed sites in all gardens. Unfortunately, however, odd corners, &c., upon walled-in, or around, and tree-shaded gardens, are all but invariably chosen. It would seem, in fact, to be considered that any kind of place will do to sow seeds and rear such seedling plants upon, provided only rich, deep soil, and a more open space be given them to grow upon anon.

I need not point out how fallacious such reasoning is. Whoever would grow fine produce ultimately must do so with strong, sturdy young plants. Such as are drawn up, leggy, attenuated, and enervated, cannot possibly give such desirable results subsequently.

Furthermore, these remarks apply very forcibly to

the matter of the hardiness of these and other plants. Such seeds as are sown in the open fields in the latter end of summer yield seedling plants infinitely more hardy and enduring than is possible to rear on the "odd corner" system. It is greatly owing to this that field Cabbages and Greens are both an abundant and trustworthy crop.

Immediately a few acres of land become vacant, whether following Tares, early Peas, autumn-sown Onions, or other crops, manure is carted on and ploughed in, and the transplanting follows on continuously until completed. The work is performed thus rapidly for several reasons, the primary ones being the necessary thinning out of the seedling plants in the seed-bed, rapidly planting whilst the newly turned-up ground is moist.

In practice the strongest plants are pulled up and placed in baskets, then carted to the allotted ground, where a child drops them in rows, and a planter follows with a dibble, so quickly that the "dropper" with difficulty keeps in advance. Some weeks afterwards the hoe is "run" between them. When it is known these so-called "foot" crops (which means that the plants are set at that distance apart) are planted at less than 20s. per acre, it will be readily understood that deep planting, or careful planting, are not possible, yet the result of such simple land ploughing and planting is well known, as seen in the level, uniformly good and abundant crops which result.

Ultimately hoeing follows, and it is interesting to watch piece hoers at work. They simply stride over the fields, along the rows, at all but a walk, throwing first the right hand forward, then the left, changing the implement from left side to right with great freedom and rapidly, by which means they are enabled to cover much ground in the forward movement, and to hoe closely up to or between the rows without shifting the position of the body.

As I have said, the spring seed-bed furnishes plants for successional plantings, as long as any remain to plant; besides which, other sowings of great extent are made during the succeeding months, more especially during July. As a rule, showery weather is chosen for these sowings, and "spent Hops" are generally employed as a preventive of Turnip-fly ravages. Occasionally a few rows of Broad Beans are planted at 3 or 4 feet distances apart, with a like intention; but whether this is really beneficial has not yet been ascertained.

As I write (June 8) acres of such beds exist around here of all varieties of the Brassica genus, sufficiently large for transplanting. There is not yet, however, vacant land for the purpose. Tares and Rye crops are being rapidly cleared off by being placed into sixpenny bundles for metropolitan horse-keepers, and shortly the wide breadths devoted to these will be transposed, as if by magic, into breadths of greens, Veitch's Autumn Giant Cauliflowers, &c. No delay is permitted. Time well employed often means securing an additional crop, especially at this season of the year, when a season of drought so rapidly follows June rains, and when it is not possible to do these, or any other crops full justice. Besides, those who have to rely on their judgment and industry to secure the wherewithal to pay high rents required for the land—some of which is still rented at £5 an acre—must also find means to maintain the required manual labour, horses, and the heavy outlay of rates and taxes, and cannot, therefore, permit land to lie idle. If these facts are considered, ample reasons are seen to exist for rapidity in cropping. But there are other and extremely important considerations which cannot be lost sight of, though they are seldom taken into account by private growers, namely, that all properly cultivated land contains a certain percentage of manures of a highly volatile nature, as all observant growers well know.

Again, whenever crops have attained to their best, there is little if any profit accruing by their continuance upon the ground. It is not too much to say, that the practice of permitting greens to stand through the summer impoverishes the piece of ground so occupied exclusively, and the returns are but poor. Those who follow this practice may justly ask what I advise in lieu. The answer is simple. When planting out the bed of autumn Cabbages, have ready batches of seedling Cabbages, of two ages, secured from two successional sowings, one made earlier than is customary. If twenty rows be planted, only plant the half, or ten rows (and those on the most exposed part of the bed), with the earliest and largest plants, using

the smaller plants from the later sowing for the other half. In the early spring, so use the produce that the earliest planted be cut and wholly removed before the second half are commenced. Meantime, if you have not other space ready or convenient, fork up the first portion, and plant thickly upon it hardy greens, 1 foot apart all ways. To do this, obtain from your seedsman a good stock of "Hardy Greens," and sow about the fourth week in the month of March.

The second half should also be treated in the same way if the consumption be great. Generally, however, the heavy crop produced from such thickly planted, compact, and useful produce will amply suffice, being four to one in real bulk against all the stump greens. Subsequently the other half of the spring Cabbage bed may be used, and the space be devoted to other crops.

But the gardener may say, and justly, "I deal with a leading nurseryman, and he does not catalogue Hardy Green Cabbage. Where is it obtainable?" The query is, no doubt, justifiable. If, however, he insist upon having it, wholesale houses dealing with market garden farmers will soon supply such upon demand to all retail sellers. Whether German or other varieties catalogued are identical with the above I am unable to say. The Rosette Colewort is a summer variety of these, otherwise called Hardy Green Collards, *William Earley, Ilford*.

(To be continued.)

## ORCHIDS FOR AMATEURS.

(Continued from p. 602.)

THE genera *Cattleya* and *Lælia* are deservedly great favourites with most amateurs; both genera contain many species of easy cultivation, and others which are comparatively difficult or even very difficult to flower satisfactorily. Botanically the two genera are very closely allied, and many species are placed in one or other genus by different writers.

### THE GENUS *CATTLEYA*

is a very natural group, and is distinguished from *Lælia* by having only four pollen masses in each flower instead of eight. The cultivator is, however, more interested in the fact that the great majority of *Lælias* need far more air and less heat than the *Cattleyas*. The great number of varieties of *Cattleya* are very puzzling to the beginner and need considerable experience for their recognition. The plan usually adopted of giving them in alphabetical order renders the task of identifying them and bearing them in mind extremely difficult.

There are only five well marked groups of *Cattleya* and a very little observation will enable any one to learn the appearance of each, as they are remarkably distinct from each other. The numerous varieties, hybrids, and species recognised by horticulturists all group themselves under one or other of these five principal types—exemplified by (1) *C. labiata*, (2) *C. chocoensis*, (3) *C. Forbesii*, (4) *C. Aclandiae*, and (5) *C. citrina*. I shall confine my remarks in the present article to the first of these groups, reserving the rest for a future communication.

It is a little unfortunate that orchidologists have given quasi-specific names, not only to mere varieties, but also to known hybrids. No one has fallen into the same error with such plants as *Fuchsias*, *Pelargoniums*, or *Roses*; but although a renaming of Orchids would be subject to great inconveniences, it is a pity that a thorough revision of the nomenclature is not undertaken, and whenever this is done the type or specific name should be prefixed to the varietal name.

### *CATTLEYA LABIATA* SECTION.

The most showy and gorgeous examples of the genus *Cattleya* belong to this type, of which *Cattleya labiata* is the highly developed form. This group is distinguished by the large fringed labellum or lower petal. One of the most beautiful plants in the group is easily grown, and seldom disappoints the cultivator either in the beauty of its flowers or their appearance. This is

*Cattleya Mossie*.—Its varieties are very numerous, and they are all "good." The principal points of excellence are a good texture in the flower; some plants have thick flowers, with a beautiful gloss upon them, in others the flowers are thin and poor. I believe this is due to the manner in which they have been grown rather than to the inherent qualities of the plant.



The lip should be broad, open, and well fringed; plants with narrow, contracted, and badly fringed lips do not improve. The petals should be broad, and filled at their edges; and the sepals should stand well forward, not curling back. The colour of the flower is either pale or dark; very pale or very dark varieties are esteemed more than those with an intermediate tint. The labellum should be brilliantly mottled, and streaked with carmine and orange.

The colour of the flowers depends greatly on the mode of cultivation, like their texture and size; but the form of the flower is inherent to the variety of the plant, and cannot be improved. I have already described the treatment which will ensure success in the growth of the beautiful plant, but would add here my belief that nothing conduces so much to the full development of its flowers as plenty of sunlight; plants which are overshadowed do not produce brightly coloured blossoms, and are by no means so healthy or likely to flower as those which have had a full allowance of sun. *Cattleya Mossiæ* flowers in the early part of the summer, and after the new leads have made their appearance—a condition which it is important to bear in mind, as many *Cattleyas* never flower after the lead begins to grow. It is very fragrant. A fine figure of *C. Mossiæ* was given in *Gard. Chron.*, p. 533, vol. xx., 1883.

*Cattleya Trianae*.—Closely allied to *Cattleya Mossiæ* is *Cattleya Trianae*, which blooms earlier, and has a less expanded lip, the lower part of which is of a deep crimson colour. White varieties are in much request, and generally reach a high price.

*Cattleya Mendelii* also resembles *C. Trianae*, but has a much more open lip, and its petals stand forward; both these forms differ from *C. Mossiæ* in not having a streaked and spotted labellum. The points of excellence are much the same as those of *C. Mossiæ*. All three forms will do well with moderate heat and moisture, and may be grown much as *Camellias* are grown, except that they need a greenhouse in the summer and autumn, when the *Camellias* are out in the open air. They must be kept dry in winter with plenty of air and an even temperature—not falling below 45°, or rising much above 60°. *C. Trianae* needs to be started earlier than *C. Mossiæ*, as it flowers earlier in the spring, or even late in winter.

*Cattleya labiata* is a magnificent plant, with enormous flowers, often 8 inches in diameter, with a large widely expanded labellum having a large deep violet spot on its expanded portion, which sends rays back into the bright orange throat of the labellum. It flowers late in the year—October or November. A variety with a double sheath (spathe) and especially magnificent flowers is known as the autumn-flowering *Cattleya labiata*. It is exceedingly valuable, and very few examples exist.

A vast number of inferior varieties, all good in their way, are known under various names. *C. Gaskelliana* is closely allied to *C. labiata*, but often produces very poor flowers when compared with the better forms of *labiata*. It also flowers in the autumn months.

This group of *Cattleyas* differ from the *C. Mossiæ* group in their large lip, which is not spotted, but of one colour on the limb, and streaked or rayed in the throat; in their autumn flowers, which are produced before the new leads start, and in requiring more heat and moisture for their satisfactory cultivation. They are natives of the hottest forests of South America.

*Cattleya Dowiana*.—Another subsection of the labiate form of *Cattleya* is exemplified by *C. Dowiana*. The lip is of an intense purple approaching to blackness rayed with golden-yellow streaks. Unfortunately it is a difficult plant to grow and flower. It has a habit of making its young shoot as soon as, or even before the old bulb is matured, and then it never flowers, and if its young growth is checked the lead is lost and the plant ruined for years, or even destroyed. To get it to flower it is necessary to bring it into a condition of rest before the bud at the base of the bulb breaks, and as this is often in June, July, or August, it is a little difficult to perform satisfactorily. It flowers in August, September, or later. It is not at all a satisfactory plant for a beginner.

*Cattleya Eldorado* and *C. Skinneri*.—Another subsection of the labiate group is *C. Eldorado*, resembling *C. Mossiæ* in its flowers, but being nearer the group typified by *C. Forbesii* in the form of its long narrow bulbs. It flowers in summer or autumn, and

is, like *C. Mossiæ*, very fragrant. The new *C. Lawrenceana* is probably closely allied to *C. Eldorado*.

*C. Skinneri* comes from the mountains of Guatemala, and needs cooler treatment than any others, especially in the hot months of summer, when it may be placed with *Odontoglossums*; it flowers in early summer, and is a free-blooming plant. I have not had this species, but believe it would be a very desirable one for those who have not the means of maintaining a high temperature. *B. T. L.*

(To be continued.)

## A MOTH INJURING DRIED COCOA BEANS.

IN the month of October last I received from the proprietors of a warehouse at the East-end of London a box containing a quantity of Cocoa beans, which had been found to have been extensively gnawed all over the outer surface by the larvæ of a small moth, together with some of the grubs, some cocoons all matted together, and some of the moths produced from them; and again, at the beginning of December last, Miss E. Ormerod sent me a quantity of these Cocoa beans similarly infested, which she had received from Guyaquil.

The appearance of the sound Cocoa bean is shown

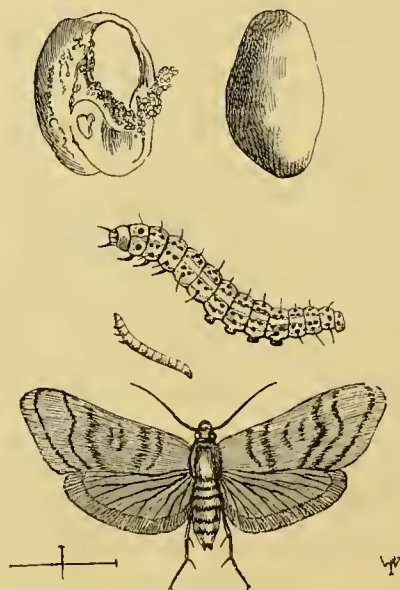


FIG. 176.—COCOA MOTH.

in the upper right-hand figure in the accompanying engraving (fig. 176), whilst one much gnawed by the larvæ is represented in the left-hand upper figure, which shows a quantity of the pellets of the excrement of the larvæ partially detached from the bean.

The caterpillar, of the natural size and magnified, is represented in the middle of the woodcut; it is long, slender, and very active, wriggling about and running quickly either forwards or backwards; it has six anterior, eight ventral, and two anal claspers; it is of a dirty flesh-coloured grey, with the head darker and fibrous brown, with a patch of the same colour on the first segment behind the head, in which patch the hind portion forms two darker spots; all down the back are two rows of minute black dots, each segment bearing two on each side of the middle dorsal line, and a third more lateral dot forming a triangle with the two dorsal ones. These dots are setigerous; the penultimate segment of the body has one large central and two smaller lateral black spots, and the terminal segment has a transverse black spot (the antennæ in front of the head of the larvæ are represented too long and prominent in the accompanying engraving, and the caterpillar itself is too robust). The chrysalis is of a chestnut shining colour, and is enclosed in a loose silken web, forming with the other cocoons attached to the Cocoa beans a matted mass.

The moth measures about two-thirds of an inch in the expanse of the fore-wings, which are of a pale grey colour, with a faint ochreous tinge, especially

towards the inner margin, and with very indistinct but darker greyish markings, forming irregular bars across the fore-wings. The first towards the base of the wings is preceded by a pale band, and the second beyond the middle is grey, followed by a pale band; between these bars are two small ones in the middle towards the costa.

On submitting the moths to Mr. H. T. Stainton, our great authority on the tiny or *Tinea* moths, he informs me that they belong to the family of the Knot-horns (*Phycides*), and are the *Ephestia elutella* (*Phycita elutella*, Curtis and Stephens), or the cinereous Knot-horn of Haworth. He believes that the whole of the species of the genus *Ephestia* have similar habits, and devour all sorts of dried fruits, the larvæ being often found in Raisins and Figs, and they are extremely partial to all preparations of chocolate, flying by scores in warehouses where such things are stored. Mr. Stainton, moreover, believes that in a wild state they feed upon Ivy berries and nuts. In an economical point of view they are noxious insects, and they cannot certainly be called beautiful.

One of our correspondents suggests that the eggs are laid in the Cocoa in the West Indies or South America, and that they hatch out and damage the Cocoa here in hot dry weather like last summer. He also asks whether the moths lay their eggs and the young ones are hatched in this country, or whether the eggs are only laid in the green Cocoa bean? He further notices that as soon as cold weather commences the moths and larvæ seem to be killed, doubting, however, whether the eggs and chrysalids are also killed.

In answer to these inquiries, we believe that in warehouses where the Cocoa beans are stored, and which are infested by these moths, the propagation of the insect is continuous—very similar, in fact, to that of some of our small domestic moths, such as *Tinea sarcitella*, and the little corn moth, *Tinea granella*.

It may be questioned whether repeated fumigations with sulphur would not be injurious to the Cocoa beans; it would certainly, however, kill the insects. Benzine, or, better still, naphthaline, would also be equally efficacious in destroying the insects.

The subject of these Cocoa destroying moths was brought under the notice of the Entomological Society by Mr. W. F. Kirby, on November 5 last, when Mr. McLachlan suggested heat as the only remedy for getting rid of these pests, but Messrs. Weir and Fitch pointed out the impracticability of its application in large bonded and other warehouses. In the case before the Society the stock affected exceeded 20,000 bags. A case was also reported in which a stock of ship's biscuits was attacked, and when the biscuits were removed the moths came out in thousands.

A memoir on another injurious species of this genus, *Ephestia Kuhnii*, Zeller, from North America, which has become naturalised in the Rhine district (where it is known as the meal-moth), forms the subject of several communications in the *Entomologische Nachrichten* of 1884 and the present year. *L. O. W.*

## WELL-FED VINES.

ONE of the most noticeable things connected with vegetable life is the readiness with which plants adapt themselves to circumstances. This, to a greater or less extent, may be seen in most all the kinds of plants now cultivated either for their flowers or fruit. In few things is it so apparent as in the Vine. In some of the most noted wine-producing countries of the world little is given in the shape of manure, except the vegetable matter contained in the prunings of the Vines, which are thus used to nourish the plants that have produced them. In this country, where the cultivation of Grapes is undertaken with a view to their being eaten, the course followed is widely different, but is as far from being uniform as it well could be. Take, for instance, the preparation of an ordinary Vine border, leaving out the carrion or other crude animal matter, now by common consent condemned, the ingredients in the shape of manure are as different in character as they are in quantity. Some growers contend that nothing should be added to the soil, except perhaps the orthodox broken bones, about the use of which there is something like unanimity. Others act on the principle that the Vine, making as it does annually a very large amount of growth, requires a proportionate quantity



of food given in a form that can at once be taken up by the roots. Such opposite practices as these could not have adherents, were it not that Vines in plenty are to be seen thriving and bearing, so as at all events to satisfy those who grow them under these different kinds of treatment. Those who take the no manure side of the question maintain that it is better to have young Vines when they come into bearing of medium strength than to put all the size and vigour into them that is possible; the opposite contention is that at this stage they cannot be too strong, and that the less time occupied in getting a maximum of strength into them the greater the return of fruit within a given time after planting will be—a proposition that, admitting that the wood is ripened as it should and can be, is so far reasonable and borne out in practice as not to admit of dispute. The Grape growers' motto at the present day is "Onwards." In this, as in other matters, there is little disposition to wait; the sooner that young Vines can be got strong enough to carry full crops the quicker the return.

Possibly the adherents of the slow course treatment may urge that young Vines allowed to bear heavy crops will soon be exhausted, but the high feeders take means from the first to prevent this happening, for their practice not only consists in giving manures that from the time of planting act quickly and powerfully on the young roots as these are formed, but they keep on giving stimulants from the time the Vines begin to bear; the result of which is, that they are able to carry a weight of fruit that, in the absence of the regular feeding given, would have the effect of over-cropping with its well-known ruinous results. That young Vines grown on in this way, so as to get as much vigour as possible into them, and afterwards fed in the manner described, can finish up crops without being weakened or distressed, is proved by what is done in some private gardens, as well as by some who grow for market. The Vine is a gross feeder, and naturally makes an immense amount of growth in little time, to bring out and support which it requires food without stint, but further to have the food within its reach in a form that can quickly be taken up and assimilated—a very different state of things to that available where bones in the ordinary condition, or slow in decomposing, are alone used. It is also evident that stable manure, even with the aid of bones, does not contain all that is needful to bring out all of which the Vine is capable, or to an extent that has usually been supposed manure of the nature would. The astonishing weight of finely finished Grapes which a cultivator such as Mr. Thomson, of Clovenfords, is enabled to grow year after year by the aid of annual applications of his mixed manure—or Mr. Ladds, with the help of successional heavy dressings of fish manure, sulphate of ammonia, nitrate of soda, and guano, each applied separately once during the season of active growth—and all this in addition to borders which, in the first instance, were made rich with stable manure and the usual half-inch bones—affords proof, if it were wanting, of the immense amount of food which strong Vines can not only take, but are benefited by, if the most is to be got out of them. A rank-feeding plant like the Vine, that makes so much growth annually, needs not only to have the soil wherein its roots are placed fully stored with food, but, further, to have the food in a state that admits of its being quickest taken up and converted into wood, leaves, and fruit.

As already said, this is opposed to the preconceived ideas entertained by many Grape growers. But the results of the practice of the growers mentioned, and others who treat the Vine similarly, carry more weight than any amount of theory. *T. B.*

**BANANA CULTURE IN HONDURAS.**—Honduras is rapidly assuming importance among the larger countries in Central America. According to the *Commercial Advertiser*, it has increased 50 per cent. in population in the last ten years. The lands outside of the main towns are being bought from the Government by citizens of the United States and by Germans. The object of these new settlers is to establish Banana plantations. The soil of Central America is peculiarly adapted to the growth of this fruit, which can be raised at what would seem to be a ridiculous expense. The market for Bananas in New York is good, and the sale of them pays a profit of about 20 per cent. The purchase of these lands has netted the Government about 1,500,000 dollars during the last year, and as it owns about 1,000,000 acres, there is a fair prospect of its enriching itself within the ensuing five years.

## HOME CORRESPONDENCE.

**Myosotis Turning Red.**—In one of your late numbers I observe an inquiry about the turning of the Myosotis red. Here all say it is over-manuring. A curious thing happened to ours. We took from Inverary the matchless Irish Forget-me-Not, planted it in new highly-manured soil; more than one half turned red, the rest became white. The latter has remained so, and has degenerated in size; the other, since our removal from Westwood, has come back to its own lovely blue, and has increased in size. *I. S.*

**Saxifraga media.**—For the opportunity of illustrating this pretty but uncommon species (fig. 177) we are indebted to Messrs. Backhouse. The species is a native of the Pyrenees, and of the mountains of Greece. From a persistent root-stock are produced compact tufts of leaves about  $1\frac{1}{4}$  inch across, the



FIG. 177.—SAXIFRAGA MEDIA: FLOWERS DEEP CRIMSON.

leaves themselves obovate-acute, green, with white tubercles at the margin. From the centre of a tuft uprises a flower-stalk, 6 to 8 inches high, with numerous scattered leaves covered with viscid, hairy pubescence. Each flower springs from the axil of a solitary bract, which, like the five-parted, bell-shaped calyx, is of a deep crimson colour. The petals are enclosed within the sepals, and are of a similar hue. The plant is also known under the name of *S. calyciflora*. It has lately been in flower at Kew, and is now ripening seed.

**Devon Notes.**—Those of your readers who have not visited Mount Edgumbe, at Devonport, cannot fully realise the intense delight a horticulturist experiences when viewing the splendid gardens there, particularly if favoured with the company of the veteran and able gardener, Mr. Brighton. He directs a staff of some twenty to thirty under-gardeners. Passing over what Nature has done in forming the beautiful and undulating grounds, which are surrounded on nearly all sides by the sea, and passing over the aged and gigantic park trees, including perhaps the finest Cedars of Lebanon in Britain,

I came into a series of gardens—the English garden, the Italian garden, the rock garden, and last, but not least, the orangery. Near here I noticed four remarkable specimens of the *Chamærops excelsa*, from 20 to 25 feet in height, in the open ground; the one I measured has a straight trunk about 3 feet in circumference at 3 feet from the ground—this one was blooming, and its neighbour was fruiting. (There is a great plant of this noble Palm at Messrs. Lucombe, Pince & Co.'s nurseries, at Exeter, and in a tub.) Within sight is a quaint tree of the red Cedar, certain to attract any one's attention. It must be of great age, as many of its limbs appear dead, and hang down in a peculiar way. There is also a perfect pyramid of the variegated *Thuopsis* quite 20 feet high. In this garden are likewise unique specimens of the Japanese Medlar, the variegated *Osmanthus*, *Magnolias*, *Photinia serrulata*, &c., and the forty or fifty Orange trees in the adjoining garden, 20 feet or more in height, are blooming and fruiting prodigiously. *W. N.*

**Position of Certain Forms of Stems.**—Has it been noticed that, in this country, plants with angular or flat stems invariably present their acute sides to the south and south-west, as if to preserve their flat sides from direct exposure to the sun? *A. D. W.* [Will our correspondent obligingly specify some instances? *ED.*]

**Eucalypti in South Portugal.**—There has been no note in your columns, as far as I know, of the *Eucalyptus* plantations in Southern Portugal. In the vicinity of Cintra Gum trees have been planted to a large extent with the most successful results. The rapid growth they make, even to one who comes prepared, is little short of miraculous. Lord Byron calls Cintra a "glorious Eden." Some, but chiefly *les glorieux*, would doubtless call the palace of the Pena a Moorish mansion in which one of the loftiest peaks of the Serra culminates—its chiefest ornament; but to the great majority Montserrat, as it now is, will linger longest in the memory. The Visconde de Montserrat, as Mr. Francis Cook is entitled, is one of the largest, as he is one of the first, experimenters with these trees. He has planted an extensive wood of them; the average height of the trees in which is 60 feet. This growth is a matter of fifteen years. Two specimens on the lawn before the portico of the house are probably the finest in Europe. They are *vimenifolia* and *falcata*. The former, whose age a tyro would compute at over a hundred years, has barely seen twenty summers. It is a magnificent wide-spreading tree, and well suited for a lawn. The girth at 1 foot and 4 feet is 15 feet 8 inches and 13 feet 6 inches. The other is 12 feet 7 inches and 12 feet 2 inches at the same altitudes. Although it bifurcates it is 120 odd feet high. Below trickles a brook, and the lawn is regularly irrigated throughout the burning summer heat. Mr. Cook has also promised young plants of *E. amygdalina* and *citriodora*. The tallest *Eucalyptus* in the district is in the garden of the Conde de Bella Vista, which at a very careful estimate must be close upon 150 feet high. A very fine row of specimens girts the high road through Collares; one which I measured girthed 9 feet 6 inches at 4 feet up. One can easily imagine how the landscape has been changed by the introduction of the *Eucalypti*. They seem impervious to the violent winds, which often enough assault the coast line of Portugal. They sway recklessly, but seldom snap. Indeed, it is a bad plan to stake the saplings at all; Mr. Cook lost a lot of trees by so doing. *C. A. M. Carmichael.*

**Mildew on Roses.**—May I draw attention to an experience of mine as to mildew on Roses? I put on a very thick layer of sulphur on every leaf, letting a good quantity fall on the ground intentionally. The result so far is complete cure, as before this time last year we were tormented by it, and the change of locality does not appear to be the cause, the Roses left behind being also free. *I. S.*

**Rhododendrons.**—These, like all other shrubs and trees that bear flowers have been unusually full of bloom this season, and are quite a sight, as every truss seems perfect, the rain having come just in time to help the blossoms to open, and the fine weather since has been quite in their favour. When they go off, which they very soon will, there will be a multitude of seed pods, and these, if the plants are to have a fair chance [to



grow must be removed, as allowing them to stay and ripen is very exhausting and distresses the plants more than it does to carry the flowers. The way to get rid of the seed-pods quickly is to start at them before the young shoots form, when they may be broken off rapidly by just taking them between the thumb and finger and bending them on one side, when they will snap off at once; but if left till later the stem part gets hard and woody, and not only that, but the shoots impede the work, and are liable to injury from being broken or bruised. As next season's display depends in a great measure on the growth the plants make now, they should have every encouragement by being mulched, which will keep the ground moist and thus favour the roots, as these run at a shallow level and soon feel the effect of a continuou: drought. Although Rhododendrons do not like a manured or cultivated soil, mild dung does them good on the top, as the juices are carried down by the rains, and therefore the mulching may consist of long stiff straw from the stable-yard, with horse-droppings in, which suits the plants as well, or better than anything that can be given them to keep the drought out. Liquid manure, such as drains from a farmyard, is also of much benefit to Rhododendrons; and those who value their plants, and can get a supply, should give them a good soaking now and then during the season, but the time when it will be of most value is while the plants are making their growth and setting their buds, as then they stand more in need of a stimulant. *J. Sheppard.*

*Nicotiana affinis*.—This sweetly scented annual is of very easy culture—so easy, indeed, that one cannot help wondering that a plant so agreeably scented is not more extensively grown, not only for planting in the flower garden, but also for conservatory embellishment. For the latter purpose three sowings should be made in the year, the first in February, second in April, and the third the first or second week in June: plants from the first sowing for flowering at the present time; from the second, in August, September, and October; and those from the third supplying flowers in winter and early spring. The seed should be sown in well drained pans or pots, filled to the brim with light sandy soil, and be covered lightly with a sprinkling of the same, and afterwards watered through a fine rose. The pots can be placed in a Melon or Cucumber pit, where, if the seed be good, it will appear in the course of a week or ten days, when, as soon as the seedlings are large enough to handle, they should be pricked out 2 inches apart in a box or pans, subsequently potting them singly into 3-inch pots before they become crowded to the box or pans, shifting them into 6-inch pots as soon as they have established themselves in the 3-inch ones. In this size (3's) the plants will send up branching flower-spikes from 2 to 2½ feet high above their large pale green leaves, which are somewhat different in shape from those of the ordinary Tobacco (*Nicotiana glauca*), which latter plant it resembles very much in habit, except that it (*Nicotiana affinis*) is dwarfier and the flowers Phlox-like in shape. They are borne on stems 2 to 3 inches long, are of a French-white tint, and their fragrance is most distinguishable from half-past five in the afternoon until six o'clock the following morning, when they partly close until late in the afternoon, at which time they reopen with all their sweetness and freshness. *H. W. Ward.*

*Cantua dependens*.—This plant, sometimes called *buxifolia*, is one of the most graceful conservatory plants we are acquainted with, and when trained on wire supports, forms a happy combination and companion to the *Acacia Riceana*. Mr. George Rundle, of Devonport, is a great admirer of the *Cantua*, and succeeds well with it. He has two specimens at his place which have just given him abundance of their elegant funnel-shaped red flowers. It is not a difficult plant to grow—on the contrary. It delights in a compost of turfy loam and sand with leaf-mould, having due regard to ample drainage. It flowers in corymbs at the ends of the branches. There is also a fine example of this charming plant at Powderham Castle, where Mr. Powell is the chief gardener. *W. N.*

Gilbert's Late Queen Broccoli.—I was not at all surprised to read in your last issue that this has been honoured with a First-class Certificate by the Royal Horticultural Society. Through the kindness of the raiser I was enabled to plant a score of it last season by the side of Cattell's Eclipse, a well-known

late variety. The first one of Cattell's was ready to cut on May 12; the first one of the Late Queen on May 28, and the last of the latter variety June 13. I have this day tested the cooking qualities of a specimen weighing 7½ lb., and find it white, tender, and very sweet in flavour—especially so in the branches of the head, which are remarkably good in comparison with some varieties. Its growth is robust, of medium height, heads large, white, compact, and beautifully protected by the leaves, which fold over it very closely, and although it has grown larger than any variety we have had this season, it is by no means coarse in texture. The varieties we have tried this season are Early Penzance, Veitch's Self Protecting, Snow's Winter, Adams' Early, Carter's Champion, Hill's June, and Cattell's Eclipse, and for flavour and tenderness I prefer the Late Queen to any of them. Its merits were well summed up by my man who serves the kitchen a few days since, when he said, "Them is the best Broccoli we have had!" That is also the opinion of *W. H. Divers, Ketton Hall.*

*Narcissus Becoming Single*.—Our Narcissus have shown a tendency to become single again, and so do our Daisies, in spite of all care. *I. S.*

*Autumn-sown Annuals*.—What a gorgeous effect may be easily had by a judicious selection of the kinds most suited to stand the winter. In the new pleasure ground here we have a bank (east) 100 yards by 6 yards, planted with Mollis and Ghent Azaleas at 5 feet apart. In autumn last we determined to sow annuals for late spring and early summer display; the bank was divided into equal parts, each 2 yards wide, the bottom was sown with the new dwarf *Silene pendula compacta* (pink), thinned out to 6 inches apart in early spring; the middle sown with *Nemophila insignis* (sky-blue), thinned out to 1 foot; the top with *Limnanthes Douglasii* (creamy-white), thinned out to 15 inches. The effect has been all that could be desired for the past six weeks, and by its appearance it will continue for another six. It was thought at the time of sowing the Azaleas would mar the effect, but we find they rather add to it, as they emboss it equally the whole length, and take off the flat appearance, as well as add their various tints of foliage and flower. Due regard is taken that the Azaleas are not encroached upon by being overgrown. *W. Kettlewell, The Gardens, Balrath Barry, Kells, Co. Meath.*

*Cordylone australis*.—We have here two large plants of *Cordylone australis* in tubs. They are 15 feet in height, and about nineteen years old, having been in a large old conservatory until May, 1884, when we put them out-of-doors, where they have since remained without the slightest protection. Not only have they flourished, but each has now put forth large masses of bloom-buds, the bracts (of which there are many) being nearly a foot in length. *Cordylone australis* has often bloomed here in the conservatory, but I wish to know if it is on record that it has stood the winter and bloomed before in this country in the open air. It would appear that the plant is hardier than it was supposed to be. *J. Borlase Tibbits, Kettering.*

*The Primula Conference*.—Should this proposed Conference take actual form, it may be well worth consideration whether it should not assume two divisions, one devoted to the consideration of the *Primula* family in all its botanical relationships, and the other a florists' section, in which all that concerns the florists' forms of *Primulaceæ* may come under consideration. Botanists think there is still a good deal in relation to the nomenclature of *Primulas* that needs revising. The subject is hardly so fraught with difficulties as is the nomenclature of *Daffodils* perhaps, and may prove not only more interesting but also more profitable. In any case, if the holding of the Conference could also be instrumental in producing a representative exhibition of *Primula* species and varieties, the result would be in the highest degree gratifying. The florists may well turn their attention to such matters relating to florists' *Primula* varieties as the origin of the florists' *Auricula* and *Polyanthus*, the desirability of expanding the various sections into which these flowers are divided, so as to render them more popular and more widely cultivated. The Conference may well inquire whether, in the case of *Auriculas*, it is possible to attain further advance, and, if so, how that advance may be secured; also to ascertain whether the new laced forms are not so

meritorious as to entitle them to be classed as a separate florists' section, and presenting features more worthy than are those seen in those vagaries termed fancy *Auriculas*. With reference to the gold-laced *Polyanthus*, it may well be asked also whether that can be made to assume any new forms of interest, or whether it is desirable to create a section for the fine self and fancy border kinds, which, though so beautiful, yet by florists are treated with indifference. The last *Auricula* show fully established the need of some Conference or other means of creating public interest in these spring flowers. *A. D.*

*Flowers at Chepstow*.—In a sheltered spot in a garden near Chepstow there is now (June 15) in flower, and has been for some time, a *Ciceraria*, the same plant that bloomed last spring, and which circumstance you kindly inserted in your journal. There has been gathered also a *Butterfly Orchis* 22 inches in height near the same place—of course, wild. It seems to me of unusual height. *J. P., Chepstow.*

*A Natural Flower Garden*.—Visiting the gardens at The Rookery, near Carlisle, late the residence of the Venerable Dean Close, Mr. Leslie, the head gardener, allowed me an opportunity of feasting my eyes upon a floral scene worth miles of travel to inspect. Picture on a lawn a large purple Beech, now in full foliage of a rich coppery hue, whose pendulous branches sweep the grass over an area of 48 yards in circumference. On lifting a branch you naturally expect to find this area, as is generally the case under the thick leafy shade of trees, an uninteresting blank. Not so, however, here, for the whole ground is thickly covered with a most beautiful pure white double flower, the *Saxifraga granulata*, fl.-pl., whose stalks, about 6 inches high, rise out of the ground relieved by the grass, which is also growing fresh and green. The green carpet, the snow-white flowers, and the rich coppery canopy, under the rays of a summer sun, is really a grand and most enchanting sight, and the lesson is beautifully impressed, that a plant is only seen when "at home." Immediately adjoining the same plant is flowering freely in a plantation associated with a very pretty pink *Oxalis*, both of which seem to be valuable early flowering plants for a shady situation. *W. C.*

*Pea Sangster's No. 1*.—I again send you an account of our early Pea, Sangster's No. 1. Sown on a south border, at the front of the kitchen garden wall, on December 15, 1884, from which we picked our first dish on June 13, 1885. *Geo. Lambert, Oakwood.*

*Papaver umbrosum*.—A large bed of this superb hardy annual attracts universal admiration. More than excelling in richness of hue Gesner's grand Tulip, the flowers are of perfect form, cup-shaped, and large. Each of the four petals composing the flower has upon it, marked boldly, a heavy black blotch, which is as defined within the flower as without. Here and there some blooms show a whitish margin to these blotches, but that is hardly an improvement. In this particular case the seed was grown in the open ground in August, and the plants from the seed-bed dibbled out in November to where they are now blooming. Thus the plants are very strong, are blooming early, and with wonderful profuseness. *A. D.*

*Curious Spike of Orchis mascula*.—On the 3d of the present month I met in with a very remarkable specimen of *Orchis mascula*. The stem, which was a foot in height, bore eight flowers (two had been broken or eaten off), but, instead of the usual number, sixteen, contained no less than forty pollinia. Six individual flowers contained six pollinia each, and the remaining two the usual number, viz., two each. One of the flowers had two lips, both almost perfectly formed, and, strange to say, the remaining sepals and petals were normal. The rostellum was, however, much enlarged, almost closing up the entrance to the nectary, and contained the rudimentary traces of a pistil. This latter was observable in two of the flowers, and issued from between the stigmatic surfaces. The pollinia were, as usual, enclosed in the anther cells, but only in the two centre ones were the viscid discs protected by the rostellum. We might here be permitted to ask, Is this a case of reversion to the original form, or one in which the flower is gra-



dually working its way up to the present structure of an Orchis flower? There is one fact in connection with this flower which seems more in favour of Dr. Crüger's opinion than that of either Brown, Lindley, or Darwin. These three observers have stated that the two lower stamens are invariably petaloid and form part of the labellum. Now in support of Dr. Crüger, who will not admit that the labellum is thus formed, it may be argued that here is a flower with not only the original number of stamens but the lip also, and in one case two, perfectly developed, which we could hardly expect if that organ is, as Darwin and the others state, composed partly of the two lower stamens. *A. D. Webster*. [In the flowers sent by Mr. Webster there were three stamens present. Rarely we have seen all six. ED.]

*Yucca filamentosa variegata*.—A specimen of this handsome variegated plant was exhibited at a recent meeting of the Royal Horticultural Society at South Kensington, in bloom, a condition in which it is not frequently met with. The flowers were borne on an erect branching spike, some 7 or 8 feet high. In colour they are quite white, and collectively handsome and effective in appearance. The cause of this plant not often being seen in a blooming state is no doubt owing to the demand for it being such as to induce growers to keep on propagating to an extent that does not admit of its getting strong enough to flower. It is a variegated form of *Y. filamentosa*, a Virginian species long cultivated in British gardens. Some years since, when plants with variegated leaves came more into fashion, the plant naturally received more notice than it previously had had, although it is by no means yet so generally grown as its merits entitle it to, for when properly treated it is one of the most elegant and effective plants in cultivation. I repeat, properly treated, for it can be grown so as to keep it in a healthy condition in ways widely different. It is hardy in many parts of England, still it so far differs from most things that will succeed altogether out-of-doors that so grown it has a dumpy, inelegant appearance as compared with the character it assumes grown under glass, especially when subjected to a stove or intermediate temperature, as so treated the leaves reach two or three times the size they ever grow to in the open air, curving beautifully, whereas outside they are always short and comparatively erect. In fact, when kept warm the whole plant attains a size and character such as to make it scarcely recognisable. Not the least remarkable thing connected with it is that when kept continuously in heat it shows no disposition to weakness or debility, as most things that will live out-of-doors generally are affected with when kept constantly in a much higher temperature than they naturally require. This *Yucca* is never likely to become so common as the generality of plants, on account of its being so much slower to increase than things that admit of being struck from shoot cuttings. The method of increasing it is by cuttings made of bits of the roots. These are obtainable from any plant that has attained sufficient strength and size by turning it out of the pot and shaking away most of the soil, so as to admit of the strongest roots being taken off from the root-stock, interfering no more than cannot be avoided with the smaller roots, which plants so treated are necessarily for some time afterwards dependent on to get re-established. Root deprivation of the kind stated is always a severe ordeal, and although this *Yucca* bears being so treated without worse effect than suffering a check, which for a time causes it to make smaller leaves and less progress, yet if a sufficient amount of roots be not left entire, severe injury will follow. The roots so obtained should be cut into bits of from half an inch to an inch long, and be put 2 inches apart in pots half filled with peat and sand, or loam and sand, the remainder all sand, leaving the upper end of the cuttings about level with the surface. They must be put in heat and kept moderately close and moist; they will soon break into growth, when more air must be given them. After two or three leaves have been formed they should be moved singly into small pots and grown on in the stove, keeping them well up to the glass in a light position, without which latter the growth made will be weak and the progress unsatisfactory. All that the young plants require afterwards is more pot-room as it is needed, and ordinary stove treatment for two or three years, after which, if desired, they may be transferred to a conservatory or greenhouse, where they are always effective.

live. The white variegation, which adds so much to the appearance of the plant, comes out much more distinctly from the green ground-colour when grown under glass, than when out-of-doors. The best time for taking cuttings is either early in spring before much growth has begun, or about midsummer, after the first new leaves produced in the season have attained something like their full size. On no account should a plant have its roots removed so late in autumn as not to admit of its getting established again before winter. Plants that have been partially disrooted should at once, as soon as repotted, be placed in a brisk growing temperature, as, if this is neglected, their leaves are all but certain to suffer. This *Yucca*, up to a certain size, is an excellent subject for room decoration if well attended to and stood in a light window; if too far from the light it gets drawn and weak. A well managed specimen that has been kept in heat long enough for it to attain the full size of which the plant admits being grown to, will be near on 3 feet across by about as much in height, whilst still retaining its bottom leaves, so as to all but cover the pot. *T. B.*

## Reports of Societies.

### ROYAL BOTANIC: June 17.

THE second summer exhibition of the Society was held in the gardens, Regent's Park, on Wednesday, June 17. The large tent was completely filled with specimen stove and greenhouse flowering and foliage plants. Of Orchids there was also an exceedingly good display. The usual bank was well filled, and seven collections were staged on another bank, where they had a good effect, with a green baize and Box hedge for a background. The groups of plants were, as usual, an excellent feature.

Messrs. Laing, of Stanstead Park, Forest Hill, arranged their choice Begonias with capital taste, and showed how well adapted they are for decorative purposes when mixed with Crotons, Orchids, Caladiums, and other bright flowers and foliage against a background of Palms.

Mr. B. S. Williams, of Holloway, had a most effective group, containing the usual run of stove and greenhouse plants, conspicuous amongst them being *Crimum rubicundum*.

Messrs. Henderson, of Maida Vale, arranged the third group with admirable taste; it contained distinct and good Caladiums, with a number of plants in flower of *Blandfordia flammea*.

#### STOVE AND GREENHOUSE PLANTS IN FLOWER.

Although it is now getting late for these plants to be shown in first-rate condition the group of twelve in the open class from Mr. James Cypher, of Cheltenham, were in capital condition; *Erica Cavendishiana* was in splendid order, and of immense size; *Erica ventricosa*, very fine; as also were *Pimelea decussata* and *Allamanda Hendersonii*. Mr. H. James, of Norwood, was a good 2d; Mr. J. F. Mould, Pewsey, 3d. For six plants Mr. D. Donald, gr. to J. G. Barclay, Esq., Leyton, was a good 1st, with *Statice profusa*, very fine; *Ixora Fraseri* and *Darwinia tulipifera*, equally good; *G. fuchsoides*, very profusely bloomed; *Erica tricolor* Kingscotti was well bloomed. Mr. C. Rann, gr. to J. Warren, Esq., Handcross, Crawley, was 2d; Mr. J. Young, gr. to E. C. Coope, Esq., Rochetts, Brentwood, 3d. In the corresponding class for trade growers Mr. Cypher was well 1st; Mr. Tudgely, Waltham Cross, 2d; and Mr. James 3d.

#### ORCHIDS.

Exotic Orchids were well shown by Mr. Douglas, gr. to F. Whitbourn, Esq., Great Gearies, Ilford. This exhibitor was 1st in the class where one or more plants might be shown in a pot. *Odontoglossum vexillarium* from one rootstock had thirty-four spikes and nearly 200 flowers, a fine *Oncidium macranthum hastiferum*, *Masdevallia Harryana*, and two fine plants of *Odontoglossum Roezlii album*. Mr. C. J. Salter, gr. to J. Southgate, Esq., Streatham, was a very good 2d—*Aerides Fieldingii*, *Odontoglossum vexillarium*, and *Cattleya Warneri* being very fine. Mr. F. J. Hill, gr. to H. Little, Esq., Hillingdon Place, was 3d. In the corresponding class for the trade Mr. Cypher was 1st, with immense specimens, mostly made up; a fine variety of *Cattleya gigas* (Sanderiana) was conspicuous. Mr. James was an excellent 2d—a made up mass of *Cattleya Mendelii* being very fine. Mr. Douglas was 1st in the class for single plants, showing really good *Odontoglossum vexillarium*. Mr. S. Cooke, gr. to De B. Crawshaw, Esq., Sevenoaks, was 2d; he had two splendid *Vandas*, but the blooms were sadly bruised; *Cattleya Warneri*, with seven flowers was very fine. Mr. Salter, of Selborne, Streatham, was 3d. In the trade class Messrs. Jackson, Kingston, were 1st, with a well arranged group of *Aerides Lindleyanum* with a branched spike, very fine; *Laelia purpurata*, with six blooms, &c.; Mr. Cypher was 2d; and Mr. James 3d.

#### NEPENTHES, SARRACENIAS.

Mr. James gained the 1st prize for a group of *Nepenthes*, and also for a small group of *Sarracenias*, N. Mastersiana being very fine. Messrs. Laing, of Forest Hill, were 2d.

#### FUCHSIAS.

Fuchsias were well shown by Mr. G. Wheeler, gr. to Lady Goldsmid, St. John's Lodge, Regent's Park; Mrs. Marshall and Earl of Brimsfield were the best. Mr. J. Weston, gr. to S. Martineau, Esq., Clapham Park, was 2d, the plants being smaller but well grown.

#### PELARGONIUMS.

In the trade class for six show *Pelargoniums*, Mr. C. Turner was easily 1st, the varieties were very fine—*Amethyst*, *Joe*, *Despot*, *Prince of Prussia*, *Ritualist*, and *Comtesse de Choiseul*, being the varieties. The same exhibitor was 1st for fancies. In the amateurs' class for six fancies, Mr. J. Wiggins, gr. to W. Clay, Esq., Kingston, Mr. D. Phillips, gr. to R. W. Mann, Esq., Langley Broom, Slough, and Mr. F. J. Hill, exhibited, taking the prizes in the order of their names. In the class for show varieties, Mr. Hill was 1st; Mr. Wiggins 2d, and Mr. Phillips 3d. The best zonal *Pelargoniums* were from Mr. Weston, and the 2d best from Mr. H. Eason, gr. to B. Noakes, Esq., Hope Cottage, Highgate, the plants in both cases being tied down too closely.

#### FINE-FOLIAGE PLANTS, FERNS, AND BEGONIAS.

Mr. Rann, gr. to J. Warren, Esq., Handcross, Crawley, exhibited magnificent *Crotons*, a splendid *Cycas revoluta*, *Bonaparteia stricta*, and large Palms, with which he easily won the 1st prize for foliage plants in the amateurs' class; while Mr. Cypher won that in the trade class. Mr. Rann also received a 1st prize for six handsome *Crotons*: *C. Warrenii* and *C. Prince of Wales* were superb specimens; Mr. Warren was also well 1st for a group of exotic Ferns, *Davallia Mooreana*, *Gleichenia rupestris*, and *G. Mendelii* being well grown.

Messrs. Laing were the only exhibitors of *Begonias* in the trade class, but the specimens to which the 1st prize were awarded were in their best style—*Her Majesty*, *Bridesmaid*, *General Roberts*, *White Perfection*, and *Piebald* being the best of them.

#### FRUIT.

There was a good display of fruit, but it was not quite up to the standard of what we usually see at the Botanic in June. The 1st prize for a collection was awarded to Mr. W. Robins, gr. to E. D. Lee, Esq., Hartwell House, Aylesbury; *Alexandra* Peaches, Melons, Buckland Sweetwater, *Foster's Seedling*, and Black Hamburgh Grapes were good.

Pines were very fine, but only Queens were exhibited. Mr. H. Morris, gr. to A. P. Vivian, Esq., M.P., Taibach, South Wales, was 1st, with a handsome, well-ripened fruit; Mr. G. T. Miles, gr. to Lord Carrington, Wycombe Abbey, was 2d; and Mr. T. Coombes, gr. to J. A. Rolis, Esq., M.P., The Hendre, Monmouth, was 3d. All were superb fruits.

For two Melons, Mr. Douglas was 1st; Mr. H. W. Ward, gr. to the Earl of Radnor, Longford Castle, Salisbury, 2d; and Mr. George Halliday, gr. to J. Norris, Esq., Castle Hill, Bletchingly, 3d.

The baskets of Black Grapes were all one variety—Black Hamburgs; that from Mr. W. Bates, gr. to Mrs. Meek, Poulett Lodge, Twickenham, which gained 1st prize, was very fine, the fruit black and well finished. The best basket of white was from Mr. P. Feist, gr. to R. J. Ashton, Esq., Bishopsgate House, Staines—very good Muscat of Alexandria, the others being Buckland Sweetwater. The best three bunches of Black Hamburg Grapes were from Mr. F. Smith, gr. to W. H. Sewell, Esq., Warren Hill, Troughton; they were well finished, with beautiful bloom. Mr. G. Aslett, gr. to C. Butler, Esq., Warren House, Hatfield, was a good 2d. The best black Grapes of any other kind were three bunches of Black Prince, from Mr. W. Mowbray, gr. to the Earl of Leven and Melville, Fulmer, Slough. Muscats, for the season, were very fine indeed. Mr. H. Cakebread was easily 1st, with three capital bunches; Mr. P. Feist being a good 2d. For white Grapes of any other kind Mr. Cakebread gained the 1st prize, with three fine bunches of *Foster's White Seedling*; Mr. Mowbray was 2d, with Buckland Sweetwater; and Mr. Robins 3d, with *Foster's White Seedling*.

Mr. Mowbray had the best Peaches and Nectarines; Royal George and Noblesse in the former, Elrue and Pirmaston Orange in the latter.

Mr. T. Hare, Wellington Gardens, Grantham, exhibited two varieties of Cherries, *Elack Circassian* and *Elton*, very fine.

Mr. T. Laxton, of Bedford, also exhibited Strawberry Noble and The Captain, grown entirely in the open air; they are both remarkably good-looking fruit, of the largest size, and very well formed. Strawberry Pauline, from Messrs. Paul & Son, Cheshunt, also exhibited from out-of-doors, is a very early and good kind.

#### CUT FLOWERS.

These comprised Roses, which were fairly well exhibited in the amateurs' class by Mr. A. Gibson, gr. to T. F. Burnaby Atkins, Esq., Halstead Place, Sevenoaks; T. W. Girdstone, Esq., Sunningdale; and Mr. J. Hollingworth, Maidstone.

Messrs. Paul, of Cheshunt, and Mr. B. R. Cant, of Colchester, exhibited in the trade classes, the former being 1st for forty-eight trebles, with clean blooms of large size and good quality. Mr. B. R. Cant exhibited a box of superb blooms of *Souvenir d'Elise* Tea Rose, and was awarded the 1st prize.



Mr. Rumsey, of Waltham Cross, was awarded 1st prize for a collection of climbing Roses.

Mr. B. R. Cant, Colchester, was awarded a 1st prize for a fine stand of twelve *Maréchal Niel* Roses.

Mr. David Laird's Pansies were very rich in colour, and comprised the finest varieties in the fancy section.

Mr. Salter was 1st for cut Orchids, showing a capital collection, which were very pretty, arranged with small pots of *Adiantum*.

Several other good collections were shown.

Collections of cut flowers of herbaceous plants were well exhibited by Mr. T. S. Ware, of Tottenham; Messrs. Paul, and Messrs. Kelway, of Langport; greenhouse cut flowers by Mr. James. Mr. Turner obtained the 1st prize for cut show Pelargoniums, and Mr. Eason for zonals. A splendid collection of wild flowers (cut) was exhibited by Mr. Dixon, gr. to Sir. T. M. Wilson, Searles, Uckfield, and well deserved the 1st prize. It contained 180 species collected in the neighbourhood. The same exhibitor was awarded the 1st prize for a collection of medicinal and economic plants. Baskets of cut Roses were an interesting and pretty feature. The 1st prize was awarded to Messrs. Paul & Son.

#### AWARDS.

The following were awarded the Large Silver Medal of the Society:—Messrs. E. G. Henderson & Son, for group of plants; Messrs. Laing, for group of plants; Mr. B. S. Williams, for group of plants.

The Silver Medal was given to Messrs. Hooper, of Covent Garden, for cut flowers and Tree Carnations in pots.

The following had the award of a Small Silver Medal:—Messrs. Barr & Son, Covent Garden, collection of hardy cut flowers. Messrs. Paul & Son, Cheshunt, for group of herbaceous plants; and one for cut hardy flowers.

The Large Bronze, to Mr. H. James, for collection of *Dracaenas*.

The Bronze, to Messrs. Low, of Clapton, for collection of Orchids; and to Messrs. Sander, of St. Albans, for group of *Odontoglossums*.

Certificates were awarded to the following:—Mr. Salter, for group of Hydrangeas; Mr. Wiggins, for collection of seedling Pelargoniums; Mr. J. Vander Rees, Tooting, for collection of hardy cut flowers; Messrs. H. Cannell & Sons, for cut flowers.

#### NEW PLANTS.

The following Botanical Certificates were awarded:—To Messrs. Veitch, for *Lælia Canhamii*, a splendid variety, white sepals and petals, crimson-purple lip, with narrow white margin; *Thunia Veitchii* (also exhibited by Mr. B. S. Williams under the name of T. Wrigleyana), a cross between T. Marshalli and T. Bensoniae, purple bluish sepals and petals, pale lilac labellum; *Masdevallia Gairiana*, a cross between M. Veitchiana and M. Davisii, bright yellow, with a slight trace of the bright colour of M. Veitchiana on the top petal; *Cypripedium Sedeni candidum*, a pretty form of this handsome and popular hybrid; *Cypripedium macropterum*, between C. Lowii and C. superbiens; the lateral sepals have the distinct spotting of C. superbiens, the dorsal sepal is like C. Lowii; *Spirea palmata alba*, a very pretty white form of this species; *Eunonymus japonicus Silver Gem* has very beautiful white variegation; *Fagus sylvatica tricolor*, the leaves margined with rosy-red; *Cyathia divergens*, a remarkably handsome basket Fern, very distinct in character; *Phyllanthus Chantrieri*, a distinct and well-marked species.

Messrs. E. G. Henderson & Son, for *Alcacia Hendersoni*, very distinct in the form of its deep green leaves and dark green midrib.

Messrs. Lee & Son, for *Cupressus Lawsoniana erecta viridis alba variegata*.

Mr. James Cypher, for *Dendrobium Falconeri* delicatum, very pale form, with pale purplish instead of the usual maroon blotch; *D. crystallinum album*, white, with yellow blotch.

Messrs. Laing, for *Caladium Raymond Lemonier*, greenish-white leaf, with red centre; *C. albo luteum maculatum*, cream, with dark red blotches; *C. Comte de Germiny*, with reddish-crimson midribs, with greenish-white blotches.

Messrs. Barr & Son, for *Brodiaea stellaris*, a pretty species with bluish-purple flowers, the centre white.

Messrs. Sander & Co., St. Albans, *Odontoglossum Alexandrea rosea punctata*, with well formed flowers, fringed petals, thickly spotted brown; *O. Alexandrea Johnsoni*, bluish sepals, and petals very heavily blotched, and spotted brown; *O. Alexandrea Phalaenopsis* takes its name from the form of the flower, which is well formed, pinky bluish with a few brown spots.

Mr. B. S. Williams for *Agapanthus umbellatus variegatus*, the leaves striped with yellow.

#### NEW FLORISTS' FLOWERS.

Floral Certificates were awarded to the following plants:—

To Mr. J. Wiggins, for show Pelargonium *Portia*, a dwarf plant with rosy tint and maroon blotch; *Vesper Bell*, pinky-white, maroon blotch, with pretty marks on the lower petals.

To E. B. Foster, Esq., Clewer Manor, Windsor, for Pelargonium *Pluto*, a large handsome variety, rosy-red, white centre, maroon blotch.

To Mr. C. Turner, for fancy Pelargonium *Mrs. Langtry*, very free, pinky-white, bright rose blotch.

To Messrs. Chas. Lee & Sons, Isleworth, for *Statie floribunda*.

To Messrs. Veitch, of Chelsea, for Carnation *Pride of Penshurst*, a beautiful bright yellow variety, very free flowering.

To Messrs. Laing, for Tuberous Begonias.

To Mr. Brissenden, for a large double variety of Begonia, with crimson-scarlet flowers; *B. Salomonea*, double rosy-salmon, a neat plant.

To Messrs. H. Cannell & Sons, Swanley, for *Verbena Purity*, large heads of white flowers; and *V. Dr. Feyerlin*, rich plum-purple; *Begonia Louis Bouchet*, a decorative variety thickly beset with drooping scarlet flowers.

#### THE YORK GALA: June 17-19.

THE York show is this year of a character such as to keep up the reputation which the old City has so long held for its horticultural displays, in the several departments of plants, flowers, and fruits, there is a keen competition in stove and greenhouse plants—both flowering and fine-foliated being exhibited in very large numbers and fine condition.

Of Pelargoniums, as usual, there is an immense display. Pot Roses are nicely shown, filling the greater part of a large tent.

Fruit is well represented, especially Grapes, Melons, Nectarines, and Figs.

In the class for sixteen stove and greenhouse plants, flowering and fine leaved, Mr. Letts, gr. to Lord Zetland, holds the 1st place, showing a fine group; and Mr. Cypher 2d. Mr. Eastwood, gr. to Mrs. Tatley, of Leeds, takes most of the leading prizes for Pelargoniums in both the show and zonal classes.

The groups of plants were arranged for effect, and filled a large circular tent. Mr. McIntyre takes 1st in the class for large groups; in the class for smaller groups Mr. Noble is 1st. Mr. Miles, gr. to Lord Carrington, is 1st for eight dishes of fruit.

With the continuance of fine weather the gathering cannot fail to be a decided success. (By Telegraph.)

#### MASSACHUSETTS HORTICULTURAL.

MANURES.—At a recent meeting of this Society Professor G. C. Caldwell, of Cornell University, read a paper on "A Comparison of Manures for the Orchard and Garden." How to manure the garden or the orchard for the most profitable results is one of the difficult questions that the horticulturist has to meet. Of the biggest and most solid Cabbages, the earliest Peas, the largest Squashes, the sweetest and most prolific berries, the handsomest and most delicately flavoured Grapes, the most luscious Peaches or Pears, the earliest or the best late-keeping Apples, he has an unlimited variety offered him by all the seedsmen or nurserymen in the land; and he need find no difficulty whatever in laying out to good advantage all the money he has to spare in this direction. Of the most suitable land on which to plant all these crops there is enough and to spare somewhere in all this wide country. Of tools and labour-saving machines of every kind, and of men and animals to use them, there is no scarcity. In respect to all these supplies there is only embarrassment of riches, and no crops need fail of producing good fruit abundantly from any want of liberal provision for its highest requirements on any of these lines.

But is there such a superabundance of supply when we come to the matter of the highest requirements as to the food of these crops? Is there a sufficiency of a supply of such kinds of food as will, in the long run of garden and fruit culture, give the surest results? Is not the gardener's call always for more stable manure? and is the call of the fruit grower any less loud? One naturally asks, why is this so when there are elsewhere at least immense, if not inexhaustible, quantities of the nitrogen, phosphoric acid and potash that are reckoned as so important plant nutrients, all to be had for the purchasing, and under so great a competition that they ought to be had for as low rates as they can be sold for and pay fair profits? They can be had also in every form of combination and every degree of assimilability, and in any desired mixture; and, further, to save the farmer or the gardener the trouble of studying out for himself the kind of combination that his crop needs, mixtures are offered to him ready made up for each crop.

Abundant as these commercial supplies are, they do not seem to fully answer the purpose. It is doubtful whether the demand for animal manures is any less urgent now than it was before the commercial manures became the important articles of trade that they now are. Yet in agricultural operations superphosphates, bone meal, nitrate of soda and the like, have in some few cases been made to take the place entirely of stable manure, with profit. As an instance of this kind, Professor Caldwell gave an account of Mr. Prout's farm in England, which was bought in 1861. It comprised 450 acres, and therefore its cultivation was no small plot experiment. When bought it was in a low condition of fertility, and the owner asked the advice of the late Dr. Voelcker, the eminent agricultural chemist, as to the best way to bring it into good condition again. The advice was to dress it well with stable manure. After doing this with unsatisfactory results for two years, application was again made to the chemist, who advised the owner to use more stable manure. He said he could not afford it; and the chemist visited the farm again and suggested the use of commercial fertilisers after a certain plan. The plan was followed, and bone-dust, superphosphate, dissolved guano, and nitrate of soda were the only manures used from that time on. The crops of Clover, hay, grain, straw, and everything were all sold standing; only an insignificant quantity of manure was made, the cultivation being almost entirely by steam. This system has been carried on for more than twenty years. The farm cost in the beginning 74,500 dol., and enough more was spent upon it in improvements to make

the total cost about 100,000 dol. The annual clear profits have been on an average about 4500 dol., and it was estimated that the farm could be sold, eight years after it was taken, for twice what it had cost.

These facts show that commercial fertilisers do contain all the food required by crops, and that, with their assistance only, a farm can be brought up from a low condition to a higher one, and held there for a series of years. And no one can show that what is true of farm crops should not be true of garden and fruit crops as well—if not to the same extent, yet to a large extent. They feed on the same kind of soil, and in the same manner, and require the same nutrients in general, and the same particular nutrients that are specially important for farm crops are, so far as we know, specially important for garden and fruit crops; the proportions required may be different, but perhaps not more so than for different farm crops. The same mixture of nitrogen compounds, phosphate and potash salts, will not answer equally well for Wheat and Potatoes, nor even for Wheat and corn, which are more nearly alike than Wheat and Potatoes.

What are the obstacles in the way of the more extensive use of commercial fertilisers in the garden and orchard, and of less dependence on the city and village stables? In answering this question we naturally ask, first, What does stable manure contain that is not supplied in commercial fertilisers?

The valuation of a commercial fertiliser is based on the quantities of nitrogen, phosphoric acid, and potash that it contains, and there is no doubt that in respect to just these ingredients we can meet the wants of any crop better by supplying commercial fertilisers than we can by stable manure, if indeed there is any difference between the two as to efficiency. But besides these the crop must find in the soil, supplied from some source, lime, magnesia, sulphuric acid, in the form of sulphates, of which plaster is one, a very little iron, possibly chlorides, of which common salt is one, and perhaps silica. These substances are all found in all good soils, or supplied in fertilisers; hence we are justified in charging all the cost of a commercial manure to, and in expecting to get our money back from, its nitrogen, phosphoric acid, and potash; the rest of the ingredients must be thrown in gratis, as of no value generally, although there may be cases where one or another of them may be of service. All of these matters the stable manure contains also in abundance.

So far no one can claim anything for the stable manure that is not supplied by the commercial fertiliser. The only respect in which the two materials are distinctly unlike is this: the stable manure is composed largely of dead vegetable and animal matter in process of decay; the product of this decay is the humus, or vegetable mould of the soil. About one-fifth of ordinary stable manure is made up of this vegetable and animal matter, while not over six to eight one-thousandths is potash, five or six one-thousandths nitrogen, and three one-thousandths phosphoric acid. Of nitrate of soda, so much mentioned for its nitrogen, one-sixth is this nitrogen; of a good superphosphate, as this fertiliser averages in this country, about one-eighth is phosphoric acid, and of a German muriate of potash from a third to a half may be potash. But in all their materials there is no vegetable matter, and little or no animal matter.

Here, then, is a clear distinction between the two kinds of manure, the stable and the artificial. The stable manure has its few thousandths of nitrogen, of phosphoric acid, and of potash, and its one-fifth of decaying vegetable and animal matter; the commercial manure only its few thousandths or even less of animal matter, and its proportion of nitrogen, phosphoric acid, and potash, counted by eighths to thirds. About three-fourths of the stable manure is only water, however; expel this, and we get a manure as dry as commercial manures ordinarily are, and the comparison between the two will be more just and no less striking. We shall then see that four-fifths of this dry manure is decaying vegetable and animal matter, about one-fortieth is potash, one-eighth phosphoric acid, and one-fiftieth nitrogen.

Can any way now be shown in which this striking difference between the two kinds of manure may account for the greater measure of success that is attained in general use with stable manure? As already said, decaying vegetable or animal matter in the soil makes humus or vegetable mould. This common ingredient of all arable soils is not necessary for plant growth, for, on a small scale in pot culture, good crops have been obtained in a soil as white as snow, and therefore quite free from any humus, but containing all the real plant nutrients that have been mentioned. But that this humus is an important ingredient of a fertile soil no one can doubt. Given two soils, equally rich in nitrogen, potash, phosphoric acid, lime, and all matters of such sort, but of which one is poor in humus and the other rich in it, but yet not so excessively rich as a bog or muck bed, there is not a farmer or gardener who knows soils who would not give more for the soil rich in humus than for the other. In the course of the decay of these vegetable matters several acid substances are formed, chiefly carbonic acid; these acids act on the large quantities of difficultly soluble plant food of fair quality, and aid in bringing it into solution, and thus within easy reach of the plant. That the carbonic acid, which is one of the main products of the decay of humus, does in some way favour vegetable growth is illustrated by an experiment performed many years ago by Stockhardt, of which an account was given by Professor Caldwell, but which we have not room to quote. It is also shown by other experiments and by analysis of the air in the pores of the soil.

One of the most interesting properties of soils is that remarkable power they have of absorbing certain valuable plant nutrients, and holding them in a difficultly



soluble condition near the surface, so that however much rain may reach through the ground, they will only very slowly be carried down deeper, or washed out altogether. Thus the soil behaves with phosphoric acid, with potash and with the ammonia that is so valuable for its nitrogen. For these three substances dry, arable soil, that is not too sandy, is a most trustworthy savings-bank. Therefore, although we should make much account, in buying a fertiliser, of the proportion of soluble phosphoric acid or potash or nitrogen compounds in it, yet in all probability, to say the least, our crops take up but a little of these nutrients before they are changed by this fixing power of the soil into a difficultly soluble condition. This, which might at first appear a disadvantage, assists in the more equal distribution of the fertiliser through the soil, and at the same time prevents it from straying far off. Commercial fertilisers, it is often observed, do their best when used with stable manure, and this is because the abundance of carbonic acid generated by the fresh application of such manure assists in the resolution of the "insolubilised" phosphoric acid and potash of the commercial manure, as well as of the difficultly soluble native food of the soil.

The essayist gave a comparison of the values of certain kinds of manures. Cow-manure at 1.16 dol. per 1000 lb. is not a cheap way of getting plant food; it would be more costly than commercial fertilisers were it not for the large amount of humus-forming material that it contains, which may offset the high cost of the plant nutrients in it. But we have just as much of this humus-forming material in horse-manure, and the important plant nutrients in that at 1.54 dol. per 1000 lb. are cheaper than in the commercial fertilisers. Night soil at 43 cents per 1000 lb. (the cost of hauling) affords plant food at a remarkably cheap rate—much more so than commercial manures. Rock-weed at 1.21 dol. per 1000 lb. is an expensive manure. Fish chum at 6.50 dol. per 1000 lb. provides nitrogen and phosphoric acid at a very cheap rate. Hen manure at 4 dol. per 1000 lb. is an expensive fertiliser. Farmers' waste at 78 cents per 1000 lb. affords nitrogen and phosphoric acid at a cheap rate.

Professor Caldwell advised the purchase and mixing by farmers of the raw materials of fertilisers, and gave an instance of a farmer in Connecticut who had done this successfully, the mixture being cheaper, and he has also the great advantage of knowing just what it was made of; its nitrogen, for example, being in the form of sulphate of ammonia, the most costly and valuable form of nitrogenous plant food, and not of roasted and ground leather waste, an utterly worthless form of nitrogenous plant food.

Professor Caldwell closed with the following summary:—

1. That if enough of the needed elements of food of the gardener's or horticulturist's crops cannot be obtained in stable manure or other animal waste, it can be procured in the trade in unlimited quantity and in every degree of availability depending on different grades of solubility and in the greatest variety of mixtures to suit any whim or fancy of crop or crop growers.

2. That profitable crop growing can be carried on for at least many years with these commercial fertilisers alone.

3. That the most evident distinction between stable manure and commercial fertilisers, and the distinction upon which we should, therefore, base an explanation of the greater reliability of the former, is its large proportion of vegetable matter or humus-forming material, of which commercial fertilisers contain practically none.

4. That soils contain in a difficultly soluble condition, and, therefore, not easily fed upon by the crop, all the needed elements of plant food.

5. That humus, by the decay it suffers in the soil, furnishes carbonic acid and other solvent agents, and this carbonic acid appears to play an important part in the nourishment of crops by bringing this native insoluble stock of plant food within their easy reach.

6. That even if we add water-soluble plant food to the soil it becomes largely insoluble before the crop can feed upon it or needs it; therefore soluble plant food added to the soil in commercial fertilisers also needs the help of the humus finally for its solution.

7. That plant food in most animal and vegetable residues used as manures, costs much less than in commercial manure.

8. That in spite of the disadvantages that under some conditions attend the use of commercial fertilisers, they are nevertheless a very important and necessary help in crop-growing.

9. That in using these fertilisers the wisest course appears to be to make one's own mixtures of the raw material, as well for securing a better manure as for economy in the first cost.

## The Weather.

SUMMARY OF TEMPERATURE, RAINFALL, AND DURATION OF BRIGHT SUNSHINE in the United Kingdom, for agricultural and sanitary purposes, for the week ending Monday, June 15, 1885, issued by the Meteorological Office, 116, Victoria Street, London, S.W. :—The weather has been rather showery in the extreme north of Scotland, but in all other parts of the kingdom the conditions have been dry and very fine.

The temperature has been slightly above the mean in "Scotland, E." and "England, N.E.," and about equal to it in the "Midland Counties," "England, S.," and "England, S.W.," but from 1° to 3° below in all other districts. The maxima, which were

recorded either on the 12th, 13th, or 14th, varied from 62° in "Scotland, N.," and 70° in "Scotland, W.," to between 80° and 84° over the greater part of England. The minima were registered at most stations either on the 9th or 10th, when the thermometer fell to between 34° and 37° in almost all parts of the country, and to 48° in the Channel Islands. At the inland stations the range of temperature during the week has again been unusually large, that at Llandovery being 45°.

The rainfall has been less than the mean in all districts; over the greater part of the kingdom the fall has been scarcely appreciable.

Bright sunshine shows a further increase in duration, the percentages ranging from 39 in "Scotland, E.," to between 53 and 66 in most other districts, and to 68 in the Channel Islands.

Depressions observed.—The only depression observed in our neighbourhood was that noticed as passing over the south-east of England at the close of last week. By 8 A.M. on the 9th it had reached Denmark, and on the following day, after growing much deeper, it disappeared over the Gulf of Bothnia. The distribution of pressure over our islands now became anticyclonic, and the winds, which had blown freshly or strongly from the northward or north-eastward, decreased in force and shifted to the westward on our northern coasts, and to the eastward in the south.

### STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, JUNE 17, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC DEVIATIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 48 years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 55 years.	Dew Point.	Difference of Sat. and Sat. 100.		
June	In.	In.	°	°	°	°	°	°	°	E.	In.
11	30.21	+0.43	67.0	41.4	25.6	52.0	-6.3	43.4	70	E.	0.00
12	30.15	+0.36	76.5	46.5	30.0	59.6	+1.1	50.5	72	E.	0.00
13	30.00	+0.22	78.5	47.0	31.5	61.6	+2.9	48.7	63	E.	0.00
14	29.89	+0.11	84.0	50.4	33.6	65.1	+6.2	52.7	64	E. N. E.	0.03
15	29.90	+0.11	73.8	52.2	21.6	58.5	-0.5	56.8	93	E. N. E.	0.00
16	29.84	+0.05	67.5	50.1	17.4	55.2	-3.9	49.1	81	E.	0.00
17	29.71	-0.08	64.0	51.9	12.1	54.9	-4.4	49.2	81	E. N. E.	0.08
Mean	29.95	+0.17	73.0	48.5	24.5	58.1	-0.7	50.0	74	E.	0.08

June 11.—Very fine day and night.

12.—Very fine day and night.

13.—Very fine day and night.

14.—Very fine day and night.

15.—Fine day; dull at times.

16.—Fine day; very windy throughout.

17.—Fine day; dull mostly; occasional gleams of sunshine.

LONDON: Atmospheric Pressure.—During the week ending June 13, the reading of the barometer at the level of the sea decreased from 30 inches at the beginning of the week to 29.85 inches by 9 A.M., and increased to 29.88 inches by 5 P.M. on the 7th, decreased to 29.69 inches by 5 P.M. on the 8th, increased to 30.09 inches by 9 A.M., and decreased to 29.98 inches by 5 P.M. on the 9th, increased to 30.36 inches by 9 A.M., and decreased to 30.30 inches by 5 P.M. on the 10th, increased to 30.42 inches by 9 A.M. on the 11th, decreased to 30.37 inches by 1 P.M. on the same day, increased to 30.38 inches by 9 A.M. on the 12th, and was 30.15 inches by the end of the week.

The mean reading of the barometer for the week at the level of the sea was 30.16 inches, being 0.10 inch higher than last week, and 0.15 inch higher than the average of the week.

Temperature.—The highest temperature in the shade in the week was 78° 5, on the 13th; the highest on the 9th was 64° 3. The mean of the seven high day temperatures was 70° 9.

The lowest temperature was 41° 4, on the 11th; on the 8th the lowest temperature was 57°. The mean of the seven low night temperatures was 49° 2.

The greatest range of temperature in one day was 31° 5, on the 13th; the smallest was 11° 5, on the 8th. The mean of the seven daily ranges was 21° 7. The mean temperatures were—on the 7th, 60° 5;

on the 8th, 59° 5; on the 9th, 53° 3; on the 10th 52° 4; on the 11th, 52°; on the 12th, 59° 6, and on the 13th, 61° 6; of these the 7th, 8th, 12th, and 13th were above their averages by 2° 9, 1° 8, 1° 1, and 2° 9 respectively; and the 9th, 10th, and 11th were below by 4° 6, 5° 7, and 6° 3 respectively.

The mean temperature of the week was 57°, being 4° 7 lower than last week, and 1° 1 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 139° 5, on the 11th. The mean of the seven readings was 121° 3.

Rain.—Rain fell on two days, to the amount of 0.98 inch.

ENGLAND: Temperature.—During the week ending June 13, the highest temperatures were 80° 1, at Cambridge, 78° 5 at Blackheath, 78° at Truro; the highest at Liverpool was 70°, at Preston 71°, at Bolton 72° 6. The general mean was 74° 6.

The lowest temperatures were 35° 3 at Cambridge, 37° at Hull, 38° 5 at Wolverhampton; the lowest at Plymouth 45° 6, at Liverpool 44° 4, at Truro and Newcastle 44°. The general mean was 41° 2.

The greatest ranges were 44° 8, at Cambridge, 38° at Sheffield and Hull; the smallest ranges were 22° 6 at Plymouth, 25° 6 at Liverpool, 28° at Preston. The general mean was 33° 4.

The mean of the seven high day temperatures was highest at Blackheath, 70° 9, at Cambridge 70° 7, at Truro 68° 4; and was lowest at Preston, 62° 9, at Bolton 63° 1, at Hull 63° 3. The general mean was 65° 5.

The mean of the seven low night temperatures was highest at Plymouth, 50° 2, at Brighton 50° 1, at Liverpool 49° 9; and was lowest at Sunderland, 44° 7, at Hull 45°, at Bolton 45° 7. The general mean was 47° 6.

The mean daily range was greatest at Cambridge, 24° 1, at Blackheath 21° 7, at Sheffield 20°; and was least at Plymouth, 13° 2, at Liverpool 13° 8, at Preston 14° 3. The general mean was 17° 9.

The mean temperature was greatest at Blackheath, 57°, at Truro and Cambridge 56° 9, at Brighton and Bristol 55° 9; and was lowest at Hull, 52° 4, at Bolton 52° 5, and at Sunderland 52° 7. The general mean was 54° 6.

Rain.—The largest falls were 1.69 inch at Nottingham, 1.58 inch at Cambridge and Bolton; the smallest falls were 0.01 inch at Brighton, 0.18 inch at Truro, 0.48 inch at Sunderland. The general mean fall was 0.88 inch.

SCOTLAND: Temperature.—During the week ending June 13, the highest temperature was 76° 5, at Aberdeen; at Edinburgh the highest temperature was 64° 8. The general mean was 70° 7.

The lowest temperature in the week was 34° 5, at Glasgow and Perth; at Greenock the lowest temperature was 41°. The general mean was 37° 9.

The mean temperature was highest at Paisley, 54° 8; and lowest at Perth, 52° 2. The general mean was 53° 9.

Rain.—The largest fall was 0.09 inch, at Edinburgh; the smallest fall was 0.02 inch, at Perth. The general mean fall was 0.04 inch.

JAMES GLAISHER F.R.S.

### Answers to Correspondents.

CUCUMBER PLANTS DYING: J. F. As you have planted tender varieties on an old Potato bed it is just possible the plants die off for want of heat, or from cold and over-much moisture together. Can you not give the bed more heat by means of linings; or, clear out the lot, mix fresh dung with the old materials of the bed, and when the rank heat is over plant the frames with young plants.

DISEASED BRANCHES: R. P. F. The leaf is affected with the silver-leaf disease, the exact nature of which has hitherto baffled all inquiry. Cut the diseased branches away, and burn. The Plants are affected with a fungus (*Exoascus pruni*) often figured in the *Gardeners' Chronicle*. Cut away all the affected branches and burn them.

ERRATA.—In our notice of the show of Rhododendrons now being held in Cadogan Place, Sloane Street, S.W., Mr. Anthony Waterer's name got substituted for that of Mr. John Waterer, American Nursery, Bagshot, Surrey, who is the proprietor of the show in question.—In "Cabbage Early Warwick," p. 769, for "thirty-five years," read twenty-five years.

GALLS ON MAPLE: Camjee. The crimson pimples are said to be caused by a mite named *Phytoptus myriadenium* (see the *Gardeners' Chronicle* for July 1, 1882, p. 12).



**HOLLY: G.** The small grub which knits together the leaves of your Hollies is the larva of a minute moth (*Graptolitha nevana*). The sparrows are reputed to be fond of them.

**INSECTS: C. D.** Your young shoot of Pine was covered with a brood of newly-hatched caterpillars of one of the species of the feather-horned sawflies. Hand-picking, or syringing the shoots with soapsuds and quassia, or Pyrethrum infusion, are the best remedies. **I. O. W.—G. P.** Your Peach shoots are infested with the too common black Peach aphid (*Aphis persicae*). The remedies proposed against the Cabbage aphid in our issue of June 6 are applicable to this insect. Your Vines are infested with an exceedingly minute mite closely allied to the red-spider, against which some of the remedies proposed against the Cabbage aphid are also available. **I. O. W.**

**NAMES OF PLANTS: G. W. R.** 1, *Staphylea pinnata*; 2, *Daphne cneorum*; 3, *Ornithogalum pyrenaicum*.—**C. S. & Co.** *Papaver bracteatum*.—**C. W.** 1, *Helianthemum vulgare*; 2 and 4, *Polygala vulgaris*; 3, *Ranunculus arvensis*.—**E. F.** 1, *Carex ovals*; 2, *C. hirta*.—**W. S. C. P.** All varieties of *Eremurus spectabilis*.—**L. E. C.** 1, *Echites picta*; 2, *Choisya ternata*; 3, *Calycanthus floridus*.—**A. F. Fot.** *Polygonum cuspidatum*.—**T. J.** *Viburnum Opulus*, the wild Gueldres Rose.—**A. B.** The Austrian Brier.—**W. S.** 1, *Symphitum asperum*; 2, *Veronica gentianoides*; 3, *Centaurea montana*; 4, *Orobuchus*.—**Cattle and Green.** Rose *Moutan*.—**H. Reynolds.** *Begonia*—Marga is the green and white one; Louise Chretien the rose and bronze.

**NAME AND ADDRESS OF THE SECRETARY OF THE ROYAL HORTICULTURAL SOCIETY: J. H. P.** Mr. Dick, Royal Horticultural Society's Gardens, South Kensington, S.W.

**POLYPODIUM FRAGRANS: T. P. Collings & Co.** We do not see that the so-called "Polypodium fragrans," Collings, differs at all from the old and well-known *Pleopeltis nuda*, of Hooker's *Exotic Flora*, which has several other aliases, as *Drynaria Fortunei*, *Polypodium lineare*, *P. Wightianum*, and some others not quite so free from doubt. This plant has the same rich scent of coumarin in the drying fronds as those now sent. The name *P. fragrans*, Collings cannot be recognised.

**INTELLIGENT READERS, PLEASE NOTE.**—*Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and NOT to the Editor.*

**COMMUNICATIONS RECEIVED.**—**R. D.**—**R. L.**—**F. S.**—**W. H. C.**—**F. T. D.**—**W. W. W.** (no plants enclosed).—**C. W. Dod.**—**W. G. S.**

## Markets.

COVENT GARDEN, June 18.

THE subjoined reports are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list weekly, and are responsible for the quotations. It must be remembered that these quotations are averages for the week preceding the date of our report. The prices fluctuate, not only from day to day, but often several times in one day, and therefore the prices quoted as averages for the past week must not be taken as indicating the price at any particular date, still less can they be taken as guides to the price in the coming week. **E. O.**

A GENERAL fall has taken place in all best goods, the market being now heavily supplied. Outdoor Strawberries have commenced this week. *James Webber, Wholesale Apple Market.*

### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
<i>Aralia Sieboldi</i> , doz. 6 0-24 0	<i>Ferns</i> , in var., dozen 4 0-18 0
<i>Arbor-vitæ</i> (golden), per dozen .. 6 0-18 0	<i>Foliage Plants</i> , various, each .. 2 0-10 0
— (common), dozen 6 0-12 0	<i>Fuchsias</i> , per dozen 6 0-12 0
<i>Arum Lilies</i> , dozen .. 6 0-12 0	<i>Hydrangeas</i> , dozen .. 12 0-18 0
<i>Begonias</i> , per dozen 6 0-12 0	<i>Lilium auratum</i> , per dozen .. 30 0-40 0
<i>Bouvardias</i> , dozen .. 9 0-18 0	— longifolium, doz. 18 0-36 0
<i>Calceolarias</i> , doz. .. 6 0-9 0	<i>Marguerite Daisy</i> , per dozen .. 8 0-15 0
<i>Cyperus</i> , per dozen .. 4 0-12 0	<i>Musk</i> , per dozen .. 3 0-4 0
<i>Dracæna terminalis</i> , per dozen .. 30 0-60 0	<i>Myrtles</i> , per dozen .. 6 0-12 0
— viridis, per doz. 12 0-24 0	<i>Palms</i> in variety, each .. 2 6-21 0
<i>Erica</i> , various, doz. .. 0 0-18 0	<i>Pelargoniums</i> , per dozen .. 6 0-18 0
— Cavendishii, doz. 18 0-36 0	— scarlet, dozen .. 3 0-9 0
— ventricosa, doz. 12 0-24 0	<i>Rhodanthé</i> , per doz. 6 0-8 0
<i>Euonym.</i> , in var., doz. 6 0-18 0	<i>Spiræa</i> , per dozen .. 9 0-18 0
<i>Evergreens</i> , in var., per dozen .. 6 0-24 0	
<i>Ficus elastica</i> , each. 1 6-7 0	

### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
<i>Abutilon</i> , 12 bunches 2 0-4 0	<i>Mignonette</i> , 12 bun. 3 0-9 0
<i>Anemone</i> , 12 bunch. 1 0-2 0	<i>Myosotis</i> , 12 bun. .. 2 0-4 0
<i>Arum Lilies</i> , 12 blms. 3 0-6 0	<i>Pæonies</i> , 12 bun. .. 6 0-12 0
<i>Bouvardias</i> , per bun. 0 9-1 0	<i>Pelargoniums</i> , per 12 trusses .. 0 6-1 0
<i>Carnations</i> , 12 blms. 1 0-2 0	— scarlet, 12 trusses 4 0-6 0
<i>Eucharis</i> , per dozen 4 0-6 0	<i>Picotees</i> , 12 bun. .. 4 0-6 0
<i>Gardenias</i> , 12 blooms 1 6-4 0	<i>Pinks</i> , var., 12 bun. 0 4-1 0
<i>Iris</i> , 12 bun. .. 4 0-9 0	<i>Primula double</i> , bun. 0 9-1 0
<i>Lapageria</i> , white, 12 blooms .. 2 0-3 0	<i>Rhodanthé</i> , 12 bun. 6 0-9 0
— red, 12 blooms .. 1 0-2 0	<i>Roses</i> (indoor), doz. 1 0-3 0
<i>Lily-of-Val</i> , 12 bun. 3 0-9 0	— coloured, dozen 2 0-4 0
<i>Lilium longiflorum</i> , 12 blooms .. 4 0-6 0	— per doz. bunches 4 0-9 0
<i>Lilium candidum</i> , 12 blooms .. 1 0-2 0	<i>Moss</i> , 12 bun. .. 6 0-9 0
<i>Marguerites</i> , 12 bun. 3 0-6 0	<i>Spiræa</i> , 12 spr. .. 6 0-9 0
	<i>Stephanotis</i> , 12 spr. 2 4 0
	<i>Tropeolum</i> , 12 bun. 1 0-1 6

### FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
<i>Apples</i> , ½-sieve .. 1 6-5 0	<i>Lemons</i> , per case .. 15 0-35 0
— Nova Scotia and Canadian, barrel .. 12 0-21 0	<i>Melons</i> , each .. 2 6-4 0
<i>Figs</i> , per dozen .. 3 0-5 0	<i>Peaches</i> , per doz. .. 2 0-10 0
<i>Gooseberries</i> , ½-sieve 2 0-2 3	<i>Pine-apples</i> , Eng. lb. 3 0-4 0
<i>Grapes</i> , per lb. .. 2 0-5 0	— St. Michael, each 2 6-8 0
	<i>Strawberries</i> , per lb. 2 0-4 0

### VEGETABLES.—AVERAGE RETAIL PRICES.

s. d. s. d.	s. d. s. d.
<i>Artichokes</i> , Globe, per dozen .. 4 0-6 0	<i>Lettuces</i> , Cab., doz. 1 0-1 1
<i>Asparagus</i> , English, per bundle .. 1 6-6 0	— English-Cos, doz. 1 6-1 1
— French, bundle 1 0-5 0	<i>Mint</i> , green, bunch. 0 4-1 0
<i>Beans</i> , Eng., per 100 2 0-2 1	<i>Mushrooms</i> , basket. 1 0-1 6
<i>Beet</i> , per dozen .. 1 0-1 1	<i>Onions</i> , per bushel. 6 0-1 1
<i>Cabbages</i> , per dozen 1 6-2 0	— Spring, per bun. 0 6-1 1
<i>Carrots</i> , per bunch .. 0 6-1 1	<i>Parsley</i> , per bunch. 0 4-1 1
<i>Cauliflowers</i> , Eng. lish, spring, per doz. 4 0-9 0	<i>Peas</i> , per quart .. 2 0-2 1
<i>Celery</i> , per bundle .. 1 6-2 0	<i>Potatoes</i> , new, per lb. 0 3-1 1
<i>Cucumbers</i> , each .. 0 6-1 0	<i>Radishes</i> , per dozen 1 0-2 0
<i>Endive</i> , per dozen .. 2 0-2 1	<i>Rhubarb</i> , bundle 1 0-6 1 1
<i>Garlic</i> , per lb. .. 0 6-1 1	<i>Small saladings</i> , per punnet .. 0 4-1 1
<i>Herbs</i> , per bunch .. 0 2-0 4	<i>Spinach</i> , per bushel 1 6-2 0
<i>Horse Radish</i> , bun. 3 0-4 0	<i>Tomatos</i> , per lb. .. 2 0-2 1
	<i>Turnips</i> , new, bunch 1 0-1 1

**POTATOS.**—Jersey, 7s. to 8s.; St. Malo and Cherbourg, 6s. 6d. per cwt. Old, £2 to £3 per ton.

### SEEDS.

**LONDON: June 17.**—The seed trade, as usual at this season of the year, is now quite stagnant, and is consequently devoid of interest. Nothing for the moment is, of course, actually wanted, and business in seeds is, therefore, for the time being at a standstill. Offers of new French Italian are coming to hand. *Trifolium* is neglected. There is no change in bird seeds. Mustard and Rape seed keep steady. In blue Peas more inquiry has sprung up *John Shriv & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

### CORN.

At Mark Lane on Monday trade was dull and depressed. The foreign imports of Wheat being large exercised an adverse influence on the value of both English and foreign, but the transactions were so limited and irregular that it was difficult to give quotations. Flour was cheaper to buy. Grinding Barley was 6d. lower. Beans and Peas were again 6d. to 1s. cheaper. There was only a limited demand for Oats, but on the week prices show very little change. In Maize, for round corn lower rates were taken. On Wednesday business was nearly at a standstill, and prices were nominally unaltered, but the tendency was unfavourable for holders of grain generally. Average prices of corn for the week ending June 13:—Wheat, 33s. 8d.; Barley, 30s. 2d.; Oats, 22s. 1d. For the corresponding period last year:—Wheat, 37s. 4d.; Barley, 28s. 3d.; Oats, 21s. 6d.

### CATTLE.

At Copenhagen Fields on Monday a good assortment of cattle came on offer. The trade ruled firm, at 2d. to 4d. per 8 lb. in advance in many cases. Sheep and lambs met a fairly steady sale at the previous Monday's extreme rates. The calf trade was firmer, and no change was reported in the pig markets. Quotations:—Beasts, 3s. 10d. to 4s. 8d., and 4s. 10d. to 5s. 4d.; calves, 3s. 4d. to 5s. 4d.; sheep, 4s. 4d. to 5s., and 5s. to 6s.; lambs, 6s. 4d. to 7s.; pigs, 4s. to 4s. 6d. Thursday's trade was in an inanimate state. Supplies were ample for requirements. Beasts sold slowly and rather favoured buyers. Sheep and lambs also were inactive and weak. Calves and pigs dull.

### HAY.

Tuesday's Whitechapel Market report states that trade was dull, with a poor inquiry for everything, and supplies moderate. Quotations:—Clover, prime, 80s. to 110s.; prime second cut, 85s. to 110s.; inferior, 60s. to 75s.; hay, prime, 70s. to 98s.; inferior, 40s. to 60s.; and straw 26s. to 36s. per load. On Thursday there was a moderate supply on sale, with trade dull at Monday's rates. Cumberland Market quotations:—Clover, best, 85s. to 105s.; other qualities, 60s. to 80s.; hay, best, 85s. to 95s.; other qualities, 45s. to 90s.; and straw, 28s. to 35s. per load.

### POTATOS.

The Borough Market report states that new Potatoes are coming in freely from Guernsey and Jersey, and a few are still arriving from Lisbon. Prices are lower. Quotations:—Lisbon, 7s. to 8s.; Cherbourg, 7s. to 8s.; Jersey Kidneys, 9s. to 11s. per cwt. Old Potatoes are getting out of demand, and are much lower. Magnum Bonum, Regents, and Victorias, all from 50s. to 60s. per ton. The imports into London last week consisted of 383 half-boxes from Lisbon, 1385 baskets from St. Nazaire, and 313 cases from Malta.

**Government Stock.**—Consols closed on Monday at 99½ for delivery, and 99½ to 99½ for the account. Tuesday's figures were 99½ to 99½ for delivery, and as on the preceding day for the account. The final quotations of Wednesday were 99½ to 99½ for delivery, and 99½ to 99½ for the account. Thursday's closing prices were 99½ to 99½ for both transactions.

## THOMAS'S PEA TRELLISES

AND GARDEN REQUISITES.

No. 81.

## PEA TRELLISES.

ft. ft.  
6 by 3, 2s. each pair.  
6 by 4, 3s. each "  
6 by 5, 4s. each "

## WIRE NETTING.

Reduced Prices per Roll of 50 Yards.



Mesh.	1 ft. wide.	2 ft. wide.	3 ft. wide.	4 ft. wide.	6 ft. wide.
3-inch .....	5. d. 2 6	5. d. 5 0	5. d. 7 6	5. d. 10 0	5. d. 15 0
2-inch .....	3 0	6 0	9 0	12 0	18 0
1½-inch .....	4 6	9 0	13 6	18 0	27 0
1¼-inch .....	6 0	12 0	18 0	24 0	36 0
1-inch .....	7 0	14 0	21 0	28 0	—

Orders 50s. value Carriage Paid to any principal Railway Station in England.

**J. J. THOMAS & CO.,**  
87, QUEEN VICTORIA STREET;  
285 and 362, EDGWARE ROAD, W.

Made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three years, and every one who sees my plants is astonished to see how healthy and well they are without the use of glass."

— From a —  
GARDENER,  
October 22,  
1886.

To be had  
2 yards,  
3 yards and  
4 yards wide,  
of all Nurserymen and Florists,  
or from the Sole Proprietor and Maker,  
**BENJAMIN EDGINGTON**  
2, DUKE STREET,  
LONDON BRIDGE, S.E.

Ask for "Frigi Domo," and see that it is stamped "Frigi Domo," Registered Trade Mark.

## PROTECTION for FRUIT and FLOWERS.

GARDEN NETTING, 2 yards wide, 1½d. or per 100 yards, 10s.; ditto, 4 yards wide, 3d., or per 100 yards, 20s. SCRIM CANVAS, 1 yard wide, 3d.; 1½ yard, 4½d.; and 2 yards, 6d. per yard.

TIFFANY, 38 inches wide, in 20 yard pieces, 3s. 6d. per piece. SHADING BLINDS made up any size.

RICK CLOTHS, TARPOLINS, Corn and Potato SACKS, FLAGS, TENTS, &c., for Sale or Hire.

From H. VAN AND CO. (the oldest London House in the Trade, established 1780), 17, Tooley Street, London Bridge, S.E.

## FOR THE FARM. RICK CLOTHS.

8 yards square, to cover 18 loads, No. 1 quality ..	£6 0 0
8 ditto ..	5 4 0
8 ditto ..	2 10 0
9 ditto ..	8 8 0
9 ditto ..	6 7 0
9 ditto ..	3 0 0
10 ditto ..	9 7 6
10 ditto ..	8 2 6
10 ditto ..	3 10 0
11 ditto ..	11 0 0
11 ditto ..	9 12 0
12 ditto ..	4 5 0
12 ditto ..	13 10 0
12 ditto ..	11 14 0
12 ditto ..	4 15 0
ROPES and BLOCKS, 8 and 9 yards, cloth—each ..	2 18 0
Ditto ditto ..	12 ..
Ditto ditto ..	11 12 ..
POLES ..	8 9 ..
Ditto ..	10 ..
Ditto ..	11 and 12 ..
H. VAN AND CO., 17, Tooley Street, London, S.E.	3 15 0

**EXTRA STOUT STRONG TANNED NET,** 2 yards wide, 1½d. per yard; 4 yards wide, 3d. per yard; or 2 yards wide 10s. per 100; 4 yards wide, 20s. per 100 yards. **NEW TWINE NETTING,** 1 yard wide, 2d. per yard; 2 yards wide, 4d. per yard; 4 yards wide, 8d. per yard; 2 yards wide, 2s. per yard. **COTTON NET,** nine meshes to square inch, 1½ yard wide, 7d. per yard run.

**W. CULLINGFORD,** Forest Gate, S.E.  
**JOHN SHAW AND CO., 31, Oxford Street,** MANCHESTER, Manufacturers of TIFFANY and NETTING of every Description. Circular and Prices on application.



# FIR TREE OIL

## INSECTICIDE (SOLUBLE IN WATER)



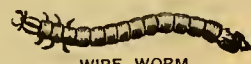
SCALE.



MEALY BUG.



THRIP.



WIRE WORM.



RED SPIDER.

Destroys all Insects and Parasites without injury to Flowers, Fruit, Roots or Foliage.

Useful alike in Greenhouse, Vinery, Fernery, Orchard, Vegetable, Flower and Hop Gardens. Cures Mildew and Blight. Kills all Grubs, Aphids, Lice, Red Spider, Thrip, Mealy Bug, Caterpillars, &c. Applied by means of the Fir-Tree Oil Spray Pump, the Aphicide (hand spray producer), or by dipping. The trouble will be amply repaid by the healthy appearance of the foliage and the abundance of Fruit and Flowers. Always effectual, economical, and safe. Quickly removes all Insects from the coats of animals. It will cure Ringworm and all Parasitic Skin Diseases, and is perfectly harmless to the Hands and Skin.

Sold by Seedsman and Chemists, 1s. 6d., 2s. 6d., and 4s. 6d. a Bottle. Per Post 3d. extra. Tins— $\frac{1}{2}$ -gallon 7s. 6d., 1 gallon 12s. 6d.; Drums—5 & 10 gallon 11s. per gallon, Carriage Paid. A Treatise on FIR TREE OIL, as an Insecticide, its application to Plants and Animals sent Post Free on receipt of address, by the Manufacturer,

**E. GRIFFITHS HUCHES, MANCHESTER.**

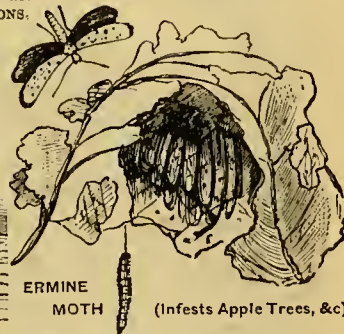
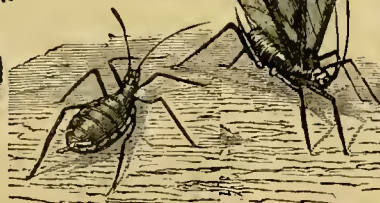
Wholesale:—HOOPER & Co.; CORRY, SOPER, FOWLER & Co.; C. E. OSMAN & Co.; and from all London Seed Merchants and Wholesale Patent Medicine Houses. NEW YORK:—ROLKER & SONS.



AMERICAN BLIGHT.



CATERPILLARS.

APHIS  
(Green Fly).ERMINE  
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(Infests Apple Trees, &c).



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ERECTED and HEATED.

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1885.

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THE UNITED KINGDOM:—12 Months, £1 3s. 10d.; 6 Months, 11s. 11d.; 3 Months, 6s.; Post-free.

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Smithfield Ironworks, Leeds.  
And Surrey Works, Blackfriars Road, London, S.E.  
Horticultural Engineers to Her Majesty the Queen,  
CALL SPECIAL ATTENTION TO THEIR

## PATENT WROUGHT-IRON TUBULAR HOT-WATER BOILERS,

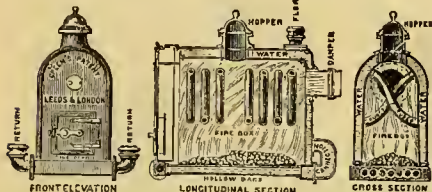
And others with SHELVES, and Ho'w or Ordinary Cast-iron  
GRATE BARS;  
SADDLE BOILERS.

With WATERWAY BACKS, and WELDED BOILERS,  
which are Specially adapted for Heating Greenhouses, Conserva-  
tories, Churches, Chapels, Schools, Public Buildings, Entrance  
Halls, Warehouses, Workshops, &c.

They are the nearest, cheapest, most effective, and durable  
of any extant.

The Tubular ones are remarkable for their great heating  
power, slow combustion, and the length of time the fire will  
burn without requiring attention. This pattern

Had the First and Highest Prize, a Silver Medal,  
Awarded to it at the Royal Horticultural Society's Exhibition,  
South Kensington, London, on June 3, 1881.



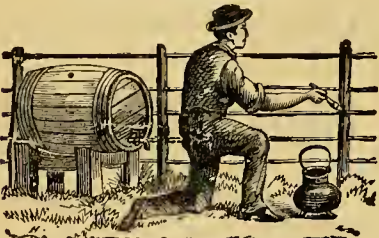
The *Journal of Horticulture* of June 9 says:—  
"HEATING APPARATUS.—A great number of boilers, valves,  
&c., were exhibited by eight competitors, and considerable in-  
terest was manifested in the verdict of the judges, and much  
discussion was brought to bear on the merits and shortcomings  
of the different boilers. The apparatus for which the Silver  
Medal was awarded was a wrought-iron saddle boiler, with a  
series of intersecting tubes, somewhat in the form of a letter X,  
but the tubes in ogee form, in the crown of the boiler. Most  
gardeners who examined the boiler expressed a favourable  
opinion of it. It is no doubt a quick and powerful boiler with-  
out being complex, the latter condition having, no doubt, had  
weight with the judges."

The *Garden* of June 11 says:—  
"The premier prize, a Silver Medal, was taken by Messrs.  
Green & Son for their new patent tubular saddle boiler. It is a  
modification of their original patent, the boiler being longer and  
not so high. It is found to be a powerful and efficient boiler, and  
heats a large quantity of water quickly with a small consumption  
of fuel."

Descriptive Illustrated Price List may be had free on application.  
Estimates given for all kinds of Heating Apparatus, and Hot-  
water Fittings of every variety supplied on the shortest notice.  
Galvanised Iron Cisterns, from 4s. to 12s. 6d. per gallon.

Oil Paint no Longer Necessary.

HILL AND SMITH'S BLACK VARNISH,  
for Preserving Ironwork, Wood, or Stone.  
(Registered Trade Mark.)



This VARNISH is an excellent substitute for oil paint on  
all outdoor work, while it is fully two-thirds cheaper. It was  
introduced upwards of thirty years ago by the Advertisers, and  
its genuine good quality, notwithstanding a host of unprincipled  
imitators, is fully attested by its constantly increasing sale. It  
may be applied by an ordinary labourer, requires no mixing  
or thinning, and is used cold. It is used in the grounds at  
Windsor Castle, Kew Gardens, and at the seats of many  
hundreds of the Nobility and Gentry, from whom the most  
flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 12s. 6d. per gallon,  
at the Manufactory, or 15s. 8d. per gallon carriage paid to any  
Station in the Kingdom.

### UNSOLICITED TESTIMONIAL.

"*Pierrefield Park, June 21, 1876*.—Sir, I have this day  
forwarded from Chepstow to your address a black varnish cask,  
to be filled and returned with as good Varnish as the last we  
had, which I candidly admit was the best we ever had. Address  
Varnish to Pierrefield Park, Chepstow.—I am, Sirs, yours respec-  
tfully, WM. COX."

CAUTION.—HILL & SMITH particularly warn their  
Customers against the various cheap Varnishes now so much  
advertised.

H. & S.'s Varnish has been an article of common use on most  
of the large estates in the kingdom for upwards of thirty years;  
and their constantly increasing trade in it, and the numerous  
Testimonials they receive stamp it as a truly genuine article.  
Every cask is legibly marked with their name and Registered  
Trade Mark as above, without which none is genuine.

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Street, Glasgow.

**SHANKS'S PATENT**  
**Lawn Mower**  
THE ONLY LAWN MOWER FITTED WITH  
**DOUBLE EDGED SOLE PLATE**  
ENABLING THE CUTTING PARTS  
TO LAST TWICE THOSE OF  
**OTHER**  
**MACHINES**

**HAND**  
**MACHINE**

Easily worked  
Making the Lawn like Velvet  
Does not get out of order

PRICES.

To CUT 10 INCHES WIDE, £3 10 0	To CUT 19 INCHES WIDE, £8 0 0
To CUT 12 INCHES WIDE, 4 10 0	To CUT 22 INCHES WIDE, 8 10 0
To CUT 14 INCHES WIDE, 5 10 0	To CUT 24 INCHES WIDE, 9 0 0
To CUT 16 INCHES WIDE, 6 10 0	

## HORSE AND PONY MACHINES

ILLUSTRATED LISTS OF  
THESE UNRIVALLED MACHINES POST FREE

## GARDEN ROLLERS

OF ALL SIZES

**ALEX. SHANKS & SON**  
DENS IRON WORKS ARBROATH  
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A large Stock of Machines of all sizes always kept  
— AT 27 LEADENHALL STREET —  
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SMALL LAWN MOWERS

## IRON HURDLES, GATES, TREE GUARDS, Iron and Wire Espaliers, &c. MATERIAL for WIRING GARDEN WALLS.

GALVANISED.

EYES, 7d. per doz. HOLDBASTS, with  
Winders, 7s. per dozen. WIRE, 2s. per 100 yards.  
CATALOGUE free. Please name this paper.

**BAYLISS, JONES & BAYLISS,**  
VICTORIA WORKS, WOLVERHAMPTON,  
And 139 and 141, Cannon Street, London, E.C.

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14x12  
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21-oz. Foreign of the above sizes, in 100 and 200 feet boxes,  
3ds and 4ths qualities, always kept in stock.

A large stock of similar current sizes of 15-oz. glass in  
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Propagating and Cucumber Glasses, and all Miscellaneous  
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COTTA VASES, FOUNTAINS, ITALIAN BASKETS,  
BORDER TILES, GARDEN POTS of superior quality,  
from 1 to 30 inches diameter, stand the frost, and seldom  
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RHUBARB and SEAKALE POTS, &c.  
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**ROWLAND'S New Daisy CUTTER**, entirely  
supercedes the old Daisy Rake. Light, strong, cheap, and  
effective. Of all Ironmongers, or from S. ROWLAND, Craighigh,

## GARDEN NETTING.

**S. A. SANDS**

(Successor to J. W. HAYTHORN),

Manufacturer of Hexagon and Chiswick  
GARDEN NETS.

Warranted to Protect Bloom from Frost, Winds, Hail, and  
Fruit from Birds, Wasps, &c.

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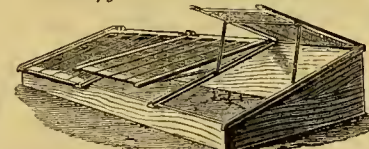
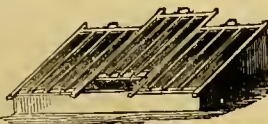


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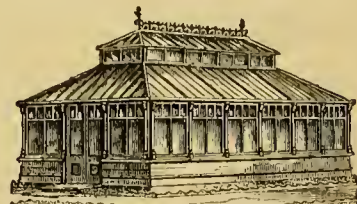


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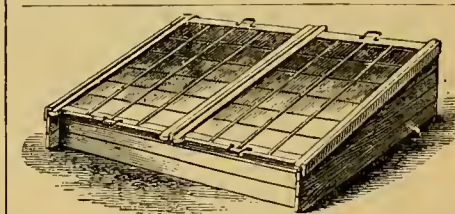
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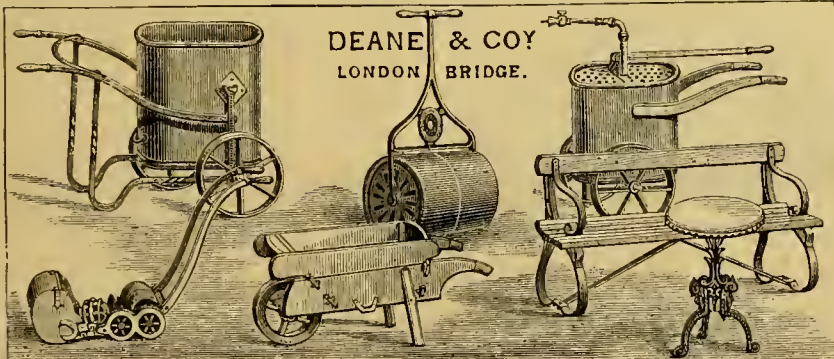
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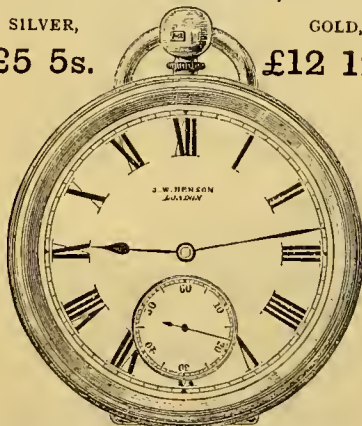
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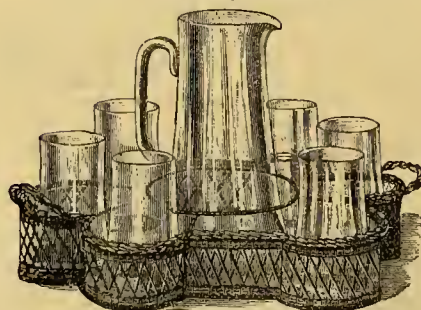
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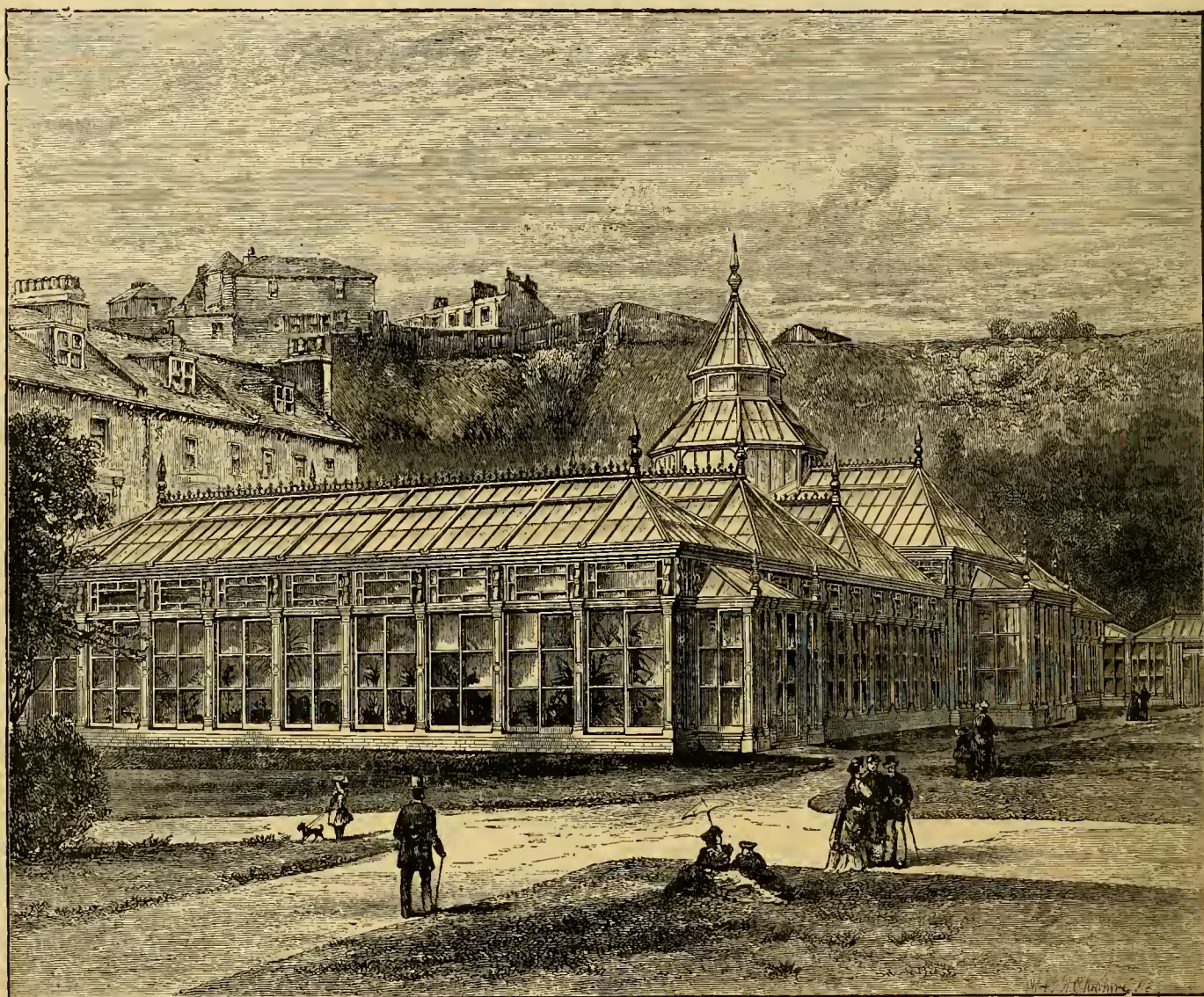
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Established 1841.

No. 600.—Vol. XXIII. { NEW SERIES }

SATURDAY, JUNE 27, 1885.

{ Registered at the General } Price 5d.  
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PELARGONIUMS, best Regal and Market  
sorts, fine plants, coming into bloom, in 4½ and 5 inch  
pots, 40s. per 100. Strong FUCHSIAS, coming into bloom,  
20s. per 100.—W. JACKSON, Blakedown, Kidderminster.

To the Trade and Large Buyers.  
TEA and NOISETTE ROSES, fine Plants,  
in 48-pots. Purchasers' selection from 25 choice varieties  
from 60s. per 100. CUT ROSES supplied in large quantities.  
EDWIN HILLIER, The Nurseries, Winchester.

Now Ready.  
TEA and NOISETTE ROSES, in pots, of  
best sorts only, in great quantity, and of best possible  
quality. Priced LIST gratis. A sample dozen carefully packed  
for travelling, will be put on Railway on receipt of 13s. 6d.  
EWING and CO., Sea View Nurseries, Havant, Hants  
(late of Eaton, near Norwich).

Orchids.—Orchids.  
THE LIVERPOOL HORTICULTURAL  
COMPANY (JOHN COWAN), Limited, beg to announce  
the arrival of a fine consignment of EAST INDIAN  
ORCHIDS, including a grand lot of DENDROBIUM  
BENSONI, and many other fine varieties. Full particulars  
on application to  
The COMPANY, The Vineyard, Garston.

KELWAY'S MODEL CINERARIA,  
KELWAY'S MODEL PRIMULA,  
KELWAY'S MODEL CALCEOLARIA,  
2s. 6d. and 5s. per packet.  
KELWAY and SON, Langport, Somerset.

Now in Full Bloom.  
BEGONIAS.—Gold Medal Prize Plants, pre-  
sented at the Crystal Palace Exhibition, 1884. Visitors are cordially  
invited. Frequent trains from the City and from the West End  
to Catford and Forest Hill Stations.  
LAING and CO., Nurseries, Forest Hill, S.E.

Dahlias.  
FRANCIS R. KINGHORN offers the fol-  
lowing, in strong plants, in large 60's:—Juarez, White  
Cactus (Constance), Fire King, Guiding Star; also the best  
Single and Pompon kinds, at low prices to the Trade and others.  
Sheen Nurseries, Richmond, Surrey.

HYACINTHS, TULIPS, CROCUS, &c.—  
The new Wholesale Trade CATALOGUE is now ready  
and will be forwarded post-free on application.  
B. J. LOMANS, Bulb Grower, Haarlem, Holland.

PRIMULAS.—PRIMULAS.—PRIMULAS.  
Sixteenth year of distribution.  
WILLIAMS' SUPERB STRAIN, 1s. 6d. per doz., 10s. per 100.  
CINERARIAS same price. Package and carriage free for  
cash with order. The above are strong, and fit for potting  
into 3-inch pots.  
JOHN STEVENS, The Nurseries, Coventry.

Delivered in London.  
STRAWBERRIES.—30 Acres for Sale, by  
the acre, about 15 miles from Covent Garden. Pecks,  
Punnets, &c., provided. Apply.  
Messrs. J. and G. BELL, Covent Garden, South Side; or to  
W. HODSON, Tadworth Farm, Banstead, Epsom.



## SALES BY AUCTION.

Thursday Next. (Sale No. 6934.)  
IMPORTED ORCHIDS.

**MR. J. C. STEVENS** will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY NEXT**, July 2, at half-past 12 o'clock precisely, fine importation of Colombian and Mexican Orchids from Messrs. Shuttleworth, Carder & Co., and Messrs. F. Horsman & Co.; also a consignment of ORCHIDS from Brazil, including Cattleya Dormaniana, C. Walteriana, Oncidium Marshallianum, O. coecolor, Sophomites grandiflora, &c.

On view morning of Sale, and Catalogues had.

Special Sale of Orchids in Flower.

**MR. J. C. STEVENS** begs to announce that his NEXT SALE OF ORCHIDS IN FLOWER will take place at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY**, July 15, and he will be glad if gentlemen who are desirous of entering plants for this Sale will please send particulars of same as soon as possible.

Tuesday Next.

FLOWERING ORCHIDS.—SPECIAL SALE.

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **TUESDAY NEXT**, June 30, at half-past 12 o'clock precisely, about 250 lots of ORCHIDS in flower, from various well known collections, including:—

Dendrochilum filiforme (true)	Oncidium macranthum, thirty-five flowers
Odontoglossum Alexandriae	Cattleya gigas Sanderiana, very fine plants
fine spotted forms and varieties	Dendrobium Parishii superbum
hybrid forms	" Dalhousianum, with forty bulbs and ten spikes
excellarium	Calanthe Textorii
Psecatorei	Cymbidium Parishii, very rare
Cobbanium, true	Masdevallia, a specially fine lot; and others
nebulosum pardunum	
Masdevallia Veitchii with 100 leaves	

On view morning of Sale, and Catalogues had.

Tuesday Next.

CYMBIDIUM PARISHII, in flower; exceedingly rare.

**MESSRS. PROTHEROE AND MORRIS** will include the above very valuable PLANT in their SALE OF **TUESDAY NEXT**.

Friday Next.—Highly Important Sale.

PHALANOPSIS STUARTIANA.

CATTLEYA ARNOLDIANA.

CATTLEYA REINECKIANA SUPERBISSIMA.

CATTLEYA WAGNERIANA.

TREE FERNS.

**MESSRS. PROTHEROE AND MORRIS** will sell by AUCTION, at their Central Sale Rooms, 67 and 68, Cheapside, E.C., on **FRIDAY NEXT**, July 3, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., CHOICE IMPORTED ORCHIDS, in the best possible condition, comprising fine plants of the lovely and rare Phalanopsis Marie, figured in *Orchid Album*, plate 60; Phalanopsis Stuartiana, P. amabilis, P. Sanderiana; Cattleya Arnoldiana, C. Downiana, C. Reineckiana superbissima, C. Wagneriana, C. Mossiae, C. Schofieldiana, C. Skinnerii, C. speciosissima; Cypripedium Roezlii, Dendrobium Dearii, Laelia purpurata, fine masses; L. elegans, fine masses; Odontoglossum Alexandriae, very fine; O. elandum, O. Roezlii, O. luteo-purpureum, Antiquia varieties; O. vexillarium, O. v. rubellum; Paphinia Sanderiana, and other choice ORCHIDS; also a consignment of fine TREE FERNS from New Zealand.

On view morning of Sale, and Catalogues had.

New Orchids.

**ANGRÆCUM LEONI**, a magnificent novelty, for the Cattleya-house.

**ANGRÆCUM SCOTTIANUM**, rare and striking.

**ANGRÆCUM FUSCUM**, long spikes, covered with flowers.

**ANGRÆCUM rostellare**, Pogonia Barklyana, Eulophia megistophylla, E. pulchra, Lisochilus stylisus, L. Julax, &c.

**ANGRÆCUM LEONI**.—This is a most wonderful novelty, and next to Vanda Sanderiana, we consider it the finest Orchid we have had the pleasure to offer. It was discovered and collected by Mr. Leon Humbolt in the Comoro Islands, growing at an altitude of 5000 feet. It should be grown in the Cattleya or the Dendrobium house, and it will be a plant of very easy culture; the plants, although only just imported, are beginning to grow.

**ANGRÆCUM LEONI** is a serious rival to A. sesquipedale, surpassing it, we consider, not only in its extraordinary and very beautiful form, but in its adaptability to the Cattleya-house, its cool habit, and great floriferousness, some of the plants actually showing up to fifteen flower-spikes, and each bearing six to ten of the large pure white flowers.

Our Woodcut gives the exact size of the plant. The leaves are fleshy, and are quite a remarkable feature, standing boldly sideways, and are so arranged as to form a perfect half circle, in front of which the flower-spikes arrange themselves; altogether it is a remarkable and grand thing, and nothing like it is in cultivation.

Professor Dr. REICHENBACH says in his description:—"The flowers may be well compared to *Angræcum sesquipedale*—a very stately thing, taking little space, bearing great flowers. It is not this sufficient to make beat a collector's heart with satisfaction?"

The importation is simply grand, and every plant in extra condition. See Flowers and Woodcut.

**MESSRS. PROTHEROE AND MORRIS** have received instructions from Mr. F. Sander to sell the above and other very valuable ORCHIDS on **TUESDAY**, July 7, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Whetstone, Middlesex.—Preliminary Notice.

The well-known Freehold Property distinguished as the Whetstone Nurseries, or New Lodge, Whetstone, carried on so successfully for upwards of thirty years by the present proprietors, comprising about 5 Acres of LAND, thirty-four superiorly erected GREENHOUSES, with nearly 4 miles run of HOT-WATER PIPING, a substantially built, twelve-roomed, detached RESIDENCE, and numerous other TRADE BUILDINGS; also 13 Acres of valuable FREEHOLD BUILDING LAND adjoining, opposite Oakleigh Park and ten minutes' walk from Tutteridge Station.

**MESSRS. PROTHEROE AND MORRIS** are favoured with instructions to sell by AUCTION, at the Mart, London, E.C., at an EARLY DATE, the above very valuable property, in Three Lots, by order of Messrs. Davis & Son, in consequence of falling health of Mr. Davis, Jun. Particulars and plans will be ready in due course, and can be obtained at the Auctioneers' Offices.

Eltham Park, Eltham, Kent.

IMPORTANT UNRESERVED SALE of a valuable COLLECTION OF STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.

**MESSRS. PROTHEROE AND MORRIS** are favoured with instructions from the Executors of the late Thomas Jackson, Esq., to sell by AUCTION, on the Premises, Eltham Park (fifteen minutes' walk from Eltham Railway Station), on **THURSDAY**, July 16, at 12 o'clock precisely, a valuable Collection of well-grown STOVE and GREENHOUSE PLANTS, including many fine specimens, consisting of several fine Camellias and Azaleas, Greenhouse Rhododendrons, splendid examples of Eucharis, Dracenas, Crotons, Cycas revoluta, Anthuriums, Palms, Ferns; an assortment of ESTABLISHED ORCHIDS, amongst which are several large examples including *Peristeria elata*, *Dendrochilum filiforme*, *Arides*, and *Dendrobium* in variety, *Cattleya Skinneri* and *C. speciosissima*, *Vanda tricolor* and *V. insignis*, &c. May be viewed day prior to Sale. Catalogues may be had of Mr. WAKELIN, the Head Gardener, on the Premises, and of the Auctioneers and Estate Agents, 67 and 68, Cheapside, London, E.C.

WANTED TO RENT, about an ACRE of GARDEN GROUND, with Glass; also COTTAGE. Within 12 miles of Covent Garden.

A. Gardener's Chronicle Office, 41, Wellington Street, Strand, W.C.

ESTATE BADHOEVE in HAARLEMMEER, HOLLAND.

FOR SALE, on WEDNESDAY, July 15, at 10 A.M., in the riding-house on the said estate, and in the presence of the Notary Mr. J. L. VAN DER MOER. This Estate is to be Publicly Sold. It consists of Residence, carefully and comfortably constructed and strongly stone-built, large Coach-house, Riding-school, Ice-house, several Lodges and Houses for keepers and workmen, Dairy, Forge, Carpenters and Painters' Workshops, Baking-shop, Stores, Warehouses, Stables for Horses and Horned Cattle, Sheep-folds, Bars, Granaries, Hay-ricks, further Structures and Buildings, Yards, Grounds, Walking Grounds, Kitchen Gardens, Orchards planted with fine Shrubs and other Plants and Fruit Trees, Roads, Alleys, Canals, Woodland and Moor Grounds, fertile and well drained Meadows and arable Lands, altogether situated side by side and near one another, in the community and polder of Haarlemmeer section Rijk, and limited by the north-east side partly by the land-road, partly by the Ringdijk of the Ringvaart, opposite the village of Sloten, near Amsterdam, by the south-west side by the Spaarwaterweg, at the north-west side by the Sloterweg, and at the south-east side by the Doorweg. This Estate, measuring about

TWO HUNDRED HECTARES,

is to be sold in Sixteen Lots, and in several combinations of these lots, and in mass.

The situation and extension of these lots has been described in printed notices about the sale. These notices, containing the principal conditions of sale and a chart of the whole estate, are to be had, price 6d. each, at Messrs. J. H. AND G. VAN HETEREN, Booksellers, 21, Hartenstraat, Amsterdam.

The lots may be seen from June 15 every week-day between 10 A.M. and 4 P.M., upon application at the Surveyor's house on the Estate.

To Nurserymen, Landscape Gardeners, Florists, and SEEDSMEN.

FOR SALE, an OLD ESTABLISHED BUSINESS, in one of the best suburbs of Birmingham, owing to a very serious accident to the present proprietor. The Nursery contains about 2½ Acres, and is well stocked with Shrubs, Trees, and Herbaceous Plants, and Four Glass Houses, Seed Warehouse, Frames, &c., together with a Stall in Market Hall. The above is thoroughly genuine, and will be sold as a going concern. Possession can be had at once.

Full particulars from FLEETWOOD AND GOODEVE, Auctioneers and Valuers, 42, Chesser Street, Birmingham.

Farnborough. (Sale No. 6212)

Five minutes from Aldershot Camp Railway Station.

Re Edward Smith, deceased.

TO BE SOLD, with Possession, the NORTH CAMP NURSERY, nearly 17 Acres, with Dwelling-house, Stable, Cart-shed, and Greenhouse standing thereon. May be carried on as a Nursery or a Market Garden; but the Estate having 300 feet available frontage will ultimately be valuable for building. Price £3400.

Apply to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C.

Maida Vale, W.—(5758.)

Must be sold, owing to ill health.

HALF AN ACRE of LAND, with frontage of 125 feet to road, eight-roomed DWELLING-HOUSE, and SEED SHOP, eleven GREENHOUSES, and three PITS. Nominal rent, only £25. Lease 24 years unexpired. Price for Lease and Goodwill on application. A capital opening.

Apply to Messrs. PROTHEROE AND MORRIS, 67 and 68, Cheapside, E.C.

FOR SALE, an Old-established NURSERY BUSINESS, in Kilburn, with Greenhouses, Stock, and Goodwill. Owner retiring.

Full particulars of Mrs. TOWNSEND, Rosemount, West End Lane, Kilburn, London, N.W.

SEED TRADE, NURSERY and FLORIST BUSINESS. Established 36 years. Good locality in Cornwall. 5 Acres fertile Land, large Shop, Washhouse, and Residence in the main thoroughfare; Cottage, and 5 Glass Houses in centre of the grounds; Seed Stall, best position in the City Market House. Staff, five young men, active, willing workers. Stock at valuation. Possession in September.

T. M., Nutting & Sons, Southwark Street, London, S.E.

Southampton. (6209.)

About a mile from this important town.—To Market Gardeners and Others,

TO BE LET on LEASE, 25 Acres of Land, in a high state of cultivation. Rent, £160 per annum. Open to offer. Crops and Tillages at valuation, under £400. Full particulars and orders to view of Messrs. PROTHEROE AND MORRIS, Market Garden Valuers, 67 and 68, Cheapside, E.C. Personally inspected.

To Florists,

TO LET, a commanding NURSERY, situated in the main road, West End position, fitted up with all the necessary plant. Now doing an extensive trade. Long lease.

For particulars apply to Mr. J. ODELL, Coulds Green, Hillingdon.

To Landed Proprietors, &c.

**A. MCINTYRE** (late of Victoria Park) is now at liberty to undertake the FORMATION and PLANTING of NEW GARDEN and PARK GROUNDS and REMODELLING existing GARDENS. Plans prepared, 115, Listeria Park, Stamford Hill, N.

**JOHN KENNARD'S HORTICULTURAL** Sundries, Peat, Loam, Sand, and Berkshire Pottery Depot. Catalogue post-free of every Horticultural Requisite. Swan Place, Old Kent Road, S.E. Established 1854.

**CARTER'S FIRST PRIZE CALCEOLARIA.**—For particulars of Awards, see last issue of the *Gardeners' Chronicle*. Price, in Sealed Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s., Post-free.

**CARTER'S FIRST PRIZE CINERARIA.**—For particulars of Awards, see last issue of the *Gardeners' Chronicle*. Price, in Sealed Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s., Post-free.

**CARTERS, SEEDSMEN by Royal Warrant to H.R.H. the Prince of Wales**, 237 and 238, High Holborn, London, W.C.

To the Trade only.

**E. H. KRELAGE and SON, NURSEYMEN** SEEDSMEN, and FLORISTS, Haarlem, Holland. The Wholesale Catalogue (No. 379A) of Dutch Flower Roots and Miscellaneous Bulbous and Tuberous-rooted Plants for 1885-86 is now ready, and may be had free on prepaid application by Nurserymen, Seedsmen, and Florists. The Catalogue, although giving only an extract of the collections, forms a pamphlet of 48 pages 8vo, in two columns, and is doubtless one of the most complete sent out of this speciality. The prices of Hyacinths in general are considerably lower than before. Prices of Tulips and other Bulbs, too, are in many instances inferior to former quotations. German and French editions as well as a separate English edition for America, are published.



By Special Warrant.

"Superb SEEDS for PRESENT and Later SOWING."  
**DICKSON'S CHOICEST strains of PRIMULA, CALCEOLARIA, CINERARIA, CYCLAMEN, BEGONIA, and AURICULA** in packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each. Double German WALLFLOWER, superb strain, 1s. per packet. Extra selected Single Dark Blood-red WALLFLOWER, 6d. and 1s. per packet. Also all other FLOWER SEEDS for "Spring Gardening," as well as VEGETABLE SEEDS for Present Sowing. Carriage and Post free. Seeds and Plants of every description. Descriptive Priced CATALOGUES Post-free.

JAMES DICKSON AND SONS, 108, Eastgate Street, Chester.

**S. SHEPPERSON, FLORIST, Prospect House, Belper, Derbyshire**, begs to offer the following, of which he makes a specialty:—

**PRIMULAS! PRIMULAS! PRIMULAS!!!**—Grand premier prize strain of the finest new colours, as White, Carmine, Rose, Salmon, Crimson, Mauve, &c.; fine large trusses and beautifully fringed flowers. Strong plants, to bloom well, 1s. 3d. per dozen; extra strong, 1s. 6d., all free.

**CINERARIAS! CINERARIAS!!!**—CINERARIAS!!!—Bull's celebrated prize strain, dwarf compact habit, and most brilliant colours; cannot possibly be excelled. Good plants, 1s. 3d. per dozen; extra strong, 1s. 6d., all free.

**CYCLAMEN! CYCLAMEN!!!**—CYCLAMEN GIGANTEUM!!!—Grand prize strain, warranted. All the finest new colours. 1s. 6d., free; extra strong, 2s., free.

**S. SHEPPERSON, Florist, Prospect House, Belper, Derbyshire.**

**CHEAP BEDDING, &c., PLANTS.**

All out of Single Pots.

Mesembryanthemum variegatum, Stellaria graminea aurea, Echeveria secunda glauca, Mimulus Harrisoni, Coleus Verschaffelii, Iresine, Heliotropes, Lobelia (blue and white), Calceolarias (yellow or dark), Dactylis elegantissima, 1s. 6d. per dozen; 10s. per 100.

Dell's Beet, Perilla, Sedum lydium and S. glaucum, Ageratum, 1s. per dozen, 6s. per 100.

Centauria ragulina, Kleinia repens, Santolina incana, 2s. 6d. per dozen, 18s. per 100.

Golden Pyrethrum, 4s. per 100.

Primula sinensis, splendid strain, 1s. 6d. per doz., 10s. per 100.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

**ADIANTUM CUNEATUM**, 5-inch pots, 9s. per dozen, 56s. per 100; thumbs, strong, 3s. per dozen, 18s. per 100.

**GARDENIA INTERMEDIA**, 5-inch pots, 18s. per dozen, 100s. per 100; large 8-pots, 9s. per dozen, 50s. per 100; well-rooted thumbs, 4s. per dozen, 30s. per 100.

**PRIMULA SINENSIS** (Williams' strain), 2s. per dozen, 15s. per 100.

**CINERARIA** (best Erfurt strain), 2s. per dozen, 15s. per 100.

**PALMS**, Latania borbonica, strong Seedlings, 4s. per dozen, 25s. per 100; 5-inch pots, 12s. per dozen, 80s. per 100.

**SEAFORTHIA ELEGANS**, strong Seedlings, 4s. per dozen, 25s. per 100; 5-inch pots, 12s. per dozen, 80s. per 100.

**EUTERPE EDULIS**, strong Seedlings, 1s. per dozen.

**COCOS WEDDELIANA**, strong Seedlings, 6s. per dozen, 45s. per 100.

All strong, healthy plants.

GARDENER, Holly Lodge, Stamford Hill, London, N.

To the Trade—Roses in Pots.

**GARAWAY AND CO.** offer:—

WHITE PET, full of flower, in 48-pots, 8s. per dozen, 50s. per 100.

Tea Roses.

DEVONIENSIS

ETOILE DE LVON

FIANCAILLES DE LA PRINCESSE

STEPHANIE

GLOIRE DE DIJON

JEAN DUCHER

HOMER

MDME. CHARLES

FALCOT

MARECHAL NIEL

NIPHOTOS

SUNSET

GRACE DARLING

NEW H. P. ROSES of 1885, our selection, 9s. per dozen.

GARAWAY AND CO., Durdham Down, Clifton, Bristol.

All in 48's, 9s. per dozen, 70s. per 100

15s. per dozen.



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## DEFIANCE CABBAGE.

GIANT EARLY MARROW.

*The Best Early Cabbage for General Use.*

1s. per Packet, POST-FREE;

7s. 6d. per pound; 4s. per half-pound.

*Testimonial from Mr. J. M. CLEMMENS, East End, New Quay.*—"We have grown your 'Defiance' Cabbage for eight years with various other sorts, as a test, and always find your 'Defiance' beats all, being earlier, heavier, and of better shape and flavour."

## ONIONS FOR AUTUMN SOWING.

DANIELS' GOLDEN ROCCA, per packet, 1s. 6d.

DANIELS' GIANT ROCCA, 1s. per ounce, 6s. per pound.

Priced Descriptive LIST of all kinds of Seeds for present sowing, gratis and post-free to all applicants.

## DANIELS BROS.,

SEED GROWERS AND MERCHANTS,  
NORWICH.

**COCOA-NUT FIBRE REFUSE.**—Best and fresh only, 1s. per bag; 15 bags, 12s.; 30 bags, 22s. sent to all parts; trucks, 23s., free to Rail. PEAT and LOAM.—A. FOULON, 32, St. Mary Axe, London, E.C.

## GARDEN REQUISITES.

**COCOA-NUT FIBRE REFUSE.**

4d. per bushel; 100 for 25s.; truck (loose, about 2 tons),

40s.; 4-bushel bags, 4d. each.

**LIGHT BROWN FIBROUS PEAT**, 5s. 6d. per sack;

5 sacks 25s.; sacks, 4d. each.

**BLACK FIBROUS PEAT**, 5s. per sack, 5 sacks 22s.; sacks,

4d. each.

**COARSE SILVER SAND**, 1s. 9d. per bushel; 15s. per half

ton, 26s. per ton in 2-bushel bags, 4d. each.

**YELLOW FIBROUS LOAM, PEAT-MOULD, and LEAF-****MOULD**, 1s. per bushel.**SPHAGNUM MOSS**, 3s. 6d. per sack**MANURES, GARDEN STICKS, VIRGIN CORK, TO-****BACCO CLOTH, RUSSIA MATS, &c.** Write for

Price LIST.—H. G. SMYTH, 21, Goldsmith's Street,

Drury Lane (lately called 17A, Coal Yard), W.C.

NORWEGIAN FISH-POTASH  
GUANOS.*Composed of Pure Flesh and Bone of Cod and  
Herring and Refined Potash.*A Perfect Fertiliser for Garden and Greenhouse,  
Lawns and Tennis Courts, Vegetables,  
Flowers, Exotics and Fruit Trees.

Prices, carriage paid, on receipt of Post-office Order:

28 lb., 6s. 6d.; 56 lb., 10s. 6d.; 1½ cwt., 20s.; 2 cwt.,  
30s.; 5 cwt., 60s. Bags free.Larger Quantities at Special Prices, for which, and for  
Analysis, &c., apply to

## J. JENSEN &amp; CO.,

10, ST. HELEN'S PLACE, LONDON, E.C.

Manufactory—

BRETTESENÆS, LOFFOTEN ISLANDS, NORWAY.

BEESON'S  
MANURE

Is the best for all Horticultural Purposes.

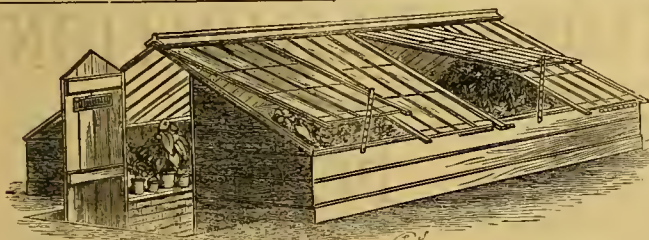
Sold in Tins at 1s., 2s. 6d., and 10s. 6d. each; also in  
Sealed Air-tight Bags, containing 1 cwt., 13s.The 10s. 6d. Tins serve as a strong substantial receptacle to  
refill from the 1 cwt. bags.Supplies can be obtained through all respectable Nurserymen,  
Seedsmen, and Florists in the Kingdom; or, in districts where  
no Agents reside—Carriage Paid for Cash with Order—direct  
from the MANUFACTURER,

W. H. Beeson, Carbrook Bone Mills, Sheffield.

Testimonials from the Rev. Canon Hole, and most of the  
leading Gardeners, free on application.Pure Crushed Unboiled BONES, any size, for Vase Borders,  
&c.

WHOLESALE AGENTS IN LONDON,

CORY, SOPER, FOWLER &amp; CO. (Limited).

Bijou Greenhouses,  
Being complete Greenhouses  
at the Price of Plant  
Frames.New revised PRICE LIST and  
full particulars Post-free on applica-  
tion to the Original Designers  
and Manufacturers,CROMPTON & FAWKES  
(formerly T. H. P. Dennis & Co.),  
CHELMSFORD.LONDON OFFICE—Mansion House  
Buildings, E.C.

**COCOA-NUT FIBRE REFUSE:** newly made.—Truck-load of 2 tons, 20s.; twenty sacks of same, 14s.; forty, 25s., sacks included. All Free on to Rail. Cash with orders.—J. STEVENS AND CO., Cocoa Nut Fibre Merchants, "Greyhound Yard," and 153, High Street, Battersea, S.W.

12-oz. Sample Packets, free by post, 12 Stamps.

**FIBROUS PEAT FOR ORCHIDS, &c.****BROWN FIBROUS PEAT**, best quality for Orchids, Stove Plants, &c., 4d. 6s. per Truck. **BLACK FIBROUS PEAT**,

for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s.

per ton per Truck. Sample bags, 5s.; 5 Bags, 22s. 6d.; 10 Bags,

45s. Bag, included. Fresh **SPHAGNUM**, 10s. 6d. per Bag.**SILVER SAND**, Coarse or Fine, 52s. per Truck of 4 Tons.

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1885.

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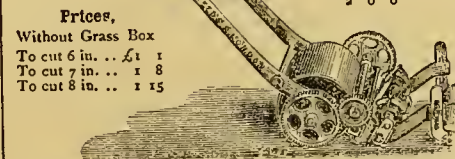
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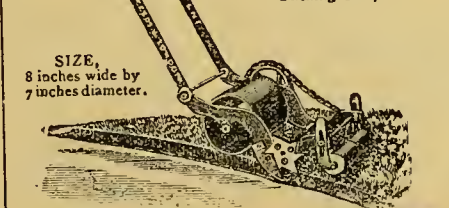
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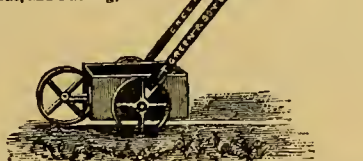


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THE

## Gardeners' Chronicle.

SATURDAY, JUNE 27, 1885.

### SITES AND SOILS, AND THEIR SUITABLE TREES.

FEW districts in England offer within narrow limits more interesting and useful lessons on the sites and soils adapted to different kinds of trees than Sylva Evelyn's own district, the Homedale of Surrey. From Mr. Cubitt's residence at Denbies, overlooking Dorking, or from the downs above Wotton, Evelyn's residence, a great variety of soils, seen at the same time over a wide landscape, occasion a great variety of trees; while from the same chalk ridge, known as the backbone of Surrey, extending the whole distance from Dorking to Guildford, the same varied landscape with the same diversity of timber is seen. A skilful forester will not fail to notice the appropriateness of the planting in this district, and he may well suspect that this must in some degree be due to the influence of Evelyn himself. It will be remembered that the great planter lived just 200 years ago, and the forester looking around him in this delightful paradise of Surrey, known as the Homedale, will observe that many of the most notable specimens of the planter's art with several of the woods, and the salient features of some of the chief parks and gardens, are about 200 years old. He will notice Norbury in the valley of the Mole, a beautiful park sloping down the hillside to the river below, and the history of the place will inform him, what the age of the trees would indicate, that Evelyn himself directed the planting at Norbury. He had a hand, too, in the gardens at Albury, then belonging to the ducal Howards, now to the ducal Percies. The famous Yew tree hedge at Albury was all his own work; Wotton was his own property, and its noble woods of Beech, as might be guessed by their age, were created by his taste and judgment.

Our native Beech woods are found on chalks and sands and hard soils in the south and west, as on the Chilterns of Bucks, and the oolite rubble of Oxfordshire and Blenheim, and in the valley of the Severn, but not on the slate rocks of Wales, or any other part of the Principality except as an introduced tree. Along the Surrey backbone, in many a wood, and on the hard sand of Wotton—lower greensand, an outcrop from below the chalk—the Beech finds its place on its appropriate sites. Great Yew trees grow, too, on the chalk, and are scattered here and there on the better sand loams of the Homedale, Surrey being one of its native habitats, the site of some of the largest Yews in the country, as in the case of those grand old Yews of the "Pilgrim's Way" on the Albury Downs. The Holly is another native tree growing abundantly in this district, both on the patches of tertiary sand that cover the chalk in many wild secluded spots where the indigenous wood or waste of Gorse and Heather has not been disturbed, or at Wotton, where Evelyn's Hollies were enthusiastically described by himself as forming an "exquisite viretum."

Such lesser subjects as the native Cornel and Euonymus, Aspen, Travellers' Joy, Butchers'



Broom, and Hazel, or imported Box crowning Box Hill, or pyramidal Juniper, frequent on sand and chalk, need not detain us. We desire to notice the more important timber trees which seem to present an unusual variety in this district, and to occupy generally the soils and sites best adapted for them. In the few remaining patches of primeval forest the Oak is always found even on the poor and proverbial Surrey sands, where it covers the ground in the form of scrub, proving that Nature's list of timber trees at her disposal was far more limited than the profitable cultivation of the ground with this kind of crop required. She had probably the Scotch Fir, but that is a tree of very short duration, and all the lineal descendants of the original plantations of Fir in the sand district appear to have become extinct although the enduring Oak scrub remains, as well as several native shrubberies, both of White Thorn and Black Thorn, such as that near Newland's Corner and another where Thorns are mixed with Hollies at Holmwood, near Dorking. But Nature, pure and simple, cannot long reign even over the most limited spaces, nor is her rule desirable, in proximity to the highly cultured properties of those fortunate wealthy gentlefolk who, having settled thick in Homedale in recent times, and who must all have been, as we maintain, more or less influenced in matters of taste and propriety in regard to planting and landscape gardening by the example of Evelyn. Mr. Gladstone remarked in the House of Commons on the general absence of a good "custom" in the management of woods, and spoke of the "superstition" of ignorance, which, unfortunately, is too prevalent. Some such custom, handed down through 200 years by the influence of the greatest English teacher of forestry, we claim for this part of Surrey.

To confirm this contention, look at the Scotch Fir plantations clinging to the steep sides and brows of the sandhills, where no other tree would yield so much profit, or lend so much beauty to the landscape. Look at the old English Elm, an introduced tree constantly found in its favourite sites in the watered valleys, growing by the streamlets, feeders of the Mole and Wey, or near the villages, to a great size, with the Ash on a stiffer soil generally, both trees yielding timber much sought after by country wheelwrights and carpenters now as in past times.

Are not the trees and shrubs at Deepdene—from the great Spanish Chestnuts on the richer loams to the modern Conifers and Rhododendrons near the house, planted respectively by the Howards and their successors, the Hopes—are not they appropriately placed?

Several Lime avenues of noble size might be named as growing on the same warm loam, especially when the roots are not very distant from water. But those who know the Homedale are aware that while its poorest lands will yield only the Birch, the better loams produce every kind of forest tree, giving to the neighbourhood exquisite variety both in the hues and the forms of the leaves.

Other characteristic trees of this district consist of ponderous Oaks and occasional Walnuts, growing in a narrow belting beneath the chalk ridge. We spoke of the lower greensand and its timber, but between it and the chalk is a strip of strong soil formed by the outcrop of the upper greensand, and commingling with it is another and much poorer clay belonging to the cretaceous series, and known as the gault. These, too, have their appropriate timber trees—the Oak, Ash, and Walnut—both in planted woods and isolated specimens. In naming the Willows and Alders that affect the waterside, the latter supplying the charcoal of the Albury powder-mills, we shall have completed our list of the trees appropriate to the various soils of this well-known district, though no doubt many kinds have been omitted. *H. E.*

## New Garden Plants.

### ODONTOGLOSSUM CRISPUM (Lindl.), VAR.

MR. F. SANDER sends me a three-flowered twig of a probably larger inflorescence. It is a highly curious thing, but no information is given about it, as both information and packing are getting inferior from year to year, although exceptionally rich information comes when one grower has been deprived of his priority by another. The flowers have white and light mauve sepals, a cucullate convex short lip, exceedingly far from being fine, and looking rather teratologic, and petals of a deep purple-mauve hue, nearly as lobed as in *Cattleya Massangeana* and *Nalderiana*. There are, however, on the petals numerous cartilaginous teeth (!!) on surface. That looks rather trilabellous. Now there is the question whether it will come next year as it is now. It was grown by the Rev. Mr. Kinaleside, Sunbury House, Tunbridge Wells. *H. G. Rehb. f.*

### ODONTOGLOSSUM VEXILLARIUM KIERNASTIANUM, n. var.

A magnificent variety. The sepals and petals have broad white margins and a rose coloured disc. The lip is of a light yellow colour at the very base, the usual three central purple lines and fine radiating rose lines run all over the grand lip except along the pure white margin. It is uncommonly large. I had this variety from Herr Consul Kleinst Zölly, who is inferior to no one in his ardent zeal for Orchids. *H. G. Rehb. f.*

### EPIDENDRUM POLYANTHUM (Lindl.) ASPERUM, n. var.

Messrs. J. Veitch & Sons have kindly forwarded me a plant I had known before in English garden, as I had had it from the late Mr. Wilson Saunders. It would be fully the well-known *Epidendrum polyanthum*, Lindl., were it not that the ovaries, and even the rhachis, are covered with numerous dense small warts.

I remember well I saw such a case before, forty years ago in an *Epidendrum patens*. It is a very interesting fact, that I have specimens of *Epidendrum polyanthum*, doubtless, coming from the same source, some with even and some with rough ovaries. My specimens of Galeotti, 5125, purchased in 1847, have smooth ovaries, while the same number of Galeotti's private herbarium, purchased in 1856, had them with warts. *H. G. Rehb. f.*

### THUNIA VEITCHIANA, n. hyb. Angl.

A fresh "English Orchid," of much elegance, lending the charms of both its cross parents, *Thunia Marshalliana*, Rehb. f., and *T. Bensonæ*, Hook. f., and standing quite between both. The flower is not so broad and so short as in the first-named, nor so long as in Sir Joseph Hooker's plant. The spur is rather that of the first. The white sepals and petals have a very light mauve wash at their tops, which looks remarkably elegant—at least "t. m. t." The lips' median keels are broken up in the anterior disc into numerous fringed processes of a certain colour between orange and mauve-purple. The whole anterior broad border of the lip is of the finest mauve-purple, and the superior part of the lip is white, with some mauve-purple veins. There are some very small mauve spots on the top of the column. The plant is a fresh proof of Mr. Sedo's perseverance, zeal, and skill, and it is destined at once to be, in its chaste elegance, one of those numerous memorials both science and horticulture will ever keep in honour of that illustrious Veitchian firm. *H. G. Rehb. f.* [The plant received a Certificate at the last meeting of the Floral Committee.]

**INDESTRUCTIBLE FENCE POSTS.**—A farmer writes that twenty-five years ago he set split white Oak posts for his garden fence, putting about a peck of air-slaked lime about each, and they are all good yet. He attributes their good condition to the effect of the lime, in which he is doubtless correct. A board that has been used in a mortar bed, and thoroughly saturated with lime, is almost indestructible from decay. *Florida Dispatch.*

## INSECTS.

(Concluded from p. 786.)

PETROLEUM, in its various forms, has long been recognised as one of the most effective insecticides in our possession, all oily substances being particularly deadly to insects. Unfortunately they are also injurious to plants, and one of the problems the solution of which I have had in mind for many years has been their use in such dilution as to kill the insect without injury to the plant. Refined kerosene has been used to a limited degree by forcible attenuation in water and spray, while some plants withstand doses of the pure oil. But the safe and general use of kerosene for the purpose under consideration dates from the year 1880. Of the various substances used in attempts to emulsify and mix kerosene with water none are more satisfactory than soap and milk, both being everywhere accessible and cheap. Milk was first suggested in 1880 by Dr. W. S. Barnard, while carrying on experiments for me against the Cotton-worm, and subsequent experiment, especially by another of my assistants, Mr. H. G. Hubbard, has given us the simplest and most satisfactory method of making the emulsion quickly and permanently. An emulsion resembling butter can be produced in a few minutes by churning with a force pump two parts of kerosene and one part of sour milk in a pail. The liquids should be at about blood-heat. This emulsion may be diluted with twelve or more parts of water to one part of emulsion, thoroughly mixed, and may be applied with the force-pump, a spray nozzle, or with a strong garden syringe. The strength of the dilution must vary according to the nature of the insect to be dealt with, as well as to the nature of the plant; but finely sprayed in twelve parts of the water to one of the emulsion it will kill most insects without injury to the plant. An equally good emulsion may be made as follows:—

Kerosene, 2 gal.; common soap,  $\frac{1}{2}$  lb.; water, 1 gal. Heat the mixture of soap and water, and add it boiling hot to the kerosene. Churn the mixture by means of a force pump and spray nozzle for five or ten minutes. The emulsion, if perfect, forms a cream, which thickens on cooling, and adheres without oiliness to the surface of glass. Dilute with cold water before using, to the extent to which experience will indicate is best.

The simplest discoveries are often the most valuable, and this discovery of so simple and available a means of diluting, *ad libitum*, oil with water is important and far-reaching in its practical application.

### PYRETHRUM.

Pyrethrum roseum, a plant native to the Asiatic countries south of the Caucasus Mountains, and *Pyrethrum cinerariaefolium*, a native of Dalmatia, have long been known to possess insecticide properties, especially in the powder from the dried and pulverised flowers. The powder, sold under various names by druggists, was chiefly used against household pests, however; and though Mr. C. Willemet, as early as 1857, in France, and Mr. William Saunders, in 1879, in Canada, tried it in powder form on some that are injurious to plants, its importance as a field insecticide did not appear till 1880, when, in prosecuting the work of the United States Entomological Commission, we discovered that it could be used in liquid solution. Both species proved to be hardy throughout the greater portion of our country, and Mr. G. N. Milco, of Stockton, Cal., has for some years cultivated *cinerariaefolium* quite extensively at great profit, the product being sold under the name of "Buhach." The insecticide property dwells in a volatile oil. It acts only by contact and its action on many larvæ is marvellous, the smallest quantity in time paralysing and ultimately killing. Its influence in the open air is evanescent, in which respect it is far inferior to the arsenical products; but being perfectly harmless to plants it can frequently be used on vegetables where the more poisonous substances would be dangerous.

Pyrethrum is supposed to have no effect on the higher animals, but that is a mistake, as my own recent experience is that the fumes in a closed room have a toxic influence, intensifying sleep and inducing stupor; while the experience of Professor A. Graham Bell with the powder copiously rubbed on a dog showed that the animal was made sick and was affected in the locomotive organs very much as insects are. The wonderful influence of this powder on insects has led me to believe that it might prove



useful as a disinfectant against fevers and various contagious diseases by destroying the microzoa and other micro-organisms, or germs, which are believed to produce such diseases. It should be tried for that purpose. It is remarkable that these two plants of all the many known species of the genus should alone possess the insecticide property.

### BISULPHIDE OF CARBON.

Of all insecticides to be used against root-feeding or hypogean insects, naphthaline, sulpho-carbonate of potassium, and bisulphide of carbon are the chief. Dr. Ernst Fischer, in a recent work, has shown that naphthaline in crystal may be satisfactorily used under-ground, destroying by slow evaporation. But bisulphide of carbon still holds the first place in France against *Phylloxera vastatrix*. It is conveyed beneath the ground at the rate of one-half to one kilogram per Vine by special injectors, or by more complicated machinery, drawn by horses. I believe that petroleum emulsions will supersede it as an underground insecticide, and prove to be the best we have, cheapness, safety, and efficiency considered. After the discovery of a satisfactory insecticide, however, various important problems must be solved, and particularly how to apply it to greatest advantage, having safety to man and stock, harmlessness to plant, and economy in mind. The solution of these points, and others that the peculiar habits of the insect to be controlled involve, brings us to the question of mechanical contrivances and appliances; for while much ingenuity has been exhibited in devising mechanical means of directly destroying noxious insects without insecticides, it is chiefly in the proper application of these last that the greatest mechanical advances have been made both in this country and in Europe. Here, again, the subject is so vast that I cannot enter into details.

It will already have been gathered, from what has preceded, that the chief insecticides are applicable in liquid form, and as liquids have an advantage over powders in field use, instruments for atomising and distributing liquids constitute the most important part of insecticide machinery. The desiderata in a spray-nozzle are, ready regulation of the volume to be thrown; greatest atomising power, with least tendency to clog; facility of cleansing or ready separation of its component parts; cheapness, simplicity, and adjustability to any angle.

I will content myself with exhibiting one which meets, perhaps, more of these requirements than any other in use, and which works on a new principle applicable to many other purposes than that for which it was designed. It is what has been described and illustrated in my late official reports as the eddy or cyclone nozzle, and consists of a small circular chamber with two flat sides, one of them screwed on so as to be readily removed. Its principal feature consists in the inlet through which the liquid is forced being bored tangentially through its wall, so as to cause a rapid whirling or centrifugal motion of the liquid which issues in a funnel-shaped spray through a central outlet in the adjustable cap. *Prof. Riley in "American Entomologist."*

## NEW PLANTS CERTIFICATED

BY THE ROYAL BOTANIC SOCIETY DURING THE FIRST HALF-YEAR, 1885.

\* B.C., Botanical Certificate; F.C., Floral Certificate; either being equal to a First-class Certificate.

<i>Agapanthus umbellatus</i> variegata .. .. .	Williams, June 17—B.C.
<i>Allium karataviense</i> .. .. .	Veitch & Sons, May 20—B.C.
<i>Alocasia Hendersoni</i> .. .. .	E. G. Henderson & Son, June 17—B.C.
<i>Sanderiana</i> .. .. .	W. Bull, April 22—B.C.
<i>Amaryllis Basilisk</i> .. .. .	Veitch & Sons, March 25—F.C.
<i>Great Gearies</i> .. .. .	J. Douglas, March 25—F.C.
<i>Helen Lodge</i> .. .. .	Veitch & Sons, March 25—F.C.
<i>Ne Plus Ultra</i> .. .. .	Veitch & Sons, March 25—F.C.
<i>Perfection</i> .. .. .	Veitch & Sons, April 22—F.C.
<i>Prince George of Wales</i> .. .. .	Veitch & Sons, May 20—B.C.
<i>Amasonia pumila</i> .. .. .	Paul & Son, March 25—F.C.
<i>Anemone pulsatilla patens</i> .. .. .	C. Turner, April 22—F.C.
<i>Auricula Chastity</i> .. .. .	C. Turner, April 22—F.C.
<i>Rosalind</i> .. .. .	C. Turner, April 22—F.C.
<i>Sunrise</i> .. .. .	C. Turner, April 22—F.C.
<i>Azalea Madame J. N. Verschaffelt</i> .. .. .	Hill, March 25—F.C.
<i>Princess of Wales</i> .. .. .	Laing & Co., May 20—F.C.
<i>Begonia Formosa</i> .. .. .	Keteleer, March 25—F.C.
<i>Gloire de Seaux</i> .. .. .	Laing & Co., May 20—F.C.
<i>Lady Hulse</i> .. .. .	Cannell & Sons, June 17—F.C.
<i>Louis Bouchet</i> .. .. .	Laing & Co., June 17—F.C.
<i>Salmonia</i> .. .. .	Laing & Co., June 17—F.C.
<i>Mr. Brissenden</i> .. .. .	Laing & Co., May 20—F.C.
<i>Sir P. Lumsden</i> .. .. .	Laing & Co., June 17—F.C.
<i>tuberosus</i> .. .. .	W. Bull, March 25—F.C.
<i>Bentickia condapanna</i> .. .. .	Barr & Son, June 17—B.C.
<i>Brodiaea stellata</i> .. .. .	B. S. Williams, March 25—F.C.
<i>Calanthe Sanderiana</i> .. .. .	B. S. Williams, March 25—F.C.
<i>Caladium albo-luteum maculatum</i> .. .. .	Laing & Co., June 17—B.C.
<i>Comte de Germiny</i> .. .. .	Laing & Co., June 17—B.C.
<i>De Condeux</i> .. .. .	Laing & Co., May 20—F.C.
<i>Raymond Lemonier</i> .. .. .	Laing & Co., June 17—B.C.
<i>Camellia Commendatore Betti</i> .. .. .	B. S. Williams, March 25—F.C.

<i>Carnation Colonel Cox</i> .. .. .	C. Turner, May 20—F.C.
<i>F. W. Girdlestone</i> .. .. .	C. Turner, May 20—F.C.
<i>Goliath</i> .. .. .	C. Turner, May 20—F.C.
<i>Fride of Penhurst</i> .. .. .	Veitch & Sons, May 20—F.C.
<i>Cattleya Mendelii carminata</i> .. .. .	Little, May 20—B.C.
<i>striata</i> .. .. .	Low & Co., May 20—B.C.
<i>Schofieldi</i> .. .. .	Low & Co., May 20—B.C.
<i>Chionodoxa sardensis</i> .. .. .	Barr & Son, March 25—F.C.
<i>Cineraria Amy Robsart</i> .. .. .	James, April 22—F.C.
<i>Countess</i> .. .. .	James, April 22—F.C.
<i>Dante</i> .. .. .	James, March 25—F.C.
<i>General Gordon</i> .. .. .	James, March 25—F.C.
<i>Mary Anderson</i> .. .. .	James, March 25—F.C.
<i>Mrs. A. Sutton</i> .. .. .	James, March 25—F.C.
<i>Paragon</i> .. .. .	James, March 25—F.C.
<i>Rob Roy</i> .. .. .	James, March 25—F.C.
<i>The Bride</i> .. .. .	James, April 22—F.C.
<i>Viceroy</i> .. .. .	James, March 25—F.C.
<i>Cupressus Lawsoniana erecta</i> .. .. .	Lee & Son, June 17—B.C.
<i>viridis albo variegata</i> .. .. .	Veitch & Sons, June 17—B.C.
<i>Cyathea divergens</i> .. .. .	Veitch & Sons, June 17—B.C.
<i>Cypripedium macropterum</i> .. .. .	Veitch & Sons, May 20—B.C.
<i>Davallia retusa</i> .. .. .	W. Bull, March 25—F.C.
<i>Dendrobium Ainsworthi</i> .. .. .	W. Bull, March 25—F.C.
<i>crassinode var. alba</i> .. .. .	Hill, March 25—F.C.
<i>crassinode var. gigantea</i> .. .. .	Cypher, June 17—B.C.
<i>crystallinum album</i> .. .. .	Cypher, June 17—B.C.
<i>Falconeri delicatum</i> .. .. .	W. Bull, March 25—F.C.
<i>nobile var. insignis</i> .. .. .	B. S. Williams, March 25—F.C.
<i>nobile nobilis</i> .. .. .	Veitch & Sons, June 17—B.C.
<i>Eumonymus japonica</i> , Silver Gem .. .. .	Veitch & Sons, June 17—B.C.
<i>Fagus sylvatica tricolor</i> .. .. .	W. Bull, March 25—F.C.
<i>Hemantthus Kallreyeri maximus</i> .. .. .	B. S. Williams, May 20—B.C.
<i>Hymenocallis macrostaphana</i> .. .. .	Veitch & Sons, June 17—B.C.
<i>Laela Canhami</i> .. .. .	B. S. Williams, May 20—B.C.
<i>purpurata Williamsi</i> .. .. .	Low & Co., May 20—B.C.
<i>Schroederi</i> .. .. .	W. Bull, March 25—F.C.
<i>Lomaria heterophylla</i> .. .. .	W. Bull, March 25—F.C.
<i>Lycaste Skinneri alba</i> .. .. .	Hill, March 25—F.C.
<i>Skinneri magnifica</i> .. .. .	Little, May 20—B.C.
<i>Perfection</i> .. .. .	Veitch & Sons, June 17—B.C.
<i>Masdevallia Gairiana</i> .. .. .	W. Bull, March 25—F.C.
<i>Wagneriana</i> .. .. .	Barr & Son, April 22—F.C.
<i>Narcissus M. de Graaf</i> .. .. .	{ Collins Bros. & Gabriel, April 22—F.C.
<i>spurius coronatus</i> .. .. .	Veitch & Sons, May 20—B.C.
<i>Nephrolepis Bausci</i> .. .. .	Sander, June 17—B.C.
<i>Odontoglossum Alexandrie</i> .. .. .	Sander, June 17—B.C.
<i>Phalenopsis</i> .. .. .	Sander, June 17—B.C.
<i>rosea punctata</i> .. .. .	W. Bull, March 25—F.C.
<i>Rossi concinnum</i> .. .. .	W. Bull, March 25—F.C.
<i>Oreodcha plumosa</i> .. .. .	B. S. Williams, May 20—B.C.
<i>Pavetta montana</i> .. .. .	C. Turner, June 17—F.C.
<i>Pelargonium Mrs. Langtry</i> .. .. .	Poster, June 17—F.C.
<i>Pluto</i> .. .. .	Wiggins, June 17—F.C.
<i>Portia</i> .. .. .	Wiggins, June 17—F.C.
<i>Vesper</i> .. .. .	Perkins, May 20—F.C.
<i>Volonté Nationale</i> .. .. .	Veitch & Sons, June 17—B.C.
<i>Phyllanthus Chantrieri</i> .. .. .	Veitch & Sons, May 20—B.C.
<i>Phlaidelphus microphyllus</i> .. .. .	Veitch & Sons, May 20—B.C.
<i>Piper ornatum</i> .. .. .	Hill, March 25—F.C.
<i>Primula Tomkins' Queen</i> .. .. .	May, May 20—B.C.
<i>Pteris cretica albo lineata</i> al-cicorne .. .. .	Veitch & Sons, May 20—B.C.
<i>Rhododendron Curtisii</i> .. .. .	Veitch & Sons, March 25—F.C.
<i>Tyersmanni</i> .. .. .	W. Bull, March 25—F.C.
<i>Sarracenia Atkinsoniana</i> .. .. .	Rees, May 20—B.C.
<i>Saxifraga Macnabiana</i> .. .. .	W. Bull, March 25—F.C.
<i>Selaginella amena</i> .. .. .	Veitch & Sons, June 17—B.C.
<i>Spiraea palmata alba</i> .. .. .	Lee & Son, June 17—F.C.
<i>Statice floribunda</i> .. .. .	Veitch & Sons, June 17—B.C.
<i>Thunia Veitchii</i> .. .. .	B. S. Williams, June 17—B.C.
<i>Verbena Dr. Feyerlin</i> .. .. .	Cannell & Sons, June 20—F.C.
<i>Purity</i> .. .. .	Cannell & Sons, June 20—F.C.
<i>Vriesia Janeriensis</i> .. .. .	W. Bull, April 22—B.C.

### BY THE ROYAL HORTICULTURAL SOCIETY.

<i>Acineta chrysantha</i> .. .. .	{ Sir Trevor Lawrence, Feb. 10—F.C.
<i>Aërides Ballatoeyoi</i> .. .. .	Sander, June 9.
<i>Wilsonianum</i> .. .. .	Sander, May 26.
<i>Allium karataviense</i> .. .. .	Veitch & Sons, May 26.
<i>Alocasia Sanderiana</i> .. .. .	R. P. Ker & Son, May 22.
<i>Amaryllis Comte de Germiny</i> .. .. .	B. S. Williams, Jan. 13—F.C.
<i>Lady Howard de Walden</i> .. .. .	J. Veitch & Sons—April 18.
<i>Mrs. B. S. Williams</i> .. .. .	B. S. Williams, May 22.
<i>Niobe</i> .. .. .	Veitch & Sons, Mar. 24—F.C.
<i>Paragon</i> .. .. .	Veitch & Sons, Mar. 24—F.C.
<i>The Queen</i> .. .. .	Sir T. Lawrence June 23—F.C.
<i>Angulosa Kuckeri</i> .. .. .	R. P. Ker & Son, May 22.
<i>Antibium carneum</i> .. .. .	Douglas, April 18—F.C.
<i>Auricular Mrs. Moore</i> .. .. .	R. P. Ker & Son, May 22.
<i>Azalea Avalanche, hardy</i> .. .. .	Van Houtte, May 12.
<i>Prince Baudouin</i> .. .. .	Van Houtte, May 12.
<i>Princess Victoria</i> .. .. .	Van Houtte, May 12.
<i>Souvenir de Françoise</i> .. .. .	R. P. Ker & Son, May 22.
<i>Vervane</i> .. .. .	F. A. Philbrick, Jan. 13—F.C.
<i>Barkeria elegans</i> .. .. .	Laing & Co., June 9.
<i>Begonia globosa</i> .. .. .	Laing & Co., June 9.
<i>Lillie</i> .. .. .	Laing & Co., June 9.
<i>Marquis of Stafford</i> .. .. .	Laing & Co., June 9.
<i>Princess Victoria</i> .. .. .	W. Bull, June 9.
<i>Bilbergia nobilis</i> .. .. .	Gilbert, June 9.
<i>Broccia The Queen</i> .. .. .	B. S. Williams, Mar. 24—F.C.
<i>Calanthe Sanderiana</i> .. .. .	B. S. Williams, Mar. 24—F.C.
<i>Camellia Commendatore Betti</i> .. .. .	R. Dean, June 23—F.C.
<i>Candytuft Empress</i> .. .. .	C. Turner, May 26.
<i>Carnation Colonel Cox</i> .. .. .	C. Turner, April 18.
<i>F. W. Girdlestone</i> .. .. .	C. Turner, May 26.
<i>Goliath</i> .. .. .	C. Turner, May 26.
<i>Pride of Penhurst</i> .. .. .	Veitch & Sons, May 26.
<i>Cattleya Bluntii</i> .. .. .	Sander, May 12.
<i>gigas var.</i> .. .. .	B. S. Williams, May 22.
<i>Massangeana</i> .. .. .	Sir T. Lawrence, Feb. 10—F.C.
<i>maxima</i> .. .. .	Sander, May 12.
<i>Schofieldiana</i> .. .. .	T. W. Bond, May 26.
<i>Schroederiana</i> .. .. .	Sander, May 12.
<i>Wagneri</i> .. .. .	Sander, May 12.
<i>Centropogon Lucyanum</i> .. .. .	Cannell & Sons, Jan. 13—F.C.
<i>Chionodoxa sardensis</i> .. .. .	Barr & Son, March 24.
<i>Clematis Sir Joseph Hooker</i> .. .. .	C. Noble, May 26.
<i>Clivia Schroederi</i> .. .. .	Mr. Ballantyne, March 10.
<i>Crocus King of the Blues</i> .. .. .	Veitch & Sons, March 10.
<i>Cyclamen Albert Victor</i> .. .. .	Mr. Clark, Jan. 13.
<i>giganteum album</i> .. .. .	H. B. Smith, Feb. 10.
<i>Cymbidium Parishii</i> .. .. .	Sir T. Lawrence, June 23—F.C.

<i>Cypripedium ciliolare</i> .. .. .	B. S. Williams, May 22.
<i>Druryi</i> .. .. .	B. S. Williams, May 22.
<i>Godefroya</i> .. .. .	{ Baron Schroder, May 12.
<i>Sedeni candidum</i> .. .. .	W. Lee, Esq., May 12.
<i>Dendrobium heterocarpum</i> .. .. .	J. Veitch & Sons, March 10—F.C.
<i>macrophyllum Burkilli</i> .. .. .	Sir T. Lawrence, Feb. 10—F.C.
<i>Dodecatheon splendens</i> .. .. .	Mr. Ballantyne, April 18.
<i>Epiphyllum Gaumeri</i> .. .. .	Ware, May 26.
<i>Heinrichs</i> , April 18 .. .. .	{ New Plant & Bulb Co., June 23—F.C.
<i>Fremus aurantiacus</i> .. .. .	Veitch & Sons, May 26.
<i>Gloxinia Flambeau</i> .. .. .	Veitch & Sons, June 9.
<i>Marquis of Abergavenny</i> .. .. .	Veitch & Sons, May 26.
<i>Heliotropis Roi des Noirs</i> .. .. .	B. S. Williams, May 22.
<i>Hemerocallis macrostaphana</i> .. .. .	Veitch & Sons, May 26.
<i>Hydrangea macrochurica</i> .. .. .	Ware, June 9.
<i>Iris germanica, Graciosa</i> .. .. .	Barr & Son, March 10—F.C.
<i>Lachenalia Aldborough Beauty</i> .. .. .	Sir T. Lawrence, Feb. 10—F.C.
<i>Laila anceps Hilli</i> .. .. .	Veitch & Sons, June 9.
<i>Canhami</i> .. .. .	Mr. Ballantyne, April 18.
<i>Bella</i> .. .. .	G. Weedon, May 26.
<i>Lobelia superba</i> .. .. .	Sir T. Lawrence, May 12.
<i>Luddemania Lehmanni</i> .. .. .	Veitch & Sons, June 23—F.C.
<i>Masdevallia Gairiana</i> .. .. .	B. S. Williams, May 22.
<i>Harryana</i> .. .. .	Baron Schroder, May 12.
<i>Sanderiana</i> .. .. .	Mr. Pollett, March 10—F.C.
<i>Miltonia cuneata</i> .. .. .	E. Loder, May 22.
<i>Mystecium nobile</i> .. .. .	Krelage & Son, Apr. 18.
<i>Narcissus spurius coronatus</i> .. .. .	Veitch & Sons, Feb. 10—F.C.
<i>Nepenthes cincta</i> .. .. .	Sander, June 23—F.C.
<i>Odontoglossum Alexandrie Brymerianum</i> .. .. .	James O'Brien, April 18.
<i>Anderssonianum pictum</i> .. .. .	Cookson, May 12.
<i>Cooksoni</i> .. .. .	H. M. Pollett, May 26.
<i>crispum var. lilacina</i> .. .. .	Baron Schroder, May 12.
<i>Sanderiana</i> .. .. .	Sander, June 23—F.C.
<i>Veitchianum</i> .. .. .	Baron Schroder, May 12.
<i>elegans Alice</i> .. .. .	W. Lee, Esq., Feb. 10—F.C.
<i>excellent</i> .. .. .	B. S. Williams, Feb. 10—F.C.
<i>Hornbuntum</i> .. .. .	Sander, June 23—F.C.
<i>hystrix magnifica</i> .. .. .	Sander, June 23—F.C.
<i>Johnsonianum</i> .. .. .	B. S. Williams, May 22.
<i>mulus Gerninyanum</i> .. .. .	
<i>prionopetalum</i> .. .. .	
<i>roseum var. punctatis-sima</i> .. .. .	H. M. Pollett, May 26.
<i>Ruckerianum</i> .. .. .	Sander, May 12.
<i>Schroederianum</i> .. .. .	Sir T. Lawrence, Jan. 13—F.C.
<i>Wilckeanum</i> .. .. .	{ Mr. Ballantyne, March 10—F.C.
<i>Olearia Gunni</i> .. .. .	Veitch & Sons, May 26.
<i>macrodonata</i> .. .. .	Veitch & Sons, May 23—F.C.
<i>Oncidium Brunellesianum</i> .. .. .	Adams, March 10—F.C.
<i>Peony Leonora Bramwell</i> .. .. .	Kelway & Sons, June 23—F.C.
<i>Snowball</i> .. .. .	Gordon, June 9.
<i>Pelargonium Thisby</i> .. .. .	W. Clay, June 23—F.C.
<i>variety</i> .. .. .	Wiggins, June 9.
<i>Phalenopsis</i> .. .. .	Fisher & Son, May 22.
<i>Phyllanthus Chantrieri</i> .. .. .	Veitch & Sons, May 26.
<i>Phalenopsis Marie</i> .. .. .	Ballantyne, April 21.
<i>Polemonium Richardsoni</i> .. .. .	Ware, May 26.
<i>Primula The King</i> .. .. .	J. King, Feb. 10—F.C.
<i>White Perfection</i> .. .. .	Cannell & Sons, Feb. 10—F.C.
<i>Wulfeniana</i> .. .. .	Paul & Son, March 24—F.C.
<i>Pyrethrum Melton</i> .. .. .	Kelway & Son, June 9.
<i>Rhododendron cardinale</i> .. .. .	Veitch & Sons, March 10—F.C.
<i>Mangiesli</i> .. .. .	Veitch & Sons, June 9.
<i>militare</i> .. .. .	Veitch & Sons, Feb. 10—F.C.
<i>Rose General Gordon</i> .. .. .	H. Bennett, March 24—F.C.
<i>(Tea) Princess Beatrice</i> .. .. .	H. Bennett, June 23—F.C.
<i>Ye Primrose Dame</i> .. .. .	H. Bennett, March 24—F.C.
<i>Saccolabium bellinum</i> .. .. .	W. Lee, Esq., Feb. 10—F.C.
<i>Saxifraga lantoscana superba</i> .. .. .	Paul & Son, June 9.
<i>Macnabiana</i> .. .. .	J. V. Rees, May 26.
<i>Schizophragma hydrangeoides</i> .. .. .	Veitch & Sons, May 26.
<i>Spiraea astilboides</i> .. .. .	R. P. Ker & Son, May 22.
<i>Styrax japonica</i> .. .. .	Veitch & Sons, June 23—F.C.
<i>Syringa vulgaris Marie Le-grange</i> .. .. .	Veitch & Sons, May 26.
<i>Thunia Veitchii</i> .. .. .	Veitch & Sons, June 23—F.C.
<i>Tulipa oculis solis mervensis</i> .. .. .	Elwes, April 21.
<i>Tulip Nodest</i> .. .. .	Barlow, June 9.
<i>Mr. J. Bright</i> .. .. .	Barlow, June 9.
<i>Orion</i> .. .. .	Barlow, June 9.
<i>Princess of Wales</i> .. .. .	Barlow, June 9.
<i>Samuel Barlow</i> .. .. .	Barlow, June 9.
<i>W. Wilson</i> .. .. .	Barlow, June 9.
<i>Vanda tricolor</i> .. .. .	Fisher, Son & Sibray, May 22.
<i>Verbena Distinction</i> .. .. .	Stacey, June 9.
<i>Fairy Queen</i> .. .. .	Stacey, June 9.
<i>Vriesia hieroglyphica</i> .. .. .	R. P. Ker & Son, May 22.
<i>Janieriensis</i> .. .. .	W. Bull, Feb. 10—F.C.

### FRUIT.

<i>Broccoli Late Queen</i> .. .. .	Gilbert, June 9—F.C.
<i>Melon Benham Beauty</i> .. .. .	C. Howe, May 26.
<i>Favourite</i> .. .. .	Herrin, June 9.
<i>Orange Sustane</i> .. .. .	Rivers & Son, Feb. 10—F.C.
<i>Pear Duchesse de Bordeaux</i> .. .. .	Bunyard & Co., Feb. 10—F.C.
<i>Strawberry Pauline</i> .. .. .	G. Paul & Son, June 23—F.C.

## THE AMHERSTIA.

"WHILE at Beling, on the way," writes the Rev. C. Parish, in the new edition of Mason's *Burmah*, "I rode out in company with Col. Fytche and Capt. Harrison to a place called Kothanaiong, about 7 miles off, to see the Amherstia trees there. This place had often been mentioned as one where the Amherstia was to be seen in great perfection, and where indeed it might perhaps be wild. I was well rewarded, for a prettier little spot I never visited. The Amherstias, growing in a well-shaded place and watered by a perennial stream, which tumbles down a steep granite hill, and is ingeniously directed hither and thither in large Bamboo troughs, were indeed to be seen in the wildest luxuriance of growth. But Kothanaiong is a sacred spot. Here are pagodas, pongyee-houses, zayats all around. A flight of steps leads from the bottom to the top of the overhanging hill, which is about 600 feet high, and on which are more sacred buildings. The Amherstias, seen only round the principal pagoda, were undoubtedly planted, although



they are now left to take care of themselves and have a wild appearance. Evidently this is not a native habitat of the tree."

Dropping down the Yuzaleen, however, by boat from Pahpoon, on the second day, Mr. Parish found a fine *Amherstia* in full flower, which he regarded without hesitation as a wild tree. Mr. Parish cogently remarks:—"Now my reasons for saying that this was a *bona fide* wild tree are these: in all this district, the valley of the Yuzaleen, there are no pagodas or pongyee-houses, or spots sacred to the Burmese, where they erect buildings. The inhabitants of this district, in fact, are Karens, and not Burmese, and these Karens are exceedingly few and scattered. After leaving Pahpoon we did not see a single village on the banks all the way until we came to the junction of the Yuzaleen with the Salween. There are, indeed, no doubt, a few villages a little way from the bank, here and there hidden among the trees, but these generally consist of but two or three houses; neither are they settled villages, for the custom of the Karens is to change the site of their houses continually. Besides, the regular Karens, not being Buddhists, do not build pagodas, nor do they ever trouble themselves to plant ornamental trees, as the Burmese always do, in their sacred places. Again, the spot where this *Amherstia* was seen was not at all a likely spot for an *Amherstia* to have been planted by any one, but one of the wildest places imaginable. Had it been on a rising ground, or on a high bank alone, or on any prominent point on the river, I should have suspected that a hand had placed it; but it was on a low and sloping part of the bank, struggling for life with *Calamus*, *Bauhinia*, and tall grasses, and such other tangled stuff as forms the common vegetation of our river banks in the wildest places; and behind, again, was a dense jungle of the tallest trees. However, notwithstanding all this, had it been seen in a fairly peopled district I should have doubted, but in such a wild, uninhabited country as the Yuzaleen is, I see no reason for suspecting that it was not a genuine native. Had Wallich's first tree been here I am satisfied that the idea of its not being wild would never for a moment have occurred to him. I am perfectly satisfied that the tree seen by me was a wild one. That the *Amherstia* in a wild state may be very scarce is not improbable, but that it should not exist any longer in that state, though possible, is, to say the least, very unlikely."

## PEAS IN COLD FRAMES.

THE necessity for growing Peas in this way is not so clearly demonstrated in gardens that are situated on elevated ground, where the air is naturally dry, as it is in those which are in low positions, with atmospheric moisture always in some degree abounding, and producing a condition which exposes tender subjects to much more danger from the baneful effects of frost than where conditions are otherwise; more especially is this the case with frosts that happen after the middle of May. These are very destructive, and cause more damage among early Pea crops than antecedent ones, because at this late period the vines are well furnished with pods; these being very tender, the least touch of frost arrests growth in them at once, and renders them useless, and thus defers the gathering a week or ten days beyond the ordinary time.

A delay of this kind in the supply of an esteemed edible is vexatious and disappointing, and should not be tolerated when it can easily be avoided by this method of cultivation, and by utilising for the purpose some of those excellent kinds of dwarf Peas we now possess that are so well adapted for this purpose, as well as for other early requirements, any of the following sorts may be depended on as very good growers and bearers also:—Chelsea Green, Veitch's American Wonder, Linton's Unique, and Little Gem. I grew the two first-named kinds this season, both coming into bearing at the same time; the first dish of Peas being gathered May 14, and the last dish from them on June 3. A crop of this description enables one with certainty to have a fair supply of green Peas at least a fortnight, in a favourable season, before the early crop out-of-doors is fit for use; and by supplementing these with a good row of the same kinds (which should be sown at the same time) at the base of a south or east wall, the supply may be continued until the ordinary early crop outside comes into use; with us, this is at about the end of the first week in June, but this year the crop will be a week or two days later.

My frame for Peas is a roughly constructed one, 50 feet x 10 feet wide, 3 feet high at back, and 18

inches in front. Strong Larch stakes are made from trees about 5 inches in diameter, which are cut down the middle and crossways, so as to make stakes 4 feet 6 inches long for the back, and 3 feet 6 inches for the front, which are pointed and driven into the ground firmly about 4 feet apart, the rough side being turned inwards and outwards alternately; some 1 inch, or 1½ inch deal boards are nailed to these, and form the frame; cross pieces are dovetailed into the top of the frame, which form the rafters for the lights, placed at proper distances apart to meet the requirements of the lights on hand. The lights I used formerly belonged to a vinery, and instead of discarding them I applied them to this purpose, and since then have found the place most useful, not merely for this object, but likewise for other crops, as Cauliflowers, French Beans, Lettuce, Endive, late Radishes, &c., which form the subsequent crops, and which for late use need protecting from autumn and early winter frosts. Frames can be formed by means of fresh cut sods being stacked closely together, that will answer the same purpose in every respect.

The cultivation requires good rich soil, properly tilled. The Peas should be sown in drills about 15 inches apart about December 1. At this time the lights should be put on, and kept so until the Peas are visible, after which they should be freely aired in favourable weather; and when they come into flower, in order to protect them from frost and to accelerate the crop, they should be covered up at night with mats, or an equivalent to them. *G. T. Miles, Wycombe Abbey.*

## CHIONANTHUS RETUSUS.

THIS is one of our most beautiful spring-flowering hardy deciduous shrubs, the deep shining green of its leaves setting off the snow-white flowers to advantage. Our illustration (fig. 178), taken from a specimen grown in Messrs. Veitch's nursery at Coombe Wood, serves to show better than words the general character of the shrub. The shrub is of medium stature, variable as to foliage, closely allied to the Olives and Osmanthus, and native to Japan and China. It is one of Fortune's introductions.

## WADDESDON.

SITUATED on an eminence 6 miles to the N.W. from the town of Aylesbury, overlooking one of the richest parts of the country—the vale of Aylesbury—is the new mansion of Baron Ferdinand de Rothschild. The site has been well chosen, if regard be had only to pure air, perfect sanitary conditions, and extensive views from almost every point over the surrounding beautiful landscape. The modern house-builder often selects a site for his mansion that would not have recommended itself to the builders of former days. We often, therefore, see houses built on spots whence the country around is spread as in a map, but which are cold and bleak, and thus rarely so enjoyable as were the snug manor-houses and well-chosen dwellings of the monks of the middle ages that we find in the plains, and generally in the neighbourhood of running water. In sites, high-lying, the one important point that no one studying the comforts of life can afford to pass over, is that conveyed in the word "shelter." This may consist of plantations of forest trees chosen for their ability to abide the fierce winds of such places, or of groups of trees, some of an exotic origin, and others native to the soil. And in Waddesdon we find this has been met by extensive planting of the largest trees and shrubs in great profusion. Some magnificent attempts have been made during the ten years the work of forming the gardens and pleasure grounds has taken, to move great numbers of Oaks, Horse Chestnuts, Limes, Elms, and many species of Conifers, which in most instances have succeeded to a wonderful extent. The one tree, the endeavour to remove which has proved a partial failure so far, is the *Quercus pedunculata*. Many trees of other species are seen making this year good growth, such as Horse Chestnut of more than 2 feet in diameter of stem at 4 feet from the ground, and from 30–40 feet in height. The common Lime, purchased of proprietors in the neighbourhood, of nearly as large proportions, have also recovered from the effects of removal in a remarkable degree. In these operations the utmost care and the most powerful tree transplanters have been employed, and the whole of the soil having been thoroughly

trenched and manured where thought requisite for the species of tree planted. Mr. Sims, who has conducted the operations from the first, has seen his reward in the growth which almost all of the subjects have made in recent years, and which has converted what was a bare hill-top into a really well sheltered enjoyable place. The one fact which appears so striking to those who are used to see new grounds planted with ordinary nursery stock, is the size of each group of shrubs, which in place of being composed of three or five specimens are here found in numbers of from thirty to forty, and even more, when the plant is a dwarf, or a small growing one. One of the most beautiful groups that can be imagined is at the end of the wide carriage drive near the house, where a cutting was made through rising ground. Here the bank, in places 100 yards in width, has been planted with double blossoming Furze that has grown to the height of 7 feet, the lower edge of the bank near the road being occasionally bordered with the dwarf-growing Spanish variety of a shade lighter than the other, while higher up and flanking the upper border of the bank great masses of white and yellow Broom give a touch of lightness and elegance to the picture. This group, cut into two parts by the road, is at least 400 yards in length, so that some idea may be had of this fine feature in the flowering season.

The mansion, which is built of fine grained white stone, and of a very pleasing and elegant exterior, was erected by a French architect, and stands slightly back from the edge of the plateau, which was made at the top of the hill by carrying away bodily a mass of soil of an average depth of 9 feet over an area of 10½ acres.

In the front, overlooking the Vale of Aylesbury, there is a broad expanse of gravel and turf; then a descent is made a few feet to a large oval basin of water, 30 yards in its longest diameter, which has flanking parterres for flowers at either end. Below this fountain terrace is yet another, of a smaller size, having a water basin and fountain of proportionate size; and beyond all is the rapidly falling ground of the park, in extent about 1800 acres.

At the opposite side of the mansion is a level plateau of about 4 acres, cut into half by a broad path, which runs direct for about 450 yards to its termination at a large water-basin of an oval form, 32 yards in diameter. This basin, standing in the middle point of an extensive rondeau of gravel and greensward, backed up with fine shrubs in massive groups and trees, is the spot from which radiate the principal walks in the place.

On either side of the beforementioned level plateau has been planted a row of Oaks, of about forty years old, the question of whose ultimate success is being anxiously debated. Some are certain to become at no distant day fine specimens, whilst others do not seem likely to recover from their removal. If all do not recover, there will be nothing for it but to remove all of them, and to plant the avenue with some other kind of tree of a large size, more amenable to such a difficult operation. It was a fortunate circumstance that a great quantity of rock was met with in escarping the hill-top, as by transporting this a short distance to the left-hand side of the Oak avenue, as seen coming from the house, it has been possible to make a natural looking rock scene, and that with materials of quite Titanic proportions; and much of the over-lying excavated earth was thrown up on one side of the rockery to give the appearance of a natural hill. This hill is now planted with *Pinus austriaca*, growing capitally, and being about an acre in extent it is one of the finest features in that part of the garden. The rockwork being tunnelled at one point, forms a store for large garden implements and machines. Returning to the house, we observe that its outline is not marred by the usual incongruous conservatory stuck on one end of it, but the place for the plants arranged is an ante-room to the dining-room, with a few well flowered Indian Azaleas, and a group of the pretty hybrids of Ivy-leaved Pelargoniums trained in elongated dome shapes, surrounded by *Selaginella* and Ferns.

Around the walls of the mansion a slightly serpentine border of flowering Rhododendrons was planted, in no place exceeding 3 yards in width, and not more than 2 feet in height of plant. These were just coming into flower at the time of our visit, and as the colours were mostly crimson, scarlet, and the like bright tints, they just gave the requisite line of colour to divide the walls from the turf, and showed up their hues well against the white stone. It was charming; but



they should never grow higher. Perhaps it is intended to have always only these dwarf plants in that place. Looking from the garden front down the Oak avenue a few beds of Ghent Azaleas were seen on either hand, but far enough removed from the central wide lawn to form no impediment to the spacious vista down to the fountain. Further removed from the house, and

base and the point coming alternately to the front, and as they are now touching each other, and generally each plant in a group is fully developed, they will never look better than at present. The species and varieties are—*Spiræa Thunbergii*, *Laurustinus*, which last flowers profusely, and does not get cut by frost, possibly because of its making no late growth ;

although some of the double pink kinds meet with great approval. A bed of these Thorns standing right and left of a landing-place on the steep walk leading to the kitchen garden has been a wonder of colour and floriferousness, perhaps both being the effect of something contained in the soil. The effect is heightened by an undergrowth of closely planted *Gynierum*. *Pyrus*, *Cerasus*, *Laburnum*, *Rhododendrons*, *Azaleas*, *New Zealand Veronicas*, *Kalmias*, and others too numerous to mention, form those great masses before spoken of as lining the shrubberies on all the main walks. A plant seldom met with in great clumps is *Hippophaë rhamnoides*, but which is at Waddesdon planted in quantity : one great bank of it will in winter exhibit great masses of its heavily-berried branches of orange-scarlet—grown thus it is a very conspicuous object at that time of the year. The bank had an edging of Spanish Furze.

The grass verges are of considerable width everywhere, as are also the walks, thus giving an air of magnificence to the grounds rarely seen. Much advantage has been taken of the natural contour of the ground around the house, but not reckoning the levelling operations on the area immediately surrounding the house, very heavy earth-moving work was involved in getting easy curves and gradients. The carriage drive to the lodge on the Aylesbury Road is 2½ miles long, and is carried through park-like scenery and bold groups of planting, but which a few years ago was a congeries of small fields and tall hedgerows of Thorn, but which has been so dealt with that little of its former use is now seen, except in masses of the Thorns allowed to grow wild, and which indicate here and there the lines of the old hedges.

Leaving the pleasure-grounds by a rather steep path, rendered easy in places by landings and flights of stairs, the kitchen garden and ranges of glass-houses are reached. These, with divisions, exceed forty in number. Taking the more important of these, we find a fruit range of lean-to houses 380 feet in length. Cherries, Figs, and Peaches occupy three compartments ; and after those come four vineries, containing leading kinds of Grapes, showing generally good crops of fruit. Foster's Seedling, Lady Downe's, Muscat of Alexandria, are much used, the first named being especially fine.

The fruit houses have not long been planted and are not as yet at their best, but the subjects therein, under Mr. Bradshaw's capable management, cannot fail to become very productive, as every appliance and assistance to successful cultivation are found here. The kitchen gardens are also in course of completion, and, being made on previously unworked soil, will require some years of thorough cultivation before the soil is what it should be. Its texture would indicate its complete adaptability to fruit culture, and even now the trees already there show that it suits them admirably.

The popular Carnation, *Souvenir de la Malmaison*, is here so much appreciated that a house in two compartments is filled with it. The plants, which are eighteen months old, are being brought on successionally, are capital stocky specimens with great bulky buds that promise well. Adjoining is a span-house filled with *Camellias*, planted next the central path with *Carnations*, *Roses*, and *Ferns*, and next the path is a margin of rockwork. This house had side annexes of 80 feet in length, one being filled with a healthy vigorous lot of *Gloxinias*, *Caladiums*, &c., and the other with *Pelargoniums*, of show size, and also smaller. Two other adjoining divisions held *Cucumbers* and *Tomatoes* planted in side beds. Orchid growing is being taken up with spirit by Baron de Rothschild, and although only a beginning can be said to be made as yet, there are five houses filled with choice species and choice varieties. The *Odontoglossum crispum* collection contains as many beautiful varieties as it has been possible to gather together, and the many examples of *O. citrosimum* and *O. c. roseum* were finer than the writer has seen collected together in any private garden ; and the healthy look of the plants, and the large amount of flower on these and others, leaves nothing to be desired. *O. Rossi* was blooming finely, as was *O. astrolabium*, a fine spike of bloom, with lemon sepals and petals, barred purple and white. *Cattleyas* are much grown, and many superb varieties were observed, notably *C. imperialis*, a plant of which had three blooms ; many of *C. Mendelii*, with four blooms each ; *C. Sanderiana* was a very fine plant, and had two strong shoots ; a *C. Dowiana*, with eight breaks, will be a



FIG. 178.—*CHIONANTHUS RETUSUS* : HARDY SHRUB : FLOWERS WHITE. (SEE P. 820.)

lying back from the path, are isolated beds for flowering plants, and independent groups of beds filled with bedding plants of the usual sorts. In the newer parts of the grounds, at the outskirts, plantations of ordinary nursery forest trees and shrubs have been made, through which narrow paths meander in all directions. The older and main drives and walks are of great width, and are planted on either side with great masses of shrubs, disposed in groups of a sort, the form of the groups being triangular, the

Golden Yew, a capital variety, backed up with *Viburnum opulus* ; *Thuja sinensis aurea*, *Acer Negundo variegata*, many kinds of *Berberis*, as *dulcis*, *steno-phylla*, *Hookeri*, *atropurpurea* ; purple *Corylus*, *Copper Beech* in several tints of foliage, *Mahonia aquifolia*. *Lilacs* in profusion, and of the best coloured varieties, grow and flower beautifully, the Persian being much used for groups. Double Thorns of several shades of colour, amongst them Paul's scarlet, standing pre-eminent for vivid colour,



grand sight when in flower; *C. aurea*, *C. purpurata*, with fifteen blooms; *Dendrobium Wardianum* and *D. infundibulum* were seen in fine examples, and *Lælia elegans* (Reich.), rare, a splendid flower with dark purple throat and pure white sepals and petals, was a fine object. Of *Phalaenopsis* there are many plants of *amabilis* and several of *P. Lawrenceana*, which is not yet at all common, and is difficult to grow; one plant had two spikes. The other Orchids conspicuous for their flower were *Oncidium Kramerii* and *O. Papilio*, and a number of choice kinds of *Cattleya Mossiae*, the latter quite at home, as indeed most of the plants are.

In one of the houses an extraordinary fernery has been constructed with great ingenuity below the level of the floor. There are cavernous and natural looking tunnels of stalactite rock, and a rocky floor over which water runs in channels; beds and bays are filled with great masses of one species of Fern; a rustic bridge spans two separate portions, from which the visitor looks down on a scene quite fairy-like in its character; and, what is of perhaps as great moment to the gardener, is that the place is so well constructed that the Ferns really do well, and do not require that constant replacing which is so troublesome in some ferneries.

Outside the kitchen garden, and masking the buildings and adjuncts, a mass of rockwork has been constructed quite recently by Mr. Pulham, in front of which is a large pool for water-fowl. The rockwork is boldly designed, and is planted with herbaceous plants, creeping Junipers, a weeping variety of the Chinese Juniper, &c. The margins of the lake are decorated with large masses of *Elymus glauca*, Pampas-grass, weeping trees, clumps of Irises, *Hemerocallis*, and *Bambusa*.

Close by are the buildings of a dairy farm built of red brick, and enclosing a considerable quadrangular area for the use of the animals. These buildings are cool, lofty, and have every convenience for dairy use, the milk-room being a building apart, partially underground, and lined with white glazed bricks.

It is almost superfluous to state that the quarters for the young gardeners were designed for their comfort and convenience, with an amount of forethought and a complete knowledge of their requirements seldom seen even now, when these things are not so much lost sight of as was formerly the case. For ten young men there are four bedrooms, a large living-room, a study or reading-room, a separate kitchen, and quarters for an elderly woman, who attends to the place.

The supervision of Waddesdon devolves on Mr. Sims, who has been there since the gardens were began, and who now fills the onerous post of land-bailiff, together with that of superintending the removal and planting of large trees and all heavy operations, whilst all decorations and cultural work in the gardens fall to Mr. Bradshaw the head gardener.

## CHELSEA.

THIS old suburb is favoured in its gardens. Cheyne Walk, though mutilated, retains something of its Dutch quaintness; the Embankment Gardens furnish a delightful substitute for the mudbanks we remember in former years. Hard by is the "physic" garden of the Society of Apothecaries, once the care of Philip Miller, of Anderson, of Fortune, and now of Thomas Moore. The old garden still fulfils its useful purpose, still includes a number of plants of singular interest, is still the scene of botanical lectures and demonstrations. But what would the solemn apothecaries of olden time have thought of their gardens being invaded by hands of girls, not on pleasure but on study bent? What would they have thought of subjecting students in petticoats to the ordeal of competitive examination in science? Yet that is what is done now by their successors, and with good result. Not far from the Physic Garden are the grounds of the Royal Hospital, partly formal as befits the style of the building to which they are attached and where ribbon borders are still preserved to roast the eyes—partly pictorial, as in the Ranelagh Gardens attached to the Hospital grounds, the home of the "Chelsea pensioners." Here, raised mounds, undulating banks, sinuous paths, well arranged clumps of shrubs and trees constitute a most satisfactory bit of landscape gardening, all but unknown, save to the dwellers in the vicinity, and not even mentioned in Dickens' *Dictionary of London*. A delicious avenue of pollarded Limes leads to the river, and in another direction is a series of allotment gardens, each tilled by a military veteran, and exhibiting, as such gardens

do, a most amusing and instructive study, as showing the extraordinary diversity of men's tastes and knowledge in matters horticultural. How pleasant it is to witness the care bestowed on these little plots, and to feel that such a resource is still open to those who have done such good service in bygone years.



## PANSIES AT THE ROYAL BOTANIC EXHIBITION.

IN a somewhat condensed report many objects of considerable beauty and interest have necessarily to be left unnoticed by the reporter. A stand of fancy Pansies exhibited by Mr. D. Laird was very bright, and in the form of the very finest varieties; their modest beauty was perhaps over-shaded by magnificent examples of flowering and foliage plants under which they were placed, or the adjoining bank of richly coloured Orchids in proximity to them. Some years ago prizes were offered for Pansies at these summer exhibitions, at a time when the fancy section was far inferior to what they have become during the last few years. In our own garden they have flowered remarkably well this year, owing doubtless to the cool weather and frequent showers of rain. The Pansy does not succeed so well in the South as it does in the northern districts, but much can be done to ensure success by trenching deeply the ground where they are to be planted, enriching it with cow-manure, and mulching amongst the plants afterwards. Where large quantities are required the best plan is to purchase a dozen plants of the best varieties and to save seed from them. Seed sown in August produces grand flowering plants for next spring. If the reproduction of named varieties is desired, take the small slender shoots that spring from the base of the stem. They are drawn out with the fingers, having some roots attached. Insert them out-of-doors, shade from bright sunshine, and they speedily form plants. The stout flowering stems are hollow, and do not make good cuttings. Frequent propagation of young plants is necessary to maintain a succession of good flowers. *J. Douglas.*

## NOMENCLATURE OF ALPINE PINKS.

ON p. 758 there is an editorial suggestion, the adoption of which would be most welcome to gardeners if it were but practicable: on this latter point, however, I feel various doubts. The suggestion is that gardeners might agree to adopt conventional names for plants; regard being paid to the limits of genera laid down by Bentham and Hooker, but not to the ever-disputed specific and still more vexed varietal distinctions of more minute botanists. Besides the flowers commonly known as "florists' s" there is many a species which includes some forms very good, and others comparatively worthless for garden decoration, between which botanists assure us that they are unable to draw any botanical distinction; and if gardeners are importunate and insist upon having a varietal name, the name given is rarely as acceptable to them as a conventional name of their own choice. For instance I shall never be persuaded to prefer and adopt such a name as *Doronicum plantagineum varietas excelsa*, instead of the more homely and convenient *D. Harpur-Crewe*. But the difficulty of a system of merely conventional names consists in the fact, that in many classes of plants varieties multiply rapidly and indefinitely in proportion to the numbers of them which are cultivated together; and even if distinctive names can be found for them all, these names themselves cease to be applicable as soon as the variety is grown from seed, as it is sure to depart from its previous characters. As illustrations of this I may mention three genera, all of which are cultivated largely by me—*Aquilegia*, *Primula*, and *Dianthus*. As for the first, the natural species divide themselves into two, short-spurred or Old World, and long-spurred or New World; and these two are tolerably distinct. When one tries to subdivide them farther the natural lines become hopelessly perplexing. But let all the so-called species be cultivated in the same garden, and I defy the wisest gardener to pre-

dict with any certainty what kind of a flower will be produced by the seed of any plant amongst them. Then, as for *Primula*: I have ceased to be startled by the seed of a brilliantly pink *Primula rosea* producing a large hemispherical truss of flowers of a dull muddy-purple colour. The first time this happened I thought I must have made a mistake, and sown the seed of some variety of *P. denticulata* instead, but now I find these nondescripts of ordinary occurrence. I intended, however, to speak more particularly to-day of alpine Pinks. One of these was figured last year in the *Gardeners' Chronicle* under the name of *Dianthus glacialis*. It is a most elegant and choice rock plant, inferior to none of its class, and the earliest of them in flower. A firm in York has long sold it as *D. glacialis*, and many cultivators of alpine accept the name. I obtained it several years ago from Mr. R. Parker, of Tooting, who had a fine stock of it named *D. neglectus*, and I have at least twice sent it to Kew for identification. They say there that it is neither *glacialis* nor *neglectus*, but an early form of *D. alpinus*, and I feel no doubt that they are right. Three or four years ago I was staying at Floore, the owner of which is not only a successful alpine gardener, but an experienced collector, and he possesses herbaria formed by himself in different districts where he has visited. He has many specimens of *D. glacialis*, collected by himself in the Alps, different from anything I had at that time seen in cultivation, but answering exactly to the figures and description given by Reichenbach. Having made up my mind, then, what *D. glacialis* was I prevailed upon Mr. Loder, of Floore, to send me a live plant from the Alps in the following summer. This he dug up on the edge of a glacier, and sent it wrapped in wax-paper in an ordinary letter—by far the best way of sending home alpine plants. A little care not only made it grow, but also ripen about a dozen seeds the same autumn; from these I raised nearly as many plants, which are now in flower on my rockeries. As ornaments they are far inferior to the misnamed variety from York. They differ entirely from it, forming dense tussocks of long reflexed leaves, in which the very few flowers are nearly hidden. These plants are not likely to be long-lived. What English conditions could satisfy a plant which ought to sleep for eight months in the year, and be frozen on most nights during the other four? In Cheshire it finds neither regular summer nor regular winter, but for most of the year an unseasonable mixture of both; so such plants are soon worn out. Seedlings from it are sure in a generation or two to depart from the character of the parent, at least such is my experience of similar plants. I might go on telling much the same story about some dozen or more forms of alpine Pink which have been raised by me from seed, or picked up in nurseries, or sent from the Alps. Some appear to be garden forms, some perhaps natural hybrids, but hardly any fit exactly to the characters of *D. alpinus* or *D. neglectus*, which several of them, different from one another, profess to be. I am informed from Kew that they "may perhaps pass as *D. neglectus* or as *D. alpinus*," but no other name is suggested. One very floriferous plant has never had a botanical name assigned to it, except *D. deltoideus*, for which the flower might possibly pass, though the leaf and habit are nearer to *D. neglectus*. It was dug up wild in the Alps by the lady of Coed-Coch. If I insisted on botanists finding a name for it, that name might be *D. neglecto-deltoidoideus*, but I prefer to continue my name of *D. Coed-Coch*, by which I have sent it to several choice gardens; it is, however, very difficult to increase, and never ripens a seed. It most resembles Reichenbach's *D. nitidus*. *D. cæsius* is another kind of Pink of which it is difficult to fix the standard type. I have always thought that its recognised home was the Cheddar Rocks; but I have been asked more than once lately whether I possess the "Oxford" *cæsius*—"very superior to the type;" and other specimens from the Jura are again very distinct. When we get into the single alpine forms of *D. petraeus*, *D. fragrans*, *D. caucasicum*, &c., and raise them from seed, the hybrid varieties become endless and different, that it is useless to call them by any name at all.

The moral I draw from all this is, that the more horticulture advances the more difficult it will become to distinguish garden varieties by consistent names, unless the plan of florists' names is adopted. Even this plan is impossible with such flowers as the Columbine, the individual forms of which cannot be



repeated from seed, and of which no botanist could declare the specific parentage. *C. Wolley Dod, Edge Hall, Malpas, June 13.*

## Orchid Notes and Gleanings.

### ORCHIDS AT THE ROYAL BOTANIC SHOW.

THE new hybrids raised and exhibited by Messrs. Veitch were of great interest. *Thunia Veitchii* is in its way a very pretty variety. It exhibited better culture than the smaller specimen sent by Mr. B. S. Williams, and by a rule in the schedule the best cultivated plant received the award. Mr. Williams' specimen was shown under the name of *T. Wrigleyana*. It did not transpire which plant had been named first, else in the order of priority the person who first flowered and named the plant should take precedence. One of the two names will have to be withdrawn. The *Laelia Canhamii* is one that will take precedence in this class. It is in its way extremely beautiful, and combines in a remarkable manner the characteristics of its parents *L. purpurata* and *Cattleya Mossiae*. Amongst established species and varieties of Orchids, the greatest amount of attention was bestowed upon the large specimen of *Odontoglossum vexillarium* exhibited from Great Gearies. It was fully a yard across, and in rude health. I may say that the plant was purchased with the others exhibited at the same time at the emporium in King Street, Covent Garden, and cost five shillings. It with the others has been several times attacked with thrips, but this pest is not allowed to establish itself; it is destroyed by dipping in tobacco-water. The plants are all grown in the *Cattleya*-house, except for a few months in summer, they are placed in the coolest house. Some of the growers seemed to consider the specimens of *C. Roezlii* and *C. Roezlii album* as being more remarkable as examples of good culture. The plants exhibited had been in flower for nearly six weeks, and were just going off, else the best specimens had a hundred flowers open upon them at one time. This species is grown in the warmest house all the year round, and, like the other species, it can only be kept in good health by keeping it quite free from thrips. The specimen of *Epidendrum vitellinum majus* was *bond fide*, not made up for the occasion. It has been grown on during a period of ten years, and the size of the spikes has never been so remarkable as this year. They were of large size, well branched, and had many flowers on them. Mr. Southgate's specimen of *Aërides Fieldingii*, with four spikes, long and well branched, was a remarkable one, being much admired. This is one of the most useful of the whole genus for exhibition, and does not require great heat to grow it well. *Cattleya Warneri*, by the same exhibitor, was a good variety of this handsome species, the flowers bright in colour, and the plant well grown. The quality of the flowers was, however, over-matched by one smaller specimen in the collection of De Barry Crawshaw, Esq., which were also bright in colour, and larger. *C. gigas*, exhibited in more than one collection, is a noble species, distinct in its large flowers and richly-coloured labellum. *Cattleya Mendelii* was exhibited in capital condition. The "made-up" specimens exhibited by Mr. James was very fine indeed, but it seems almost barbarous to turn the plants out of their pots, in which the have been established, breaking and bruising the active rootlets, and doing the plants much harm. It will be done always when the competitors strive one with another who can make the largest specimens until the limit is reached when no larger pots can be obtained. The old *Aërides Lindleyana* was shown with a very fine branched spike, in the collection of Messrs. Jackson, of Kingston. This form of *A. crispum* is not surpassed in massive beauty by any of the new species recently introduced, and it is a good exhibition plant. The rather new *Dendrobium Dearei* was in capital condition in the 3d prize collection from Mr. Little's garden; it promises to be a very useful species indeed. *Cattleya Gaskelliana alba* is a beautiful variety of the species, and seems to be akin to *C. Wagnerii*, but the flowers were not sufficiently developed to show its true character. This fine form was sent by Mr. Crawshaw, and formed part of an altogether meritorious group, which would probably have been first, except that the flowers of the *Vandas* were much bruised. *J. Douglas.*

### NOTES FROM FERNIEHURST.

Two strong plants of *Odontoglossum polyanthum* may be seen at Ferniehurst, near Shipley, the residence of E. Salt, Esq., one with eleven fully expanded flowers, the other with fifteen. These far surpass all varieties of this grand *Odontoglossum* I have seen, the flowers being very large, of fine substance, deep yellow, with heavy blotches and spots. The *O. crispum* are all in very robust health, some of the newest types carrying flowers of great substance, very round and beautifully spotted. *Oncidium macranthum* is grown here to perfection, the younger plants bear about twenty flowers, and some of the older and stronger ones from thirty-five to forty each. Nowhere have I seen so fine a lot of plants as these. Mr. Salt is also the fortunate possessor of some magnificent varieties of this glorious *Oncidium*. *A. J.*

### AERIDES ODORATUM PURPURASCENS.

There is an excellent plant of this sweet-smelling Orchid in the garden of Mr. J. T. D. Llewellyn at Penllergare, near Swansea. It occupies a large basket, about 3 feet square. It has many strong upright growths, the tallest of which measures a little over 6 feet in height. Lately it produced eighty-three massive spikes, and although these are beginning to decay it is still very effective. *J. Muir, Margam.*

## The Flower Garden.

### THE HARDY FERNERY.

THE plants here should be carefully looked to, and the surface and pockets should be kept free from weeds and well supplied with weak manure-water, which greatly assists the various Ferns when the weather becomes hot and parching.

### MISCELLANEOUS.

*Chrysanthemums* should also be kept well supplied with weak manure-water, and the shoots thinned out to four or five, and be carefully staked and tied; they will make a pretty display in the borders and beds during the autumn months.

Climbers on the walls and elsewhere should now have every attention, and be persistently trained, and thinned out.

Many of the early flowering kinds of *Clematis* should now be in full bloom; they look exceedingly well this season with us.

### ROSES.

These are looking well this season, better, in fact, than I have seen them for many years past; they are likewise very free from blight and mildew; still the careful examination of the leaf for the roller grub and for fly must not be discontinued, and mulching and watering with liquid manure must be attended to.

### ANNUALS AND PERENNIALS

may still be planted to fill up all blank spaces left by early flowering bulbs in the herbaceous and spring borders. An extra sowing of quicker growing kinds may still be made, to be ready when required for filling up any vacant places. *Wm. Smythe, The Gardens, Basing Park, Alton.*

## Plants and their Culture.

### CLIMBING FERNS.

THIS is a most useful section for decorative work, particularly for using in dinner-table arrangements, by entwining the fronds around the stems of epergoes, &c.; the fertile portion of the fronds is the most effective for using in this way. These plants can be stood at the base of pillars or columns, and trained up them to their full length. But by far the best mode of growing *Lygodium scandens*, which is about the best of this section, is that practised by Mr. Allen, at Normanhurst (Sir Thos. Brassey's), near Hastings. The back walls of the vineries are there wired perpendicularly, and strong plants of this *Lygodium* are placed at the base, one good frond in most instances being allowed a wire to itself. In this manner a beautiful effect is made, each frond developing itself to its fullest extent and being likewise of easy access when needed to be cut from the plant. Grown in this way with plenty of room for development, portions of each frond can be taken as may be required, the fertile parts, as previously noted, being

very striking and distinct, also of good lasting properties.

### BASKET FERNS.

At this season of the year well established clumps of these Ferns will need vigilance in regard to the supply of water. *Adiantums* will soon tell their own tale if neglected, by the perfume emitted from the withering fronds. *Davallias* and *Nephrolepis*, though not so quickly injured by under-watering, will eventually show the effects of neglect by the fronds assuming a yellow hue, the sign of premature decay. *James Hudson, Gunnersbury House, Acton.*

## FRUITS UNDER GLASS.

### PEACHES AND NECTARINES.

SUCCESS or non-success in the cultivation of these subjects in glasshouses depends very much on the nature of the treatment the trees receive after the crop of fruit is gathered. To open a house and expose trees which have been subject to careful treatment is surely not the best way to secure those results which are indispensable to ensure success the following year, for this reason avoid doing this, and continue for some time onwards the course of treatment which has been pursued. Still continue to ventilate the house according to outside circumstances, airing it abundantly during arid and sunny weather. Syringe the trees once or twice daily, and if insect pests abound eradicate them at once by means of fumigation or tobacco-water. Keep all gross shoots in check by stopping them repeatedly; if growth continues, and if the shoots are too thickly crowded together a part of them should be removed so that the rest remaining can have the full benefit of light, sunshine, and air. The watering likewise must not be omitted; give it plentifully when necessary, and in the case of trees weakened through heavy cropping, manure water should be used as a medium to reinvigorate them. If these conditions are enforced until about the end of July, the growths will by this time have developed properly, and the maturation will follow accordingly in due course. At about this time also the trees may be fully exposed to the elements, for this purpose remove the lights off them altogether if it can be done.

In houses where the fruit is colouring, use the syringe sparingly, and use water free from all impurities—rain-water is the best for the purpose if it can be had. Pinch all exuberant growths in as they advance, and stop lateral shoots above the first leaf. The weight of large fruits naturally incline them to fall beneath the trellis, these should be raised and be supported in order to colour them perfectly. I use for this purpose thin pliable laths, which are placed beneath the fruit and above the trellis. The time of gathering Peaches and Nectarines is a matter that depends on the purpose for which they are required; for market purpose as a rule they are pulled off the trees before they are fully ripe, while, for home consumption they are allowed to hang considerably longer, in fact until they are quite ripe; and this practice unquestionably is to be recommended when quality of the highest degree is required. No process of ripening is equal to the natural one. *G. T. Miles, Wycombe Abbey.*

## The Kitchen Garden.

### GENERAL WORK

will mainly comprise the earthing-up advancing crops and sticking Peas, Beans, &c. The advancing crops in the seed beds above all things must be well supplied with water. Celery in trenches and successional main crops in nursery beds must also be well attended to in this respect. Pick and train out the shoots of Marrow, Cucumber and Tomatos, as required. Give the main crop of Onions, Parsnips, and Carrots a thorough good hoeing and surface stirring before the tops of the plants close over the intervening spaces between the rows. Thin out the main crop of Beet-root to 6 inches apart, this being the distance to produce the best salad roots. *Scorzonera* and *Salsify* should stand 9 inches from plant to plant.

### SEED SOWING.

The last week in June make the first sowing of Coleworts. An autumn supply of Cabbage being required, make a sowing at the same time. As mentioned in a previous Calendar, make the main sowing of Savoy the last week of the month, and a later one the middle of July, also the latter part of the month or beginning of July make the latest outdoor sowing of Peas—choosing any round variety, such as, *William the First*. *G. H. Richards, Somerley Gardens, Ringwood, Hants.*



## APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, June 30	Bagshot and Windlesham Show (two days). Maidstone Rose Show. Special Sale of Orchids, Flowers, &c., at Protheroe & Morris' Rooms. Farnham Show.
WEDNESDAY, July 1	Farnham Rose Show. Cardiff Rose Show. Croydon Rose Show. Bath Rose Show. Reigate Rose Show.
THURSDAY, July 2	Helstone, Norwich, and Tunbridge Wells Shows. Sale of Imported Orchids, at Stevens' Rooms.
FRIDAY, July 3	Sale of Imported Orchids, at Protheroe & Morris' Rooms.
SATURDAY, July 4	Crystal Palace Rose Show. Eltham Rose Show.

THE fire which recently destroyed a large portion of the roof of the India Museum and caused the destruction of a considerable proportion of its contents, happily spared the loft in which the Royal Horticultural Society's offices are at present located. We say happily, because its destruction would in all probability have entailed the loss of the LINDLEY LIBRARY also; otherwise the annihilation of the wretchedly inadequate premises which have served for so many years as the offices of the Society would not in itself be a matter of regret, but rather the reverse. The imminent danger to which the library was then exposed—we are sorry to add, is hourly exposed—will stimulate the efforts which, we believe, are being made by the Council of the Society to procure adequate accommodation in the way of offices, meeting-rooms, and library. A comparatively small number of the Fellows have any idea where the library is, much less of its value. It will be news to many that the only access to this library—by far the best horticultural library in London, containing much that no money could replace—is by means of a narrow and most inconvenient passage beneath the roof of the building—a passage one would have supposed left during the construction of the building for the convenience of workmen only, but never intended, surely, as the entrance to the Council chamber and library. Nevertheless, for many years there has been no other room available as a meeting place for the Council, no other apartment in which the library could be stored. It is needless to say that, excepting to members of the Council and of the Scientific Committee—whose meetings also take place in this room—the library is practically inaccessible. The Trustees of the Library have been hoping year after year for better times, expending a portion of their small means in cataloguing and arranging their property, in the purchase of books and periodicals, in binding, and so forth, and they have looked forward to a time when a suitable room and a competent librarian would be forthcoming. Always apprehensive of fire, from the frail nature of the building and the highly combustible character of the premises by which it is surrounded, the fate of the library has been a matter of anxiety to those concerned in its preservation. Recent events have but intensified this apprehension, and lead us to wonder how much longer the Fellows of the Society will consent to have what is virtually their property exposed to such risk—how much longer they will tolerate such a state of things as that exemplified by the fact that the Society does not so much as furnish its Fellows with a room to sit down in.

By the courtesy, we believe, of the Albert Hall authorities, the recent Orchid Conference was held in one of the rooms of that building, and though far from affording satisfactory accommodation, it at least answered the purpose, and induced the hope that a meeting-room might be found there as well as accommodation for the library.

As we have said, we have reason to believe that the Council of the Society is engaged in negotiation on the subject, and we earnestly hope that the recent danger to which the Society's property has been exposed will

quicken the progress of affairs, which have only been tolerated because they were known to be temporary and provisional; but so slow has been any progress visible to outsiders, that the temporary character might well be called "secular," the term "provisional" he supplanted by that of "permanent."

PROFESSOR HORWITZ, Superintendent of Forest Conservatory in Copenhagen, and for twelve years Superintendent of Forests in Australia, gave evidence on the subject of TREE PLANTING IN IRELAND lately before the Select Committee of the House of Commons on Irish Industries. Ireland, he said, was so situated that it would grow almost all necessary timbers; and as the supply of Pines in the United States would be worked out in twenty years, every country would soon have to look to itself for its own supplies of timber. Even Sweden and Norway imported timber, though of course they exported much more. In Ireland trees should be planted on the northern coast from Giant's Causeway, and along the western and southern coasts, and on the eastern wherever required for protection. Slip planting would cost £4 or £5 per acre; hole planting £6 to £7 per acre. In from thirty-four to forty-eight years the produce would be worth from £33 to £78 per acre, or from £1 to £2 per acre per annum. By the abundant remains of Oak in Ireland, Nature had given a hint that Oak should be raised in that country. One or two per cent. of the land, or from 20,000 to 40,000 acres of land, would be suitable for Oak. Ireland now, in regard to forests, was a land of nakedness. There was a great deal of land by the rivers suitable for Osiers. These would be ready for market in three years. Basket-making was easily learnt, and might become a considerable industry—in France whole towns had sprung up on it. Basket-makers in Ireland did not know there were Osiers in the country, although there were some. Tree planting in Ireland would have to be carried out by a department of the State. One acre in every four or five in a country should be forest, so that out of 20,000,000 acres in Ireland 5,000,000 should be planted. In France, in a district of the Garonne, the population had increased by immigration in one generation from 25,000 to 5,000,000, in consequence of the planting of Pines on large sandy regions, and the industries that had arisen in firewood, charcoal, tar, resin, bark, &c. The population was rich. Scotch Firs or Larches could be planted on mountain sides at from £3 to £8 per acre, and would be marketable for pit props and telegraph poles in twenty years. Asked as to trespass, witness said he would take advantage of natural boundaries such as rocks and water-courses for fencing. The planting of 5,000,000 acres in Ireland would cost about £20,000,000, but he believed it would pay. Parts of the bog could be planted with trees without removing the bog. A Forest Department should be established for Ireland as soon as possible.

— THE FRUIT AND POTATO CROPS OF THE YEAR.—We shall shortly present our readers with the usual annual report on the condition and prospects of the various fruit crops in all parts of the British Isles, the circulars issued for the purpose having already been distributed. That on the Potato crop will be issued at a later period of the year.

— "THE ENGLISH FLOWER GARDEN."—An index of this work has now been prepared. The arrangement of the book is, for the greater part, alphabetical, but it was found that a thorough index would be useful in showing, at a glance, the kinds mentioned, and their number, in giving a ready reference to all parts of the book, and indicating the illustrations by the use of italics. Between 8000 and 9000 names are enumerated in this index, which will

be bound up with all future copies of the book, the value of which is much enhanced by the addition.

— THE ASSISTANT-SECRETARYSHIP OF THE ROYAL HORTICULTURAL SOCIETY.—This revived office has been conferred on Mr. NEWPORT.

— THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The Forty-second Anniversary Festival of this Institution will be held on Friday, July 3, at 6 o'clock precisely, at the "Albion" Hotel, Aldersgate Street. The chair will be taken by E. TIDSWELL, Esq., of West Hatch, Chigwell.

— MR. DOUGLAS' ODONTOGLOSSUM VEXILLARIUM.—The plant shown at the last Royal Botanic Show with 200 expanded blooms was purchased, as we are informed by Mr. DOUGLAS, in the year 1878, it being at that time in a small sixty, so that its progress, under his care, has been very rapid.

— ORANGES AT NEW ORLEANS.—On p. 606 of May 9 an impression is given that California was awarded the first position with the Citrus family. The following statement by the Assistant-Superintendent of Horticulture will show that Florida was really first:—

"Florida gets two Gold Medals and eleven Silver Medals on tropical fruit. Florida also gets the sweepstake premium of Gold Medal and 250 dols.

(Signed) "E. F. NELSON, Assist.-Superintendent."

A letter from Mr. SANDFORD, a large fruit grower in the neighbourhood of Florida, states that Florida was a long way ahead with Oranges, and also that the score of judging was as follows:—Florida, 5400 points; California, 3321 points. The mistake was due to one of the San Francisco papers publishing an editorial to the effect that California had won the Orange premium, the mis-statement being quickly copied into other papers and forwarded to us among others.

— FUCHSIA TRIALS AT CHISWICK.—At a meeting of the Floral Committee of the Royal Horticultural Society, held at Chiswick, June 18—present, SHIRLEY HIBBERD, Esq., in the chair, Messrs. FRASER, HUDSON, POLLETT, DOMINY, and BARRON, Secretary—the committee examined the collection of Fuchsias being grown on trial, when the following were selected as the best in their various classes:—*Single Dark*: Spitfire, Crimson Globe, Charmiog, President, Minerva, Dr. Sankey. *Double Dark*: Avalanche. *Striped Dark*: Lord Wolseley. *Light Single*: Lady Heytesbury, Prince Alfred, Miss Bright, Ellen Lye, Erica, var. Novelty (very distinct), Alba coccinea. *Double White Corolla*: Artaban, Berliner Kind. *Single White Corolla*: Flocon de Neige.

— VANILLA.—Some pods of this are ripening in the Botanic Garden, Chelsea, having been artificially fertilised.

— PENTSTEMON DIGITALIS.—This is a very beautiful species, sometimes grown as P. Wrightii, with sessile lanceolate leaves and upright, loose panicles of tubular white flowers. It is flowering well, in one of the houses, at the Garden of the Society of Apothecaries, at Chelsea. Outdoors Ferula tingitana forms a stately pyramid of elegantly cut recurved foliage surrounding a candelabrum-like inflorescence of umbels of yellow flowers.

— INULA GLANDULOSA.—This is a very bold and showy herbaceous perennial, scarcely so much grown as it deserves to be. It is a Sunflower-like plant, producing at the end of the main shoots large solitary flowers having an orange disc as a centre, and rich golden-yellow thread-like florets. It is a plant that does well in an ordinary border. A good specimen of it can be seen blooming finely in the Portland Nursery of Messrs. SUTTON & SONS, at Reading.

— A GOOD SEED TIME.—It is some years since, in all probability, that annuals and biennials sown in the open air came so well. Stocks, Asters, Acroclimium, Phlox Drummondii, Petunias, and many other things of like character sown in the open ground in good early light soils have come away numerous and strong, and there is every prospect of a good summer plant, provided the rows and patches be carefully thinned. This is an excellent



requiring to be done with some care, and, if possible, during moist weather. If done during dry weather the soil about those which are left will certainly become loosened, and, when the operation is completed, the soil should be pressed firmly about them, some fresh compost added, and a watering given. A little care at this stage will be found of great service to the future crop.

— *ÆCHMEA BARLEEI*.—Amongst the many things that claim the attention of the gardener hundreds are apt to be neglected, and probably, considering the number of really showy species in it, no order of the same extent and attractive variety is so neglected as the Bromeliads. The *Æchmea* under

for the benefit of farmers and gardeners in the south-western districts of England, served by the London and South-Western and London, Brighton, and South Coast Railway Companies. But if it prove successful it is capable of application to other districts. . . The object aimed at is to bring the producer in the country into more direct communication with the consumer in the metropolis by means of an agency controlled and managed by a combination of producers and consumers, with a view to the advantage and the profit of both." The Association will be formed as a limited company, somewhat on the principles of the Co-operative Supply Associations. The commodities most in request, as butter, cheese, fruit, vegetables, fodder, roots, poultry, game, rabbits—and

growth of this favourite flower. There were some 250 entries, comprising exhibits from the principal growers in Scotland and the North of England. For twenty-four show and twenty-four fancy Pansies Mr. JOHN SUTHERLAND, of Lenzie, took 1st honours, for a magnificent lot. The practical gardeners' classes were well to the fore, the competition being very keen. The amateurs also deserve great credit. Some good stands and grand flowers both in fancies and show varieties were exhibited, and were features of great interest. An interesting feature of the show is the competition on the part of ladies for Violas and Pansies arranged for effect in epergnes and glasses, the principal honours here falling to Mrs. D. P. LAIRD and Miss LAIRD, of the Pink Hill Nurseries, Edinburgh.

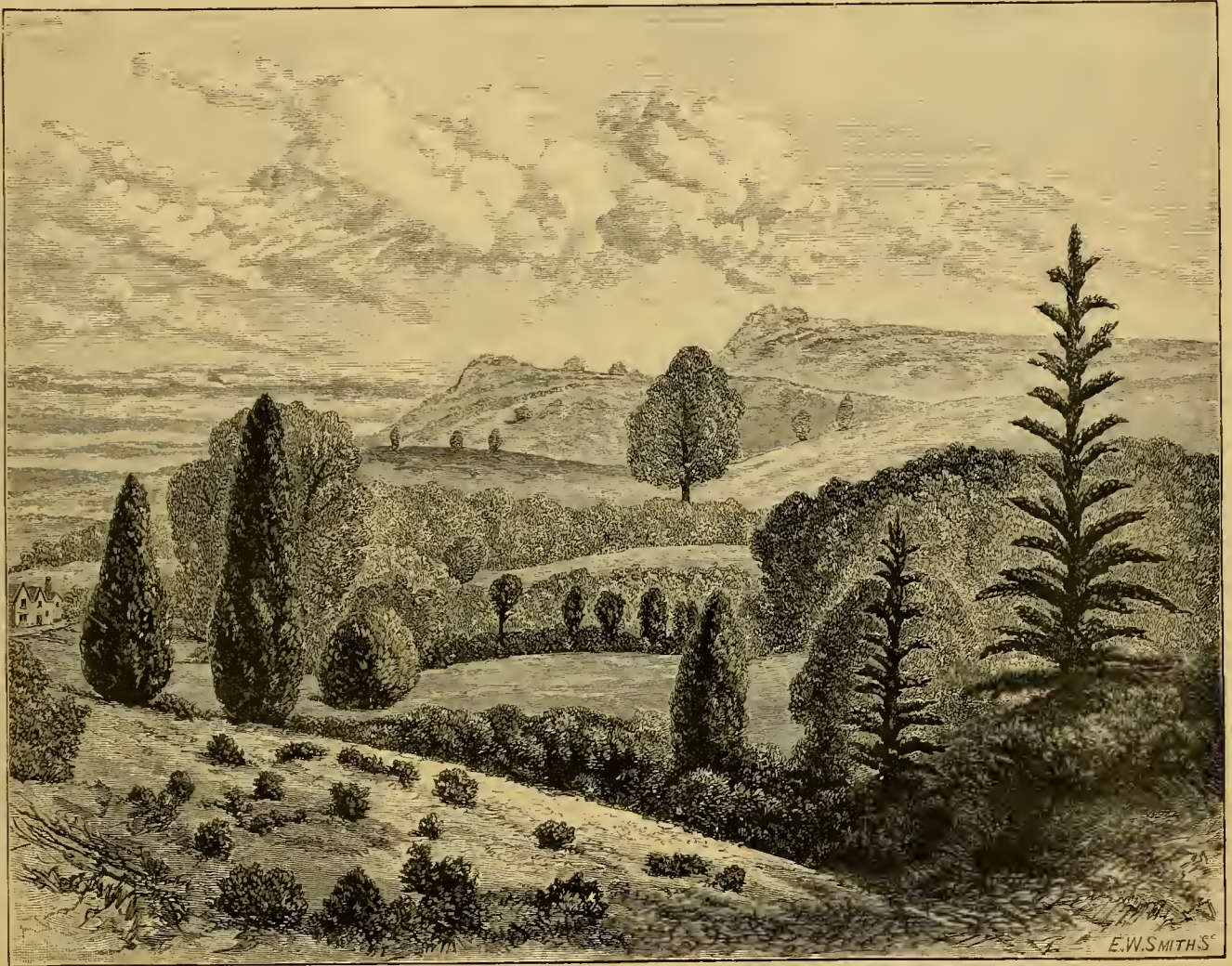


FIG. 179.—THE PINETUM AT CHITHURST. (SEE P. 826.)

notice may be grown for the robust and bold character of its foliage, and especially so in a collection where the order is fairly well represented. The individual flowers of the panicle are small and pale yellow, but the most striking character of the inflorescence lies in a few long lance-shaped bracts of a deep red, almost crimson colour at its base. These are scarious in their nature, and last for six or eight weeks in good condition. The plant is quite a recent introduction, belonging to the sub-genus *Platyæchmea*. It is flowering in the stove at Kew, and was described in the *Gardeners' Chronicle*, vol. xx., p. 102.

— THE FARMERS' AND GARDENERS' MUTUAL AID ASSOCIATION.—The above is the rather unwieldy title of a Society that is being formed for the supply of fruits and vegetables to the dwellers in London and other large towns. The circular which it has sent out states that "It is intended primarily

possibly meat, milk, hay, corn, and flowers may later be advantageously dealt with—will be those with which the Association mainly mean to deal. The difference between the prices paid by consumers and those received by the growers and raisers in the country under the present mode of supply is well known, so that if the latter can be brought into direct communication with the former much more of this will find its way into their pockets, and must make a substantial, and in the present state of agriculture an acceptable, difference to their income. The secretary *pro tem.* is A. D. CRIPP, 50, Parliament Street, S.W.

— SCOTTISH PANSY SOCIETY.—The forty-first annual show of this Society was held on June 19 in the Waverley Market, and was in every way a decided success, although the cold winds of May and the drought of June have been very unfavourable for the

Some grand seedlings, both show and fancies, were exhibited, several of which were certificated, and will be sure to find way in stands at future exhibitions.

— *POLYGONUM AFFINE BRUNONIS*.—On the new rockery at Kew a plant under the above name appears in every way a decided acquisition. In some books, both the type and the variety are recorded as distinct species, while other books seem altogether to ignore *P. affine*, or reckon the two names as synonymous. There is a figure of *P. Brunonis* in Dr. ROYLE's *Illustrations of the Flora of Cashmere*, but if the illustrations in some other books have been taken from that, the plant would appear to be *P. affine*. The latter has slender cylindrical, somewhat interrupted spikes of pink flowers, while the above-mentioned specimen of BROWN's variety has short, stout, almost ovate, spikes of intense rosy-red flowers. The foliage and habit of the two seem identical, and



although *P. affioe* is somewhat inferior to *P. vacciniifolium* as a rock plant, the variety *P. a. Brunonis* is no unworthy competitor for a place amongst choice rock plants. It was obtained for Kew through the medium of the Edinburgh Botanic Garden.

— GARDENING APPOINTMENT.—Mr. H. G. JONES has been appointed Head Gardener to Madame A. PATTI, Craig-y-nos Castle, Swansea.

## THE WILDERNESS, CHITHURST.

THE great upheaval, the denudation of which has exposed the Wealden formation, appears to have caused transverse rents in the ridges of chalk and greensand which run east and west; the consequence has been that the rivers and streams which rise in the Weald, instead of flowing down the valley, follow a north or south course through these gullies. The West Sussex Rother never really touches the Weald, and is, therefore, no exception to the rule.

It may be supposed that these steep ravines in the Hythe beds of greensand would form admirable situations for the growth of Conifers, and the subject of our illustration (fig. 197) is just such a locality. The pinetum is situated about a mile from Captain King's house at Chithurst, which is upon the northern slope of the valley of the Rother, and its chief interest, apart from the beauty of the situation, lies in the perfect shelter from south-west winds, which it receives from a hill of about 200 feet in height, so that specimens of the Douglas Fir, instead of, as in ordinary cases, losing their heads so soon as they overtop the other trees, may here obtain their full height, and will probably some eighty years hence assume the proportions of their brethren in British Columbia.

The pinetum was commenced about the year 1866 by the planting of a few Douglas Firs, which are about 50 feet in height, and it has been continued to the present day, such treasures as seedling *Abies bracteata* and *amabilis* being only recently procurable. The heights vary accordingly from *Pinus monticola*, about 40 feet high, and in some years making 3 feet of growth, to *Cunninghamia lanceolata*, which is not so many inches, and which increases in height very slowly, but which is growing steadily upwards, although upon the north side of the hill. None have produced cones excepting the Douglas Firs, which bear in profusion. *Pinus insignis* alone has proved a failure, but the only chance of securing a hardy specimen appears to be to purchase a dozen, and trust to there being a survivor; such at least has been the experience at Chithurst, where a side branch has turned into a remarkably handsome tree. *Libocedrus decurrens* enjoys the sheltered situation; but it is far surpassed by the true *Thuja gigantea*, whose name it so unfortunately usurped for a time.

The collection consists of about a hundred species, and all appear to be in vigorous growth notwithstanding their exposure to the north. *Rhododendrons* and *Azaleas*, of course, are flourishing, and but for that mischievous little beast, the rabbit, the ground might be clothed with Swiss *Rhododendrons*, but although eschewing the larger species, he plays havoc with these. Heaths are also abundant and last year did not see a single month without some in bloom, *E. ciliaris* in December overtaking *E. codonodes* in January, the latter giving place to *E. carnea* in February; these last, however, are not able to hold their own against the Bracken.

There are groups of fine Hollies upon the ground, which was formerly a common, and from out of these have sprung some good specimens of Oak, which could only by that means escape the browsing of the cattle previous to enclosure. The succession of knolls marks the northern escarpment of the Hythe beds of sand rock, while the distant line of hills to the left forms the corresponding ridge on the northern side of the curious neck of the Weald which touches the boundary of Hampshire, Sir John Hawkshaw's picturesque place of Hillycombe being situated in a corresponding gully upon that side, near the border of Surrey.

A SCALE REMEDY.—An orchardist down at Santa Anna reports that he uses the following mixture with success to kill the scale on Orange trees:—Take 20 lb. of lime and mix it thoroughly with 1 gal. of petroleum; then add 100 gals. of water. Spray the trees. One application used in the dry season will remove all scale. *California Press*.

## Foreign Correspondence.

LISBON PARKS AND GARDENS.—Spring-time in Portugal can hardly be less beautiful than the same season in the more easterly peninsula. My personal knowledge only extends to the environs of Lisbon and Cintra, but Algarve, with its 70 miles of Fig trees and its *Cistus*-covered slopes and meadows, must be delightful, and, according to all accounts, there is no river valley in Europe that equals the Minho, when its length is taken into consideration. The gardens of the Lisbon squares are particularly bright and attractive with bedding plants in the month of April. *Cinerarias* are sown in the open borders in very much the same way as we treat *Mignonette* or *Nemophilas*. And really when one is so sickened with regular lines or concentric circles of the same colour in beds, like some striped confection, it was exhilarating to see the changeful shades of colouring in the profuse flowering *Cinerarias*, not two exactly alike. These beds of *Cinerarias* have generally a *Cycas* or some other Palm or *Dracena* in their midst. *Petunias* are grown in a similar way. One of the larger *pracas*, opening out into the broad way by the side of the Tagus, had a motley but most effective garden of flowering plants. Besides *Cinerarias* and *Petunias* there were beds of resolute *Ranunculi*, *Marigolds*, *Wallflowers*, and *Roses*. In many cases the different flowers were beautifully blended together without any conspicuous or glaring arrangement. It is not a necessity to the Portuguese gardener that there should be an artificial edging. Around the *Roses*, and in their midst, were mauve *Sedums* and varied *Mesembryanthemums*. April is a famous month for *Roses* in Portugal, and the display of bloom on little-cared-for bushes makes one envious. To see a *Chromatella* throwing itself from branch to branch of a Cork tree, and producing, with no apparent effort, numberless blossoms, or climbing over the portico balconies and tapping at the windows, or garlanding the pillars, is one of the prettiest designs Flora ever thought of. Another square in the centre of the city has, instead of these gay flowers, beds of prickly *Opuntias* protecting large *Cycads*. Two other very varied gardens, that also flank public thoroughfares, both near the Botanic Gardens, redeem the Lisbon streets from the monotony inevitable from the architecture of the houses. The *Estrella Gardens* are on a larger scale. The trees in them are somewhat dust-ridden, and will be more so as the season advances. They also could be kept much better, and a great improvement would be to take away or modify the numerous puny basins and fountains. Notwithstanding there is much that is interesting, if little that is beautiful. A tall Norfolk Island Pine, with the ground under and around the branches completely carpeted with *Erigeron mucronatus* and a *Corphyra australis* rising in the same way from out the *Myosotis*, were very pretty. Large *Brugmansias*, *Wigandias*, and *Fourcroyas*, all in flower, enlivened the shrubberies greatly. Adjoining is the English cemetery, in which the *Irises* bloom multitudinously. They seem particularly fond of Fielding's tomb, whereon is written, *Luget Britannia gremio non fovere natum*. Whatever his country may do, Fielding has certainly as "snug lying" as if he were buried in his favoured city of Bath. *C. A. M. Carmichael*.

## HARDY TREES AND PLANTS.

TREES AND THE SEASON.—To not a few it may be of more than general interest to know both the present state and prospective condition of the woodlands; and it is only after having passed the period when frosts and hard east winds usually do their blasting and blighting work that anything can be recorded with common certainty. It has seldom been our privilege to record such a combined profusion of foliage and flower all over. With the exception of young Silver Firs, whether in or out of the nursery, and a slight touch to some of the new and more tender Coniferæ, there has been no injury done to the forest this season worthy of notice—at least, in all our surroundings here. The foliage, both of deciduous and evergreens, is exceedingly rich and profuse, and neither have there been abortive buds, nor the newly expanded leaf blasted or blighted. The crop of Scotch Fir cones is this season a very scarce one indeed—probably not over one-third that of last year; but the prospects for next year's crop are exceedingly good. The young shoots are every-

where bountifully crested with the beautiful little purple embryo cones. All other fruits and seeds are very abundant. The Beech-mast, or nut, has not been anything like such an abundant crop since 1869—the season succeeding the memorably dry one of 1868. The branches are already quite pendulous with their weighty treasure, and before they are fully expanded it is to be feared no small damage may occur from the limbs breaking off, especially under a soft rain or heavy dews. The ornamental and flowering trees and shrubs are vying with each other in their grand display. The Horse Chestnut is in splendid condition, and the Mountain Ash, Sweet Service, Laburnum, Hawthorn, Azalea, *Rhododendron*, Lilac, &c., are each so rich in bloom that it is scarcely possible anything can surpass it. Combined with the splendour of blossom is the no less profuse and grand display of foliage, which together make the woodland at the present day such a subject of rare attraction, and such a magnificent sight as none should lose the opportunity of witnessing, for in the brief space of human life it is not the lot of any one to repeat often to themselves such a treat. *C. Y. Michie, Cullen House, June 22.*

## HARDY PLANTS AT THE BOTANIC.

The large group tastefully arranged by Messrs. Paul, of Cheshunt, at the entrance to the large tent, of hardy herbaceous and alpine plants formed an interesting feature, and deserved high commendation. It was the best group that Messrs. Paul have yet exhibited, and showed what an infinite variety of form and colour is now available for the decoration of our gardens during the early summer months. The cut flowers sent by Mr. Ware, of Tottenham, Messrs. Paul, and Messrs. Kelway, have never been seen of such excellent quality, nor have they been so well arranged. Messrs. Hooper, of Covent Garden, had to arrange their group at the furthest end of the long corridor, and perhaps some people missed seeing it, but the cut *Irises* were wonderfully fine in their rich and almost glowing colours. Messrs. Barr had also a splendid assortment of cut flowers of herbaceous plants, which were also arranged in the corridor at the entrance, where they could be inspected by the visitors before they came to the Orchids, although Mr. Peter Barr will have it that his wonderful *Irises* are more than a match, both in interest and beauty, for the finest Orchids. *J. Douglas*.

## ADOXA MOSCHATELLINA.

THIS very early flowering, extremely hardy, beautiful, scented, and highly curious wild plant, deserves to be better known in gardens. It is a local or somewhat rare wild plant, and, as far as my experience goes, is seldom seen in much abundance anywhere. On the top of the downs to the east of Dunstable it was in full flower in the middle of last March; it grows there in a dwarf hedgerow, which is swept by all the winds of winter. On Good Friday last, and on the previous Thursday and following Saturday, the frost was most severe in the position named; all the fields and roads were frozen as hard as stone, and the water was frozen. Notwithstanding the severe frost, which greatly injured some wild plants and killed certain garden plants, the *Adoxa* remained perfectly uninjured—not a blossom suffered. This was the more curious as it is a somewhat succulent and tender-looking plant. It is easily distinguished, even at a distance, from the early foliage of other spring plants by its beautiful glaucous green colour, more or less like the colour of Rue or *Corydalis*. It is said (as its specific name indicates) to have the odour of Musk. It certainly has a peculiar and possibly agreeable scent, which, however, it must be confessed, has a dash of that "felix" about it so familiar in *Orchis mascula*. I have never been able to detect the true Musk odour. The soil in which *Adoxa* grows near Dunstable is a glacial loam full of subangular flints, mixed with the chalk rubble on which the thin glacial stratum is placed.

The plant is so well known that any full description is unnecessary. It produces subterranean runners from which new plants arise. It bears radical leaves of beautiful form, each flower-stem carries a pair of elegant little leaves half-way up, and the greenish flowers are borne in fives in curious globular heads; the terminal flower usually bears a four-cleft corolla, whilst the four lateral flowers usually have five-cleft



corollas. In watching the growth of this plant, in many hundreds of examples the terminal four-cleft flower invariably opened first, whilst the four lateral ones were still in bud.

The genus *Adoxa* contains but the one species here illustrated. It grows wild in Europe, Asia, North America, and the Arctic regions.

This genus of one species has long been a puzzle to botanists, and it has been placed in various different natural orders, according as different botanists have estimated its relationship to other plants. The reasons for placing it first amongst one set of plants and then another have been various, and *Adoxa* seems to have true allies in several directions.

I am not aware that the pollen of the supposed allies has hitherto been examined with a view to testing its relationships, if not, the outlines of pollen, drawn from Nature to an uniform scale, 160 diameters, at the base of fig. 180 may be useful:—A is the pollen of *Adoxa*. B is the pollen of the Ivy, a member of the Araliaceæ, in which natural order Professor Babington and other botanists have placed our plant. C is the pollen of *Weigela bicolor*, a member of the Caprifoliaceæ, an alliance, as far as the natural order is concerned, advocated by Sir Joseph Hooker, Mr. Bentham, and others. D is one of the Honeysuckles, *Lonicera Periclymenum*. E is a second Honeysuckle, *L. Standishii*. F the Snowberry, *Symphoricarpos parviflora*; and G the Elder, *Sambucus nigra*. C, D, E, F, G, are all members of the Caprifoliaceæ.

The resemblance between the pollen of the Elder and the *Adoxa* is striking, and it is remarkable that Payer placed *Adoxa* (probably not on account of the pollen) with the *Sambucaceæ*.

Sometimes parasitic fungi attack closely allied plants, and there is a parasite of *Saxifragas* named *Puccinia saxifragarum*, Schl., which spreads, or is said to spread, from *Saxifragas* to *Adoxa*. It is, therefore, at least interesting to note that Linneus and Jussieu placed *Adoxa* with the *Saxifragaceæ*. W. G. S.

## HOME CORRESPONDENCE.

**Gloxinias.**—One remarkable feature of plant cultivation of the present day is the rapidity with which plants can be brought on into a flowering state as compared with what was done a few years ago. When at Messrs. Sutton & Sons, Portland Nursery, at Reading, a few days ago, I was shown a number of *Gloxinias* in 32-sized pots, with four and six finely-developed leaves—and such leaves, too!—broad, and of a dark olive-green colour, hanging down over the sides of the pots, and hiding them from view. This is one of the peculiarities of the strain of *Gloxinias* grown by Messrs. Sutton & Sons; they have aimed at a pendent habit of growth, and have succeeded to a remarkable degree. From this cushion of leaves rise the flower-stems, surmounted with lovely flowers. Grown in this way, the *Gloxinia* makes an excellent table-plant, and can be utilised with the best decorative effects. The seeds which produced these plants were sown in January, pricked off the last week in February, potted in March singly into quite small pots, potted into 60's in May, and are now in course of being shifted into 32's to flower, and many of them will be in bloom by the second week in July. This is indeed rapid development, but in no case are the plants drawn or prematurely forced. Time was when it was thought necessary to grow the *Gloxinia* as a biennial; now it is successfully treated as an annual, and in an incredibly short time. Among the seedlings which bloomed last year for the first time and are now in full flower, there are some astonishingly fine varieties, the flower so large, stout, and richly coloured that it seems as if perfection was reached. Plants from seed sown in January, 1884, are now at the second time of flowering, of large size, and perfect spreading leaves, with many flowers of the finest quality. But all attempts to get rich carmine and crimson flowers on to this type of foliage have failed as yet. It will be noticed that the richly coloured varieties, such as *Boule de Feu*, have small upright-growing leaves, and unequal and irregular heads of flower. But improvement in the habit of growth of these has commenced, and will be perfected in time. Some very fine pure white varieties have this massive foliage, and it is worthy of remark that the experience at Reading is that seed from white varieties reproduce flowers of the same colour

without any mixture of coloured ones. The flowers may differ in size and texture, but they are white. There is just now a grand display of *Gloxinias* at Reading, and any lover of this flower will find they will repay a visit. R. D.

**Broccoli and Cauliflower.**—With Veitch's Model Broccoli and Early Forcing Cauliflower, there is no difficulty, to use an old saying, not only to make these vegetables "shake hands," but they may be easily had in use together, for a time, indeed we have this season finished cutting our first batch of this Cauliflower, and commenced Early London while there still remained many heads of the Broccoli to gather, the last of which were cut in good condition on the 18th of the present month. Too much cannot be said in praise of both of the above varieties. Model is well named, for it is a model indeed—perfect in form and purely white; and the Cauliflower is equally perfect. A good way of growing early Cauliflowers where the means is at command, and



FIG. 180.—*ADOXA MOSCHATELLINA*, WITH ITS UNDERGROUND RUNNERS AND POLLEN, AND WITH POLLEN OF SUPPOSED ALLIES. (SEE TEXT.)

which we adopt, is to pot the plants in 60-sized pots as soon as they are fit, and plant them in cold frames early in January about 15 inches apart into richly manured soil. When the plants make a start mulch with short manure, and soak the soil with liquid manure whenever it becomes dry. By carrying out this method we produce excellent heads early, and by growing Veitch's Early Forcing and Early London, procure a lengthened supply until successive crops in the open come into use. To plant 15 inches asunder may appear close to those who have not tried, nevertheless it is all the room that is necessary, and space in frames is precious. Thomas Coomber.

**Richardia æthiopica** (see p. 763).—The Rev. F. Tymons called here two years ago, at Auricula time, the end of April, and in the course of conversation he told me the best way to grow this plant was to plant it out in Celery trenches. I have tried the plan for two years, and now recommend it as strongly to others as Mr. Tymons did to me. We manure the trenches as for Celery, and plant out in May. I sug-

gest this plan after reading Mr. Hudson's advice to plant them out on level ground, to prevent the water running away. The roots can be kept moist in the trenches with half the labour, and the water cannot run away. J. Douglas.

**A Novelty in Window-plant Culture.**—A few days ago I had a special request to go and call upon two lady friends of mine who reside a short distance off. Their principal object was to show me a very neat and handsome tuft of Horse Chestnuts growing in a shallow dish, and placed on the top of a small vase in the window. On the first glance over them they presented by their spreading palmated foliage the appearance of some new introduction of this class of plants; the leaves were of a dark healthy green, most of them consisting of five leaflets, on stems of 7 to 8 inches high, with about the same number of plants. The specimen when viewed as a whole was quite unique, and worthy of imitation. The method of management is so simple and easily performed that it brings it within the reach of every one, and adds to it a greater interest. The plan is, first to procure a shallow galvanised dish, such as are sold in the shops at 1d. or 1½d. each, or a large saucer, into which place seven or eight of the nuts. Cover them with moss, and moisten the whole occasionally with water: when showing signs of vegetation give an increased supply. When they attain the season's growth, such as when I saw them, the dish under the moss was a mass of strong, healthy roots. The progress of early growth is similar to that of Hyacinths in glasses; and, although no flowers are produced, they are much more effective as a window plant. J. Webster, Gordon Castle.

**Fabiana imbricata.**—A plant of *Fabiana imbricata*, planted out against a south wall last summer, has lived through the winter without any protection, and is now in full flower. Mary Freeman. [The plant is bardy on the south coast. ED.]

**Rhubarb.**—"A. D." in your issue of June 13, when speaking about various kinds of Rhubarb, says, in reference to Victoria and Stott's Monarch Rhubarb, that "it is very doubtful, indeed, whether either sort would be favoured in any kitchen or cottage home for domestic consumption." I know nothing of the kind named Victoria, but after an experience of many years I can say of Stott's Monarch that it is as good as it is gigantic; the flavour is exquisite, and, in my opinion, there is nothing to compete with it. Messrs. Stuart & Mein, of Kelso, introduced this Rhubarb, and my supply came from them. Once grown it must please all by its size, and delight all with the deliciousness of its flavour. W. H. Cullingford.

**Hackwood Park Prolific Tomato.**—This is by far the best Tomato we have ever attempted to grow. Not only is it the most prolific, but the fruit is large in size and excellent in quality. The market growers find it most profitable to grow the old red Tomato, because it bears the heaviest crop, and is an old favourite in Covent Garden Market. It would be worth while to try the Hackwood Park variety. I fancy it would take in the market for its large size and good form. J. Douglas.

**Morello Cherries.**—About twenty-five years ago a severe electric storm occurred in the district in which I was then living; on the following day I noticed that a young Morello Cherry, trained against a wall in my garden, previously, as I believed, in perfect health, was dead; and in my father's garden, distant about half a mile from my own, a standard Morello Cherry also dead; both evidently having perished about the same time. I could find no better explanation for the extraordinary coincidence than that the mischief had been caused by electric agency. I noticed no other variety of tree in their neighbourhood injured in any way. Possibly the Morello Cherry is peculiarly susceptible of electric influence, and those referred to in your paper of the 6th as having been more or less injured, may have been exposed to this influence. In evidence of the unsuspected currents of electricity constantly passing and repassing through trees, &c., I may mention that a very observant friend this morning informed me that he had been much interested in watching yesterday a light twiggish shoot of an Oak regularly oscillating between two boughs while all the rest of the tree was motionless. This movement, after five minutes, gradually ceased. It is curious that two boughs in close proximity and full connection with the trunk, should vary in electric status. Edmund Tonks, Knowle.



## Reports of Societies.

### ROYAL HORTICULTURAL: June 23.

THIS meeting was distinctively a show of Pelargoniums, Roses, Pyrethrums, and Pæonies. Still the enterprising nurserymen, who are seldom absent from these gatherings, brought huge lots of miscellaneous subjects, and those chiefly from the open ground, and therefore within the scope of any plant lover to cultivate. The Pæonies vied with the Pelargoniums in bright colours, nor were the Pyrethrums and Iris of all sections far behind them in gorgeous effect. The Rose was fairly well represented if quality be regarded, but the quantity was wanting; exhibitors of this flower reserving their strength for the Rose shows proper, which begin in a few days from the present. Messrs. Sutton & Sons, of Reading, offered prizes for Melons and Lettuces and were the means of affording additional items of attractiveness to the show.

#### Scientific Committee.

Sir J. D. Hooker in the chair.

#### DAVID DOUGLAS.

Sir Joseph Hooker showed a portrait of the famous botanical explorer, to whom our gardens are indebted for so many fine hardy plants.

#### HONEY GLANDS IN CATTLEYA.

Dr. Masters read a communication from Mr. Burbridge relating to the presence of honey glands on the sepals of *Cattleya Mendelii*—a circumstance not commonly known.

#### ATHROTAXIS SELAGINOIDES.

Dr. Masters showed, on the part of Mr. Noble, branches of this plant provided with cones.

#### TEA FROM JAMAICA.

Sir J. D. Hooker alluded to a consignment of Tea which he had received from Jamaica, the first received from that island, and the produce of seed sent from Kew to Jamaica some twenty years since. The quality was reported as very good.

#### ACTION OF FROST.

Specimens of espalier Apples from Rev. H. H. D'Ombrian were shown, in which the young growths were browned and withered. Dr. Masters stated that he had recently received numerous specimens of various trees similarly affected in different parts of the country. In the absence of other visible cause, he attributed the effect to the action of frost on the young growing shoots.

#### ÆRANTHUS LEONIS.

Mr. W. G. Smith sent a sketch of the flower of the new *Æranthus* (*Angræcum*) *leonis*, and called attention to the long and remarkable spur, 5 inches long, and which is abruptly twisted and the end upturned. "In *Angræcum sesquipedale* a moth was found with a proboscis long enough to reach the nectar at the bottom of the straight or only slightly curved spur. How could a moth get its proboscis to the base of a spur like the one of which I send a sketch? It could only be done with inconvenience to the moth, and might lead to a damage of the delicate proboscis. If I may be allowed to say so, the flower appears to me to be twisting its spur at the moth in a most defiant and irritating manner. All the spurs are curved in the same style."

It was pointed out that the twisted state of the spur might be advantageous rather than otherwise, as affording leverage to the moth.

#### CORN MILDEW.

Mr. Smith sent a drawing of the fungus of corn mildew, *Puccinia graminis*, Pers., growing in company with the fungus of smut, *Ustilago carbo*, Tulasne, within the membranes of the fruit or grain of Oats. The fungus was detected as drawn in the very young fruit, and the fungus did not gain access to the fruit from the exterior, but from the interior of the host (plant in company with the smut fungus. Mr. Smith has the original materials and a microscopic slide with the fungi *in situ*.

The meaning will be quite obvious to all botanists, and proves that corn mildew can be (and in Mr. Smith's opinion it is) hereditary in corn. By hereditary, it is meant, that the germs of the disease can be transmitted in the fruits or grains.

"The district in which I write (Dunstable) is purely agricultural. Corn is one of the chief products, and cornfields are spread over thousands of acres. The corn is now much rusted. This rust, or Uredo, the early state of Puccinia, appeared on the first leaves of this corn in spring and early summer. The amount of Uredo is perfectly inconceivable.

"As for Barberry bushes and Barberry blight,

although I have known this district well all my life, and studied its botany, I have never once seen a wild Barberry bush in the whole county. Abbot only gives two localities in the county of Beds, and Saunders only one. Mildew is always in its worst form near hedges and trees, and bad patches are always seen where the ground has been manured with mildewed straw from stables.

"One of the reasons why mildew is so bad here is found in the fact that all the best unmildewed straw is very carefully selected for the manufacture of hats and bonnets, and all the mildewed material finds its way to the fields, where it reproduces the disease.

"I do not say, and never have said, that it is impossible for the fungus of Barberry blight to infect corn with Uredo; all I say is that nothing like proof has yet been adduced of a genetic connection between *Æcidium berberidis* and *Puccinia graminis*.

"The cornfields in this district conclusively show that Barberry bushes are unnecessary for the production of Uredo and Puccinia, as such bushes are virtually unknown here."

#### POLLEN PELLETS.

From Dr. Wallace, of Colchester, came numerous pellets of yellow, friable character, found in the casing of a disused window. They were evidently masses of pollen collected by a humble bee.

#### Floral Committee.

Present: John Fraser, Esq., in the chair; and Messrs. J. Douglas, J. O'Brien, H. M. Pollett, H. Turner, J. Dornay, C. Noble, T. Baines, R. W. Wilks, H. Herbst, W. Bealby, H. Bennett, H. Cannell, M. T. Masters, H. Ballantine, W. B. Kellock, J. Child, J. Walker, A. Perry, H. Kinghorn, and J. James.

Taking the plants in the order of the schedule, Pelargoniums, show, decorative, or fancy, come first, and here Mr. F. Hill, gr. to Henry Little, Esq., Hillingdon, was placed 1st for eighteen, with neat, medium-sized plants, some nice things in fancies being Turner's Seedling, Ellen Beck, Miss E. Little, and Madame Thibaut, Zulu Belle and Sultana were good dark varieties. Mr. C. Turner, Slough, was awarded 2d prize for a neat collection. As these plants were shown in 6-inch pots they must be considered good examples of small pot culture, if poor exhibition objects. For zonals (open class) in the same sized pots Mr. Hill was awarded the 3d prize, no other awards being made.

Zonal Pelargoniums (amateurs).—The 3d prize was awarded to Mr. C. J. Waite, gr. to Colonel Talbot, Glenhurst, Esher.

In the class for Gloxinias in pots (amateurs), Mr. E. Chadwick, gr. to E. M. Nelson, Esq., Hanger Hill House, Ealing, obtained 1st prize, for a mixed lot of nine, consisting of erect and semi-erect varieties; a 2d prize was awarded to the same gardener for twelve exotic Ferns in 8-inch pots, mostly varieties of *Adiantum*, *Lomaria gibba*, *Davallia*, &c.—neat and well furnished; and for eight small Palms in 8-inch pots Mr. Chadwick was awarded a 1st prize.

The pot Roses, in groups of thirty, and grown in pots not exceeding 8 inches in diameter, were the prettiest feature of the show, and exhibited a system of growing these plants that ought to recommend itself to the amateur and gardener alike. The specimens had from three to six blooms open, and as many unopened buds to keep up the succession. Messrs. Paul & Son, Old Nurseries, Cheshunt, were 1st; and Mr. Rumsey, Joyning's Nursery, Waltham Cross, 2d.

#### CUT FLOWERS.

PELARGONIUMS.—In the class for twelve bunches of large-flowered or show Pelargoniums Mr. C. Turner was well to the front, his stand of blooms not only showing very fine quality, but also efficiently displayed. Mr. Cannell, Swanley, was 2d in the class; and Mr. H. Little, Hillingdon, 3d. The most striking flowers shown were *Volouté Nationale* alba, *Venus de Milo*, *Nellie Hayes*, *Comtesse de Choiseul*, *Mandarin*, *The Czar*, *Magnate*, *Purpurea*, *Madame Thibaut*, *E. Perkins*, and *Captain Bernard*.

In the zonal class Messrs. H. Cannell & Sons were in fine form, their big bunches of blooms being set up with great effect, and included C. A. Swinstead, *Keotish Fire*, W. E. Gumbleton, *Lord Chesterfield*, *Ajax*, *Jealousy Improved*, *Nerissa*, *Queen of the Belgians* (pure white), *Constance*, &c. The other collections were less effectively disposed. Messrs. Cannell also staged grand lots of such beautiful doubles as *Madame Thibaut*, pink; *La Cygne*, white; *Belle Nancienne*, rosy-salmon, very novel; and *Madame Thuenin*, rosy-pink, *Madame Cochin*, delicate lilac; *Louis Thibaut*, vivid red; *Congo*, rosy-lake, of double Ivy-leaf forms—all very effective.

PINKS.—These made a poor show, Mr. C. Turner having the only respectably put up dozen bunches, three blooms each, and even these, being all of the laced forms, lacked variety. The best appeared to be *Morare*, *Eurydice*, *Gaiety*, and *Victory*. Mr. Hooper, of Bath, who was 2d, had not less than four bunches of Mrs. Jenkins, white self; also the red *Lord Lyons*, and *Derby Day*; but the blooms were roughly shown. Mr. J. Douglas, Great Gearies, Ilford, had the only six kinds, rather small blooms. Judging by the results, it would seem as if Pinks were not widely grown, and yet self forms are found in every good garden.

PYRETHRUMS.—Messrs. Kelway & Sons, of Langport,

had the finest lot of twenty-four kinds, in bunches of fine blooms, making, for rather dull-coloured and formal flowers, a fine show. Messrs. Paul & Sons also had a fine collection, though their blooms lacked the size seen in the Messrs. Kelway's stands. Very fine in form, and striking in colour, were *Godiva*, *Mont Blanc*, *White Aster*, and *Sam Vanbrugh*, whites; *Ajax* and *J. N. Tiverty*, rich deep reds; *Uzzie*, creamy-pink; *Aphrodite*, quilled; *Gloire de Stella*, *Flora*, and *Progress*. Mr. F. Hooper, Widcombe, Bath, took the 3d prize.

ROSES were much admired, the fine fresh flowers indicating that the coming Rose season will be, barring accidents, one of exceptional high quality. Seven lots of twenty-four single blooms competed in the chief class, Messrs. Paul & Sons, Old Nurseries, Cheshunt, taking 1st place with some superb flowers. Mr. T. House, of Peterborough, was 2d, and Mr. Charles Turner, Slough, 3d. Exceptionally good flowers of Ulrich Brunner, Victor Verdier, Madame Prosper Langier, Etienne Levet, François Michelon, Abel Carrière, Sir Garnet Wolseley, La France, Lady Mary Fitzwilliam, Sultan of Zanzibar, Marguerite St. Amand, Maréchal Niel, Merveille de Lyon, Madame Gabriel Luizet, Catherine Mermet, Beauty of Waltham, and Duke of Edinburgh were in these stands, and many other popular flowers were hardly less finely represented. The class for twelve single blooms of Tea Roses brought out many very beautiful flowers, Mr. G. Prince, of Oxford, coming 1st with a fine stand, Mr. House taking 2d place again. Such fine kinds as Adam, Catherine Mermet, Madame Lambert, Comtesse de Nadaillac, Mons. Furtado, Maréchal Niel, Jean Ducher, Marie Van Houtte, Niphotos, Belle de Bordeaux, delicate pale mauve, very striking; Madame de Watteville, new, white, heavily edged with rose; and Sunset, also new, rich creamy-yellow. Many of the flowers displayed singularly refined colouring. Mr. Prince showed a box of twenty-four blooms of Comtesse de Nadaillac, a lovely rose-tinted variety; Mr. House had a pale pink globular Rose, Mrs. House, rather needing substance; and in quantity, Mr. Allan Richardson, Noisette, a very rich orange-buff coloured flower, nice in bud stage, small and specially adapted for buttonholes, and a free bloomer; and the singularly pure white Miss Blanche Moreau, which should be in great request for market purposes. Only two lots of twelve trebles were entered in the amateurs' class, but these were of moderate quality and call for no comment.

#### THE MISCELLANEOUS EXHIBITS.

Mr. T. S. Ware, Hale Farm, Tottenham, staged an immense quantity of hardy perennial and bulbous flowers, rich in Delphiniums, Plox, Gladiolus, Iris, Campanulas, Lilium, Pyrethrum, Gaillardias, Ixias, Sparaxis, very fine Cypripedium spectabile, and *Orchis foliosa*. A Silver-gilt Medal was fittingly awarded.

From Messrs. Kelway & Sons came a very numerous assortment of Chinese (herbaceous) Pæonies of a large size generally and of striking colours, there being several new varieties, viz., Beatrice, white and pink, elegant and full; and Lady Carrington, white suffused with rose. Some cut blooms of choice *Amaryllis*, of middling size, but clear, bright, and distinct tints were amongst their exhibits: *Sileas*, a scarlet Jappa, deep crimson; *St. Gatie* (Certificated, 1884); and *Hogarth*, a smooth scarlet with a white band on each segment, may be noticed as being the more pleasing forms. A variety of herbaceous plants were likewise shown. A Silver-gilt Flora Medal was awarded for this fine group.

A Silver-gilt Banksian Medal was awarded to Messrs. Barr & Son, who showed a grand group that was flanked at either end by a group of Tree Carnations. There were the pretty *Mumstead Poppy* (*Papaver nudicaule* var.); a great many varieties of Iris, especially good being *I. squaleus* varieties, and varieties of *I. Anglica*, *I. variegata*, *I. pallida*, *I. virginiana*. Pyrethrums were numerous and of fair size. The pretty *Allium triquetrum*, good pieces of *Tropæolum polyphyllum*, and a number of Pæonies of the Chinese section. This last exhibit included more named varieties than we recollect having seen at any other exhibition.

A Silver Banksian Medal was awarded to Mr. J. Wiggins, gr. to W. Clay, Esq., Kingston, for a collection of seedling show and fancy Pelargoniums.

A Bronze Banksian Medal was awarded to the New Plant and Bulb Company, Colchester, for a collection of Japan Maples, most of them being far too small to judge of their merits. Some pretty foliage was observed in *Acer trilobum roseum*, *A. pictum marmoratum*, and *A. septemlobum rubro marginatum*. It is to be anticipated that planters will not take to the plants kindly while such fearful Latin names are retained, and the sorts should be shown as trees with 6 feet stems, at least worked at that height.

A Bronze Banksian Medal was awarded to Mr. House, Peterborough, for Roses.

Messrs. H. Cannell & Co. received a Bronze Banksian Medal for Pelargoniums shown as cut blooms, *Verbenas*, and Pæonies.

Messrs. Paul & Son, The "Old" Nurseries, Cheshunt, showed a large group of herbaceous Pæonies, fine in bloom being *Fretria maxima*, *Le Fraeschur*, *Belle Chatelaine*, both these being similarly creamy-white, with centre petals of crimson, and guard petals of purplish-rose. *Grandiflora nivea plena*, a very large double white, is a fine bloom, white, occasionally splashed with crimson. English annual Poppies in varieties, single, double, and semi-double, in several shades, were worthy of notice; these had been sown in September, 1884. Many kinds of rock and border flowers came from the Cheshunt nursery, wherewith a charming display was made. A Bronze Banksian Medal was awarded for the collection.

*Cattleya Mendelii rosea superba*, a nice variety with a well coloured lip, was sent by Mr. Hill, Hillingdon.



Mr. Chadwick showed *Stanhopea tigrina* bearing two blooms. Mr. Wiggins exhibited *Cattleya Mendellii* superba, a pale-coloured form, having a much-frilled pale purple lip. The New Plant and Bulb Company showed *Cattleya delicatissima*, with white lip and throat, with sepals and petals of faint rose. *Euonymus japonicus* Silver Gem, a white and green striking variegated shrub was amongst the items from Messrs. J. Veitch & Sons, Chelsea. Messrs. F. Sander & Co. showed a capitally-grown group of *Odontoglossum*.

#### CERTIFICATED PLANTS.

Mr. H. Bennett's Rose Princess Beatrice is a flower of a creamy colour, having the centre petals of a slightly deeper tint. It is close, of medium size, fibret-shaped, and faintly perfumed. Messrs. Kelway & Sons' *Pæony Leonora* Bramwell is a deep rose-coloured flower—fine and full. *Candytuft Empress*, exhibited by Mr. R. Dean, is a massive spike of bloom of great length, the colour dead white—a useful variety. *Cymbidium Parishii*, from Sir Trevor Lawrence, has sepals and petals of pure white, the throat being yellow, with spots of crimson. *Anguloa Ruckeri*, a beautifully flowered specimen of this old well-known Orchid from the same treasure-house of good things. It carried twelve blooms. From Messrs. Veitch & Sons, Chelsea, there were *Olearia macrodonta*, a Holly-like dwarf shrub with Aster-like white blooms disposed in corymbs; *Styrax japonica*, an elegant shrub with numerous pendulous white blooms of an inch in diameter—a beautiful thing; *Thunia Veitchii*, a plant as shown of one pseudobulb surmounted with three white blooms striped faintly with purple on the lip; and *Masdevallia Gairiana*, a flower of  $\frac{1}{2}$  inch in width by  $\frac{1}{2}$  inches in perpendicular length—the colour orange, with two suffused bands of a crimson tint traversing it. Messrs. F. Sander & Co.'s *Odontoglossum Johnsonianum* and *O. mulus Germynianum* are somewhat alike in their markings, except that the first-named has a white ground colour and the latter a light yellow one, the blotching being brown in each instance; *O. Alexandræ Brymerianum* is a flower regular in its form and of good substance, the ground colour faintish rose, the edge of the various limbs being silvery-white, the spots are of a light brown and are of various dimensions, crest yellow—a distinct flower. The New Plant & Bulb Co. had the handsome *Eremurus aurantiacus*, carrying a long spike of translucent primrose-coloured flowers.

#### LIST OF CERTIFICATES.

To Mr. H. Bennett, for Rose Princess Beatrice.  
To Messrs. Kelway & Sons, for *Pæony Leonora* Bramwell.  
To Mr. R. Dean, for *Candytuft Empress*.  
To Sir Trevor Lawrence, for *Cymbidium Parishii*.  
To Sir Trevor Lawrence, for *Anguloa Ruckeri*.  
To Messrs. J. Veitch & Sons, for *Olearia macrodonta*.  
To Messrs. J. Veitch & Sons, for *Styrax japonicus*.  
To Messrs. J. Veitch & Sons, for *Thunia Veitchii*.  
To Messrs. J. Veitch & Sons, for *Masdevallia Gairiana*.  
To Mr. W. Clay, for *Pelargonium Thisby*.  
To Messrs. F. Sander & Co., for *Odontoglossum Johnsonianum*.  
To Messrs. F. Sander & Co., for *O. galiceæ*.  
To Messrs. F. Sander & Co., for *O. mulus Germynianum*.  
To Messrs. F. Sander & Co., for *O. Brymerianum*.  
To The New Plant and Bulb Company, for *Eremurus aurantiacus*.  
To Mr. G. Paul, for Strawberry Pauline.

#### Fruit Committee.

Present: Harry Veitch, Esq., in the chair; and Messrs. J. Lee, T. F. Rivers, T. S. Lyon, J. Ellam, G. Goldsmith, J. Burnett, H. Weir, G. Paul, H. Webb, Robt. Hogg, J. B. Heywood, R. D. Blackmore, G. Bunyard, F. D. Godman.

Mr. G. Paul showed the earliest of all Strawberries in Pauline; the fruit is conical, bluntly ribbed, and of a deep red colour. It will be valuable for its earliness.

Several Melons were shown for Messrs. Sutton & Sons' prizes. The sorts were to include Sutton's Invincible, Masterpiece, and Hero of Lockinge. The 1st prize was taken by Mr. J. Douglas, Great Garies; the 2d by Mr. Eldridge, Chesterford Park Gardens, Saffron Walden; and the 3d by Mr. J. Fry, gr., Haydon Hall, Eastcote.

The prizes for the best six distinct varieties of Lettuces were awarded—1st, Mr. C. J. Waite; 2d, Mr. W. Meads, gr., Beckett Park, Shrinvenham; and the 3d, Mr. G. H. Richards, Somerley Park, Ringwood.

From the Society's garden, Chiswick, there came a collection of Cauliflowers that were sown on January 19, and planted out April 17. The sorts had all turned in earlier than any other variety sown in the autumn, and, in fact, are only adapted for this winter sowing, as when sown in the autumn they generally "button." The sort had many synonyms, but are all sprung from, or are varieties of, the Early Erfurt.

#### YORK GALA: June 17, 18 and 19.

This year's gathering in the well known Boutham Field (of which a telegraphic summary appeared in our last) has added one more to the long course of successful exhibitions which York has witnessed—successful alike from a gardening point of view from the meritorious character of the various productions that were forthcoming, as from the unflinching appreciation of the public, who showed by their presence in the crowded tents that the liking for plants and flowers increases as time goes on. In each department—if we except cut

Roses, which owing to the backward season were not so numerous, or collectively so fine as they have before been, and the principal class for large stove and greenhouse plants, in which there was some falling off—the exhibition was one of the best which the Society has had.

#### STOVE AND GREENHOUSE PLANTS.

In the open class for sixteen stove and greenhouse plants, flowering and fine-leaved, Mr. Letts, gr. to the Earl of Zetland, Aske Hall, Richmond, stood well in front, staging a fine group as regards both the flowering and the fine-foliage examples. Amongst the former were large and beautifully bloomed specimens of *Ixora coccinea*, bearing some seventy heads of its bright scarlet flowers; *I. Williamsii*, similarly well done; *Anthurium Scherzerianum*, with near on a hundred flowers; *Erica Cavendishii*, *Stephanotis floribunda*, *Dracophyllum gracile*, and *Azalea Duc de Nassau*. The best foliage plants were *Croton Queen Victoria*, not less than 8 feet in diameter; *Kentia Fosteriana*, and *Cycas revoluta*. Mr. Cypher, Cheltenham, was 2d, having smaller plants, the most noteworthy of which were the now seldom seen *Ixora salicifolia*, *Clerodendron Balloourianum*, nicely flowered; and the showy *Azalea Souvenir de Prince Albert*. Mr. Berry, gr. to W. Dove, Esq., York, was 3d.

With six stove and greenhouse plants Mr. Letts was also easily 1st, having a profusely flowered half dozen, *Ixora Prince of Orange*, *I. Dixiana*, and *Pimelea mirabilis* being the best; 2d, Mr. Noble, gr. to T. Fry, Esq., Darlington, who, in a nicely flowered group, had *Erica tricolor* Wilsoni and *E. ventricosa coccinea minor*.

Three stove and greenhouse plants.—1st, Mr. Lumley, gr. to W. N. Champion, Esq., Halifax, with medium-sized but well-flowered examples, comprising *Reticularia montana*, a mass of flowers  $\frac{1}{2}$  feet in diameter; *Anthurium Scherzerianum*, and *Imantophyllum miniatum*; Mr. Berry 2d.

For three Cape Heaths the competition was very close between Mr. Letts and Mr. Cypher, the former, whose plants were a little fresher in the bloom, taking 1st; Mr. Cypher 2d. Mr. Letts was likewise 1st with a single greenhouse plant, *Darwinia tulipifera*, in good condition, the flowers numerous and well coloured; 2d, Mr. McIntyre, gr. to Mrs. Gurney Pease, Darlington.

Single Azaleas.—1st, Mr. Letts; 2d, Mr. McIntyre.

#### FINE-FOLIAGE PLANTS.

These were well shown, large, and in fine condition. For six, Mr. McIntyre had 1st honours, with, amongst others, *Cordylina indivisa*,  $\frac{1}{2}$  feet in diameter; *Cycas revoluta* and *C. circinalis*, both fine; 2d, Mr. Noble, who also had a good collection, the best of which were *Kentia Fosteriana* and *Dasyliroton acrotrichum*, one of the straight-leaved forms of this singular plant.

Three fine-foliage plants.—1st, Mr. Methven, gr. to T. Lange, Esq., Gateshead; Mr. Letts, a close 2d. *Crotons* were well done, the plants being large, dense, and finely coloured; Mr. Letts was well in front with four, having, amongst others, *C. majesticus* and *C. Warneri* clothed with large leaves of high colour; 2d, Mr. McIntyre.

#### FERNS.

Of stove and greenhouse Ferns there was a fine display, the plants being well grown, with more variety in the competing collections than now often seen, composed, as they not unfrequently are, of too many tree species. For six the 1st prize was won by Mr. Berry, who staged a well managed lot of plants; 2d, Mr. Nash, gr. to Captain Starkey, York. In the class for three, Mr. Noble was 1st, his exhibit containing one of the best examples we have seen of the beautiful drooping *Goniophlebium subauriculatum*, its pendent fronds running from 8 to 9 feet in length; Mr. McIntyre 2d, also showing a clean grown group.

Hardy Ferns are usually forthcoming at York as we seldom meet with them elsewhere; this year they were even better than ordinary—their size and condition being alike remarkable, in addition to which the competing groups were fairly representative in the number of genera they were composed of—a matter of importance, which exhibitors often appear to lose sight of. In the class for ten, Mr. W. R. Robinson, York, took 1st honours with enormous plants in the best condition in every respect, the most meritorious being *Polystichum plumosum*, *Adiantum pedatum*, *Lastrea filix-mas cristata*, *Osmunda regalis cristata*, *Struthiopteris pensylvanica*, over 6 feet high; and *Trichomanes radicans*. Mr. J. Rodwell, York, 2d, having smaller, but nicely managed examples.

Six hardy Ferns.—1st, Mr. Robinson; 2d, Mr. J. Rodwell.

#### GROUPS OF PLANTS ARRANGED FOR EFFECT.

For several years these have been one of the principal features of the show. On the present occasion they filled the greater part of a large circular tent, and being in most cases well arranged and composed of suitable materials the effect collectively was very good. In the class confined to 250 feet super, Mr. McIntyre had 1st, his group consisting of elegant Palms, Ferns, and other fine-leaved plants, combined with suitable flowering subjects—colour and form alike well balanced; Mr. R. Simpson, Selby, a close 2d; Mr. Berry, 3d.

In the competition for groups occupying 150 feet, Mr. Noble came in 1st; his exhibit also was well arranged and very effective, having, as in such arrangements there ever should be, a good background of fine-leaved plants not too light in character; 2d, Mr. McIntyre, who here also had a well matched group.

#### PELARGONIUMS.

As usual at York these were in great force—large and profusely flowered, added to which the comparatively

cool weather enabled the plants to carry their flowers so differently to that which occurs with *Pelargoniums* when it is hot and parching. With twelve show varieties Mr. Eastwood, gr. to Mrs. Tetley, Leeds, added one more to the long list of victories which he has achieved with *Pelargoniums*, taking 1st with plants alike remarkable for the dense sheet of bloom they bore, and the healthy development of their foliage. Mr. McIntosh, gr. to J. T. Hingston, Esq., who was 2d, also staged a very good lot, Messrs. Kyalence, Ormskirk, being 3d.

Six show kinds.—1st, Mr. Bridge, Liverpool, whose plants were in splendid bloom; 2d, Mr. Eastwood.

In the class for six fancies, and also for three, Mr. Eastwood was again in front with plants equally well managed to those he exhibited in the classes for large-flowered kinds.

Zonal varieties, as they ever are here, were remarkable for the amount of bloom they bore. There was likewise a comparative absence of the stiff formal training which too often is noticeable in these showy plants. With these Mr. Eastwood was very successful, taking 1st in the class for twelve with a group combining a nice selection of colours and smothered with bloom. Messrs. Pybus & Son, Ripon, who were 2d, also had a fine lot of plants.

With six zonals Mr. Eastwood was again in front, staging specimens that were even finer than those in the large class; 2d, Mr. McIntosh.

The 1st prize for six Fuchsias went to Mr. McIntosh—Mr. Clark, gr. to Miss Wharton, York, being 1st with three.

#### POT ROSES.

These were shown in large numbers, the plants collectively nicely grown and bearing well developed flowers, although there was an absence of the large specimens that the eyes of visitors to the metropolitan exhibitions are accustomed to.

In the class for nine in 8-inch pots, Messrs. Jackson & Co. took the lead, with an even fresh group; Messrs. Pybus, who were 2d, likewise put up an attractive collection.

With fifteen, confined to 8-inch pots, Messrs. Pybus led the van, having here again an effective group, bearing even full-sized flowers. 2d, Messrs. Jackson & Co., who had well matched, nicely flowered plants.

In the amateur's class for six, Mr. Veary, gr. to Miss Steward, had 1st; Mr. Sunley, gr. to B. Hemsworth, Esq., 2d, both exhibiting well managed plants.

In the amateurs' class for six in 8-inch pots Mr. Veary was also in front, staging nice examples; 2d, Mr. Eastwood.

#### ORCHIDS.

were not quite so numerous on this as on some previous occasions. With eight Mr. Mitchell, gr. to Dr. Ainsworth, Manchester, had 1st, for medium-sized, nicely flowered examples, the most noteworthy of which were *Phalaenopsis amabilis*, carrying a number of spikes full of fresh clean flowers; *Vanda suavis*, *Saccolabium guttatum*, and *Thunia Marshallii*. The 2d prize went to Mr. Cypher, who, along with others, had the lovely *Aërides crassifolium* and *Dendrobium Dalhousianum*, one of the best of the long-bulbed kinds.

Four Orchids.—1st, Mr. Mitchell, whose best plants were *Phalaenopsis grandiflora* and *Saccolabium præmorsum*; 2d, Mr. Rollinson, gr. to W. Bateman, Esq., Harrogate.

In a close competition with a single Orchid Mr. Letts had 1st for a large and finely bloomed *Aërides odoratum* purpurascens, bearing some twenty good spikes of deeply purple-tinted flowers; Mr. McDoe, gr. to Sir J. W. Pease, Hutton Hall, Guisborough, was 2d, with a good plant of *Odontoglossum vexillarium*.

#### GLOXINIAS.

were unusually well represented, both as regards numbers and condition. Nothing in their way could be finer than the plants shown by Mr. Lumley in the classes for twelve and six, in both of which he took 1st with plants remarkable alike for the size, number, and fine colouring of their flowers, backed as they were by stout, robust leaves; Mr. Lumley was a good 2d in both classes, with plants well shown in every way.

#### NEPENTHES.

For Mr. B. S. Williams' special prizes for six *Nepenthes*, Mr. A. Cole, gr. to J. Broome, Esq., Didsbury, Manchester, took 1st, with well-grown plants bearing handsome pitchers, amongst them being the hybrid of *N. Mastersiana* in beautiful order, its large highly-coloured pitchers contrasting well with the others; 2d, Mr. McIntyre.

#### CUT FLOWERS.

Many of the Roses shown were only indifferent. For forty-eight varieties (open) Mr. House, Peterborough, was easily 1st, with a handsome lot of blooms, having a good proportion of fine Tea varieties amongst them; 2d, Mr. May. Thirty-six varieties (open).—1st, Mr. House here also showing a meritorious collection; 2d, Mr. May.

Twenty-four varieties.—1st honours in this class likewise fell to Mr. House; 2d, Messrs. Jackson & Co., Bedale.

Twelve white and yellow Roses (amateurs), not less than six varieties.—1st, Mrs. Maynard Proud, Darlington; 2d, Mr. Milne, gr. to R. Bell, Esq., Thirsk.

Twelve Tea Roses (amateurs).—1st, Mr. Milne; 2d, Mrs. Maynard Proud.

Twelve hybrid perpetuals, one variety (amateurs).—1st, Mr. Veary; 2d, Mr. Sunley.

Eighteen distinct varieties (amateurs).—1st, Mr. Trees; 2d, Mr. Eastwood.

Twelve varieties (amateurs).—1st, Mr. Eastwood; 2d, Mr. Sunley.



Cut flowers shown in bunches are always a feature at York, tender exotics and hardy outdoor kinds being alike forthcoming in quantity and in faultless condition. With twelve bunches of stove and greenhouse sorts Mr. McIndoe was easily 1st, showing a grand lot, consisting of Orchids of various kinds, *Ixoras*, *Anthuriums*, *Dipladenias*, *Stephanotis*, and the singular *Callistemon rigidus*; 2d, Mr. Black, gr. to the Misses Pease, Darlington.

Six varieties.—With these also Mr. McIndoe had 1st, and Mr. Black 2d.

Twelve bunches hardy flowers.—Here again Mr. McIndoe had 1st with a fine collection; 2d, Mr. Craig, gr. to T. Hutchinson, Esq.

#### FRUIT

was present in large quantities, with less of an inferior character than is often to be seen where much is brought together at this time of the year. In the class for three bunches of black Hamburg Grapes there were some nine competitors, several of whom ran a close race.—Muscats, as might be supposed, taking the time of year into account, were deficient in colour. The collections of fruit shown in the different classes were with few exceptions in good condition. For eight dishes Mr. Miles, gr. to Lord Carington, Wycombe Abbey, took 1st, with an even collection consisting of Black Hamburg and Forster's Seedling Grapes, a good Queen Pine, Elruge Nectarines, Hale's Early Peaches, Negro Largo Figs, Hero of Locking Melon, and Black Circassian Cherries; 2d, Mr. McIndoe, whose best dishes were Black Hamburg Grapes, a Queen Pine, Bellegarde Peaches and Pitmaston Orange Nectarines; 3d, Mr. Westcott, gr. to the Duke of Cleveland, Raby. Six dishes.—1st, Mr. McIndoe, with a good collection, the best examples being Black Hamburg and Foster's Seedling Grapes, Best of All Melon, and a Queen Pine. Mr. Dawes, gr. to the Hon. Mrs. Meynell-Ingram, Temple-Newsome, was a close 2d, having, amongst others, Muscat of Alexandria and Madresfield Court Grapes, the latter very large in berry; Royal George Peaches, and Lord Napier Nectarines. 3d, Mr. Westcott. In the class for four dishes of fruit Mr. Clayton, gr. to J. Fielden, Esq., Grimston Park, took the lead, with Black Hamburg Grapes, Abec Peaches, Elruge Nectarines, and a Melon—all in excellent condition; 2d, Mr. Leadbetter, gr. to A. Wilson, Esq., Hull. Three bunches of Black Hamburg Grapes.—Mr. Allsop, gr. to Lord Hotham, Dalton Hall, Hull, was 1st, with medium-sized bunches, even in berry, quite black, and covered with thick bloom; 2d, Mr. Wallis, gr. to Sir H. Meysey-Thompson, Kirkby Hall, York, showing nicely finished bunches; 3d, Mr. H. Gill. Three bunches of Muscats.—1st, Mr. Sleightholme, gr. to T. W. Dymond, Esq., Barnsley. Three bunches any other varieties of white Grapes.—With these Mr. Allsop was easily 1st, staging Buckland Sweetwater in beautiful condition; Mr. Miles, who was 2d, had the same variety.

Six Peaches.—1st, Mr. Dawes; 2d, Mr. Black. Six Nectarines.—1st, Mr. Muller, gr. to W. H. Long, Esq., Trowbridge, with an excellent dish of Elruge; 2d, Mr. Sunley.

Scarlet-flesh Melon.—1st, Mr. Hare, gr. to R. H. C. Neville, Esq., Grantham; Mr. Clayton, 2d. Green-flesh Melon.—1st, Mr. McIndoe; 2d, Mr. Short, gr. to A. Pease, Esq., Darlington. Dish of Figs.—1st, Mr. McIndoe, with good Brown Turkey; 2d, Mr. Short.

Messrs. Harkness & Sons, Bedale, exhibited a good collection of show and fancy Pansies, for which they received a Certificate of Merit.

Mr. House had a First-class Certificate for a new hybrid perpetual Rose named Miss House. It is delicate flesh in colour, very full, and promising in appearance.

## Obituary.

MR. JAMES WELSH, of Messrs. James Dickson & Son, nurserymen, Edinborough, died somewhat unexpectedly at Erickstave, near Moffat, on the 18th inst., whither he had gone to recruit his health. The third son of the late Mr. James Welsh, of Earlshagha, the deceased came of an old agricultural family, several members of which were among the best known sheep farmers of the Western Border country. Mr. Welsh, however, after a liberal education at the Moffat Academy, chose a mercantile career, and as a partner in the well-known firm of nurserymen and seedsmen with which he has for many years been identified, found scope there for his admirable business habits and ability. He was well known to many farmers and foresters, horticulturists and landed proprietors, in every county in Scotland; and his death, in the prime of his powers, will be regretted by a wide circle of friends, who greatly appreciated his many business and social virtues.

MR. J. W. CROSS.

It is with much regret that we record the untimely death of Mr. J. W. Cross (of the firm of Cross & Steer, nurserymen, seedsmen, and florists, at Ford and at Salisbury), which took place under painful circumstances on Monday last. When driving into Salisbury, accompanied by two of his children, the deceased was suddenly taken with a fit, fell from the trap on to the road and expired. The painful occurrence has cast a gloom over the residents of Salisbury

and surrounding districts, by whom the late Mr. Cross was well known and respected, and great sympathy is felt on all sides for his widow and young family. Those of our readers to whom the deceased was personally known will read this notice of his death with sorrow, as they will recognise in it the loss of a well-trained, courteous, and unassuming gardener of high ability. The deceased was for many years gardener to Louise Lady Ashburton, at Melchet Court, Romsey, where, as is well known to readers of the *Gardener's Chronicle*, he established a good collection of Orchids, some of which found their way to Stevens' Rooms, and thence to the now famous collection at Burford Lodge. *Cypripedium Ashburtonæ* and *C. Crossianum* were, as the names imply, raised by the late Mr. Cross while in the service of Lady Ashburton for the second time as head gardener. Though plant-culture was our lamented friend's forte, he was also a good fruit grower, and good all-round gardener. When he left Melchet Court the second time it was to embark in business as a nurseryman, &c., at Ford, a couple of miles from Salisbury, where, at 8, The Canal, he carried on the seed and cut flower business, taking Mr. Steer into partnership a few years since. It will be remembered that within the last few years The Governor and Louise Ashburton Carnations were brought into commerce by the deceased, who, through straightforward business-like habits and practical industry had at the time of his death succeeded in establishing a good sound business connection.

## The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,  
FOR THE WEEK ENDING WEDNESDAY, JUNE 24, 1885.

MONTH AND DAY.	BAROMETER.		TEMPERATURE OF THE AIR.					HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition.		WIND.	RAINFALL.
	Mean Reading Reduced to 32° Fahr.	Departure from Average of 48 Years.	Highest.	Lowest.	Range.	Mean for Day.	Departure from Average of 50 Years.	Dew Point.	Degree of Humidity, Sat. = 100.		
June 18.	In.	In.	°	°	°	°	°	°		In.	
18	29.78	-0.01	74.5	43.2	31.3	58.3	-1.2	48.6	70	S.W.	0.00
19	29.63	-0.16	71.5	52.5	19.0	60.1	+0.4	58.0	93	S.W.	0.02
20	29.38	-0.41	68.0	56.0	12.0	58.6	-1.3	48.0	68	S.W.	0.17
21	29.84	+0.05	63.5	41.2	22.3	52.3	-7.8	38.0	58	N.W.	0.03
22	29.95	+0.14	73.5	47.0	26.5	56.0	-4.4	50.8	83	S.W.	0.00
23	29.80	+0.09	67.8	54.8	13.0	59.3	-1.4	55.0	85	S.W.	0.00
24	29.70	-0.12	86.0	55.0	31.0	69.5	+8.6	53.1	56	E. E.S.E.	0.00
Mean	29.74	-0.06	72.1	50.0	22.1	59.2	-1.0	50.2	73	S.W.	0.10

June 18.—Very fine.

19.—Fine, dull, rain in morning.

20.—Fine and bright at times, strong wind, rain in evening.

21.—Fine day, strong wind.

22.—Fine day, strong wind.

23.—Fine day and night.

24.—Very fine day, overcast at night.

LONDON: *Atmospheric Pressure*.—During the week ending June 20, the reading of the barometer at the level of the sea decreased from 30.15 inches at the beginning of the week to 30.05 inches by 5 P.M. on the 14th, increased to 30.11 inches by 9 A.M., and decreased to 30.04 inches by 5 P.M. on the 15th, decreased to 29.84 inches by 9 A.M. on the 17th, increased to 30 inches by 9 A.M. on the 18th, decreased to 29.53 inches by 1 P.M. on the 20th, and was 29.56 inches by the end of the week.

The mean reading of the barometer for the week was 29.91 inches, being 0.25 inch lower than last week, and 0.05 inch below the average of the week.

*Temperature*.—The highest temperature in the shade in the week was 84°, on the 14th; on the 17th the highest temperature was 64°. The mean of the seven high day temperatures was 71°.9.

The lowest temperature was 43°.2, on the 18th; on the 20th the lowest temperature was 56°. The mean of the seven low night temperatures was 50°.9.

The greatest range of temperature in one day was 33°.6, on the 14th; on the 20th the smallest was 12°. The mean of the seven daily ranges was 21°.

The mean temperatures were—on the 14th, 65°.1; on the 15th, 58°.5; on the 16th, 55°.2; on the 17th, 54°.9; on the 18th, 58°.3; on the 19th, 60°.1, and on the 20th, 58°.6; of these the 14th and 19th were above their averages by 6°.2 and 0°.4; the rest were below by 0°.5, 3°.9, 4°.4, 1°.2, and 1°.3 respectively.

The mean temperature of the week was 58°.7, being 1°.7 higher than last week, and 0°.7 below the average of the week.

The highest reading of a thermometer with blackened bulb in vacuo placed in the full rays of the sun was 152°, on the 14th. The mean of the seven readings was 122°.2.

*Rain*.—Rain fell on three days, to the amount of 0.27 inch.

ENGLAND: *Temperature*.—During the week ending June 20, the highest temperatures were 84°, at Blackheath, 82° at Cambridge, 79° at Truro; the highest at Liverpool and Newcastle was 65°, at Hull and Sunderland 68°. The general mean was 73°.7.

The lowest temperatures were 37° at Cambridge, 40° at Hull, 43°.2 at Blackheath; the lowest at Preston and Newcastle was 50°, at Liverpool 49°.7. The general mean was 45°.7.

The greatest ranges were 45°, at Cambridge, 40°.8 at Blackheath, 34° at Truro; the smallest ranges were 15°, at Newcastle, 15°.3 at Liverpool, 22° at Sunderland and Preston. The general mean was 28°.

The mean of the seven high day temperatures was highest at Blackheath, 71°.9, at Cambridge 69°.4, at Plymouth 68°.2; and was lowest at Liverpool, 61°.3, at Sunderland 61°.7, at Bolton 62°.5. The general mean was 65°.9.

The mean of the seven low night temperatures was highest at Plymouth, 53°.5, at Preston 52°.9, at Brighton 52°.7; and was lowest at Hull, 47°, at Cambridge 48°.6, at Wolverhampton 49°.6. The general mean was 51°.

The mean daily range was greatest at Blackheath, 21°, at Cambridge 20°.8, at Wolverhampton 16°.6; and was least at Liverpool, 10°, at Newcastle 11°, at Sunderland 12°. The general mean was 14°.9.

The mean temperature was highest at Plymouth, 59°.1, at Blackheath 58°.7, at Brighton 58°.2; and was lowest at Hull, 53°.2, at Sunderland 53°.9, and at Bolton 54°.3. The general mean was 56°.5.

*Rain*.—The largest falls were 1.30 inch at Bolton, 0.53 inch at Preston, 0.38 inch at Plymouth; the smallest falls were 0.08 inch at Hull, 0.10 inch at Newcastle, 0.11 inch at Nottingham. The general mean was 0.31 inch.

SCOTLAND: *Temperature*.—During the week ending June 20, the highest temperature was 71°, at Perth; at Aberdeen the highest was 64°.7. The general mean was 67°.2.

The lowest temperature in the week was 40°, at Glasgow and Leith; the lowest temperature was 48°.5. The general mean was 45°.2.

The mean temperature was highest at Perth, 55°.9; and lowest at Greenock, 54°.2. The general mean was 55°.2.

*Rain*.—The largest fall was 0.87 inch, at Greenock; the smallest fall was 0.09 inch, at Edinburgh. The general mean fall was 0.40 inch.

JAMES GLAISHER F.R.S.

PLANTING IN CENTRAL ASIA. — Here (Kitalé) was one of the plantations mentioned by General Korolkoff, which the Russians place in the mountains to keep the soil from washing down. The surplus trees raised for this purpose are given to the natives, who readily undertake their culture. The year I was in Samarkand they had distributed 1,000,000, and in the following spring expected thus to give from 2,000,000 to 3,000,000 of saplings. Of the various trees and shrubs cultivated by the Russians the General mentioned to me a variety of Poplar (*P. alba pyramidalis*, also called *P. Bolleana*), almost unknown in Europe, but common in Central Asia, where it attains, in from fifteen to twenty years, proportions fit for building, and is sold from 10s. to 16s. the tree. Elm is used for making *arbas*, as also sometimes is Almond wood, but not often that of the wild Nut. They have introduced also several kinds of Conifers, among them *Thuia orientalis*, which does not grow so large as in Europe, though it attains to 70 feet. To these may be added the white and black Mulberry (*M. alba* and *nigra*), especially the former for silk culture, and many attain only moderate perfection as cultivated by the Sarts, and Raspberries, which I understood the natives do not cultivate at all. More than 12,000 fruit trees were grafted the year of my visit, and were to be given to the natives. "*Russian Central Asia*," by Henry Lansdell, D.D.



## Enquiries.

"He that questioneth much shall learn much."—BACON.

**PATENT VENETIAN FRUIT-HOUSES.**—Will any of your readers who have had experience with the Patent Venetian Fruit-houses give me their opinion and experience with them? I noticed them advertised in your paper recently. J. H.

## Answers to Correspondents.

**BOOKS: Reader.** See Hentfrey's *Elementary Course*, 4th edition, and *Bower and Vines*, for practical instruction.

**GLOXINIA: R. H. P.** A common occurrence, resulting from an outgrowth of the natural corolla. Some nurserymen have now a strain of such flowers.

**GRAPES DISEASED: V. W.** The berries sent for our opinion were attacked by mildew and were also rusted. The first is difficult to rid the Vines of without some damage being done to the berries, but in any case it must be attempted—using the mildew remedies sold by the nurserymen. You can, in the future, prevent its ingress by keeping up warm, moist temperatures during the period previous to the crop ripening, and by a drier, buoyant one afterwards. Keep a mixture of lime and sulphur, in pans, about the vinery, at all times, and smear the same on pipes and walls. To avoid rust you must regulate the time and method of the ventilation, so that cold draughts of outside air are not admitted, certainly not when the berries are covered with moisture, this being oftentimes a fruitful source of rusting.

**HAIRWORM: W. S.** Gordius aquatics. In spite of your friend's assertion that they are derived from horse-hairs, and that he has "done it himself" by pulling hairs out of a horse's tail, you may rest assured that they have as much to do with horsehair as the moon has to do with cream-cheese. It is not likely, however, that you will be able to convince such an observer!

**INSECTS: T. H.** Your Grapes are gnawed by the green caterpillars of a small moth, Tortrix (Ditula) angustiorana. You will find a description in our last year's volume. W.—G. P. Your Gooseberries are attacked by the berry-borer, or caterpillar of the moth Geometra vauaria. Sweep up, and burn the fallen fruit as soon as possible. W.

**IXORA HYBRID: H.** Good in colour, form, and substance, but the trusses loose and small.

**JUDAS TREE: H.** Cercis siliquastrum, a native of Judæa. By some *hocus focus* Judæa has become converted in Judas.

**NAMES OF PLANTS: Southampton.** Syringa [osikea. —R. G. B. 1, Send again when in seed; 2, Avena elatior; 3, Festuca pratensis. —A. B. C. 1, Linaria cymbalaria; 2, Geranium molle; 3, Orchis maculata; 4, Lychnis vespertina; 5, Anagallis arvensis. —G. P. 1, Polygonum bistorta; 2, Melampyrum pratense; 3, Orchis maculata and the white variety. —W. S. Escallonia macrantha. —F. C. S. Maréchal Niel. —C. W. and W. T. T. Geum rivale, with the calyx leafy, and the central part of the flower prolonged by median proliferation into a long flowering shoot. —G. Paul, Leeds. Alopecurus bulbosus. —E. H. Sanicula europæa. —W. A. Euphorbia splendens, Mitraria coccinea. Your Peach leaves have the "blister," caused by the attack of a parasitic fungus. —C. E. B. Primula kasimiriana. (See *Gardener's Chronicle*, July 24, 1880, p. 107, and *Botanical Magazine*, t. 6493). —A. H. Calceanthus floridus. —W. Leighton. 1, Saxifraga sponhemica; 2, S. umbrosa; 3, S. Andrewsii; 4, S. trifurcata; 5, S. hypnoides. —C. E. F. Veronica dentata.

**PEA ROOTS: W. G.** These excrescences are common to all Leguminous plants, and are not injurious. The Orchis is Habenaria bifolia.

**PERPETUAL FLOWERING CREAM-COLOURED STOCK: A. Mitchell.** It is a pretty variety. We have seen nothing like it before among biennial Stocks—which, by the way, it is—and we think no nurseryman has it.

**PITCHER ON CABBAGE LEAF: C. W. D.** Not very uncommon; often figured in the *Gardener's Chronicle*. It results from the partial branching of the leaf in a vertical as well as in a horizontal plane, but what is the exciting cause we do not know.

**POLYGONUM CUSPIDATUM: A. F. Pot.** Fortune said that the Polygons were eaten by the Chinese, the young shoots being cut like Asparagus, just as it shows above-ground. The liking for it must be an acquired one, as the flavour is bitter and disagreeable; but then what is there a Chinaman will not eat! As regards its feeding properties for poultry we have no experience.

**POSTAL BOXES: E. Helliwell.** The best sorts are those made with dovetailed or nailed sides of thin wood; or those made of stout tin plate. The collapsible boxes reach us very generally quite smashed up, and the contents often unrecognisable.

**ROYAL BOTANIC SHOW: CORRECTION.**—Floral certificates were awarded to Messrs. Laing for Tuberosa Begonias Mr. Brissenden and Salmonea. They are described at p. 804, but Mr. Brissenden is stated to be the exhibitor.

**SOFTENING PUTTY: C. Noble.** Soak the putty with a

strong solution of pearlash—or, failing that, of washing soda—mixed with wood-ash lye.

**VINE LEAVES: H. S.** There is no disease, but constitutional weakness (perhaps hereditary). We cannot tell the cause if the other Vines are healthy. Try a very weak solution of sulphate of iron, and carefully applied doses of weak liquid manure.

**WIREWORMS: W. G.** The grub of various beetles is so called. If you can let your land, or any portion of it, remain fallow for a time, a dressing of gas-lime will kill the grubs; but, as it will kill the plants too, some months must elapse before you plant. Any stimulating manure will cause the plants to grow more vigorously, and in a measure compensate for the injury done by the insect. Great quantities may be caught by burying pieces of Potato, Turnip, &c., to a depth of a few inches, and examining them every few days.

**GOOSEBERRY DISEASE: W. P.** Your plants are covered with the Gooseberry fungus, which seems unusually prevalent this year, especially in Ireland. As many gardeners may not have seen it, we reproduce



FIG 181.—GOOSEBERRY FUNGUS.

the woodcut from an earlier volume (fig. 181). Nothing but destruction by fire of the affected parts will do any good.

## CATALOGUE RECEIVED.

E. H. KRELAGE & SON, Haarlem—Wholesale Catalogue.

**COMMUNICATIONS RECEIVED.**—W. Fricker, shortly. —R., next week. —A. B.—C. W. S.—J. F.—Constant Reader. —I. O. W.—W. N.—Jas. P.—A. W.—J. H.—C. W. D.—R. D.—W. J. M.—H. E.—J. R. Robinson.—J. L. S.—S. H.—G. H.—W. T.—W. H. B., many thanks. G. N.—H. C.—C. K., with thanks. —H. L., New Orleans, many thanks.

**DIED.**—Mr. MUIR, Gardener to the Earl of Hopetoun, Queensferry, died on June 16.

## Markets.

### COVENT GARDEN, June 25.

BUSINESS very quiet, and heavy supplies reaching this market. *James Webber, Wholesale Apple Market.*

### CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Abutilon, 12 bunches	2 0 4 0	Mignonette, 12 bun.	3 0 9 0
Anemone, 12 bunch.	1 0 2 0	Myosotis, 12 bun.	2 0 4 0
Arum Lilies, 12 blms.	3 0 6 0	Pinks, var., 12 bun.	6 0 12 0
Bouvardias, per bun.	0 9 1 0	Pelargoniums, per 12	
Eucharis, 12 blms.	1 0 2 0	trusses	0 6 1 0
Gardenias, per dozen	4 0 6 0	—scarlet, 12 trusses	0 4 0 6
Iris, 12 bun.	4 0 9 0	Picotees, 12 bun.	4 0 6 0
Lapageria, white, 12		Pinks, var., 12 bun.	4 0 6 0
blooms	2 0 3 0	Primula, double, bun.	0 9 1 0
—red, 12 blooms	1 0 2 0	Rhodanthé, 12 bun.	6 0 9 0
Lily-of-Val, 12 bun.	3 0 9 0	Roses (indoor), doz.	1 0 3 0
Lilium longiflorum,		—coloured, dozen	2 0 4 0
12 blooms	4 0 6 0	—per doz. bunches	4 0 9 0
Lilium candidum, 12		Moss, 12 bun.	6 0 9 0
blooms	1 0 2 0	Spiræa, 12 bunches.	6 0 9 0
Marguerites, 12 bun.	3 0 6 0	Stephanotis, 12 spr.	2 6 4 0
		Tropæolum, 12 bun.	1 0 6 0

### PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Aralia Sieboldi, doz.	6 0 24 0	Ferns, in var., dozen	4 0 18 0
Arbor-vitæ (golden),		Foliage Plants, vari-	
per dozen	6 0 18 0	ous, each	2 0 10 0
—(common), doz.	6 0 12 0	Fuchsias, per dozen	6 0 12 0
Arum Lilies, dozen.	6 0 12 0	Hydrangeas, dozen.	12 0 18 0
Begonias, per dozen	6 0 12 0	Lilium auratum, per	
Bouvardia, dozen	9 0 18 0	dozen	30 0 40 0
Calceolarias, doz.	6 0 9 0	—longifolium, doz.	18 0 36 0
Cyperus, per dozen.	4 0 12 0	Marguerite Daisy,	
Dracæna terminalis,		per dozen	8 0 15 0
—per dozen	30 0 60 0	Musk, per dozen	3 0 4 0
—viridis, per doz.	12 0 24 0	Myrtles, per dozen	6 0 12 0
Erica, various, doz.	9 0 18 0	Palms in variety,	
—Cavendishii, doz.	18 0 30 0	each	2 6 21 0
—ventricosa, doz.	12 0 24 0	Pelargoniums, per	
Euonym., in var., doz.	6 0 18 0	dozen	6 0 18 0
Evergreens, in var.,		—scarlet, dozen	3 0 9 0
per dozen	6 0 24 0	Rhodanthé, per doz.	6 0 18 0
Ficus elastica, each.	1 6 7 0	Spiræa, per dozen	9 0 18 0

### FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, 1/2-sieve	1 6 5 0	Melons, each	2 6 4 0
—Nova Scotia and		Peaches, per doz.	2 0 10 0
Figs, per dozen	3 0 5 0	Pine-apples, Eng., lb.	3 0 4 0
Gooseberries, 1/2-sieve	2 0 2 3	—St. Michael, each	2 6 8 0
Grapes, per lb.	2 0 5 0	Strawberries, per lb.	1 0 1 6
Lemons, per case	15 0 35 0		

### VEGETABLES.—AVERAGE RETAIL PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Lettuces, Cab., doz.	1 0 1 1
per dozen	4 0 6 0	—English-Cos, doz.	1 6 1 1
Asparagus, English,		Mint, green, bunch.	0 4 1 1
per bundle	1 6 6 0	Mushrooms, basket.	1 0 1 6
—French, bundle	1 0 5 0	Oatons, per bushel.	6 0 1 1
Beans, Eng., per 100	2 0 1 1	—Spring, per bun.	0 6 1 1
Beet, per dozen	1 0 1 1	Parsley, per bunch.	0 4 1 1
Cabbages, per dozen	1 6 2 0	Peas, per quart	2 0 1 1
Carrots, per bunch	0 6 1 1	Potatoes, new, per lb.	0 3 1 1
Cauliflowers, Eng-		Radishes, per dozen	1 0 2 0
lish, spring, per doz.	4 0 9 0	Rhubarb, bundle	0 6 1 1
Celery, per bundle	1 6 2 6	Small saladings, per	
Cucumbers, each	0 6 1 0	punnet	0 4 1 1
Endive, per dozen	2 0 1 1	Spinach, per bushel	1 6 2 0
Garlic, per lb.	0 6 1 1	Tomatos, per lb.	1 0 1 1
Herbs, per bunch	0 2 0 4	Turnips, new, bunch	1 0 1 1
Horse Radish, bun.	3 0 4 0		

POTATOS.—Jersey kidneys, 7s. to 9s.; Belgian, 5s. to 7s. per cwt. Old, 60s. per ton.

## SEEDS.

LONDON: June 24. —There was a very poor attendance on the seed market to-day, and the small business transacted was without any new feature either of interest or importance. The higher prices demanded for new French Trifolium hinder operations, as buyers hold off. In Mustard and Rape seed there is no quotable change. Canary seed is somewhat firmer. Hemp seed is now exceedingly cheap. Feeding Linseed is inactive; in other articles are without alteration. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

## CORN.

Monday's trade at Mark Lane was hardly on the whole so good as on the previous Friday, and the market at the close appeared to have lost tone a little as regards Wheat and Maize, but on the week Wheat prices in some instances showed a small advance, and firmness. Flour was quiet, without material change, but firmer. Barley did not engage much attention. Light arrivals were, however, in favour of prices. A good business was done in Beans and Peas at steady prices, Maize was somewhat irregular, flat corn rather firmer, and round slightly easier. Oats were dull of sale, but no change was made in quotations.—On Wednesday the Wheat trade was quiet, the tendency of prices for English Wheat being downward. Altogether, however, there was no quotable change in the values of English or foreign. Flour was quiet, but steady in value; Barley was unaltered, Beans and Peas very firm, Maize steady, and Oats quiet and unchanged.—Average prices of corn for the week ending June 20:—Wheat, 33s. 2d.; Barley, 28s. 2d.; Oats, 22s. 4d. For the corresponding period last year:—Wheat, 37s.; Barley, 27s. 11d.; Oats, 22s. 4d.

## HAY.

Tuesday's Whitechapel Market report states that trade was very dull, especially for Clover, which had a decidedly drooping tendency. Supplies were large. Quotations:—Clover, prime, 80s. to 110s.; prime second cut, 85s. to 110s.; inferior, 60s. to 75s.; hay, prime, 70s. to 95s.; inferior, 40s. to 60s.; and straw 25s. to 35s. per load.—On Thursday there was a moderate supply. Trade was very dull at late prices.—Cumberland Market quotations:—Clover, best, 85s. to 105s.; inferior, 60s. to 80s.; hay, best, 84s. to 95s.; inferior, 40s. to 70s.; and straw, 25s. to 35s. per load.

## POTATOS.

The Borough Market report states that fair supplies are to hand, with a steady trade. Quotations:—Lisbon Rounds, 7s. to 8s.; Cherbourg, 7s. to 8s.; Guernsey Rounds, 7s. to 8s.; Jersey Kidneys, 9s. to 11s. per cwt. Old Magnum Bonums, Regents, and Victorias, 50s. to 55s. per ton.—The imports into London last week consisted of 30 baskets 872 packages 273 baskets from St. Nazaire, 1403 cases from Cherbourg, 68 packages from St. Michael's, and 50 boxes 23 cases from Malta.



Weeds. How to Destroy them.—Use  
SMITH'S Celebrated WEED KILLER, the  
cheapest and most effectual preparation ever invented.  
For testimonials and prices address  
MARK SMITH, Manufacturing Chemist, Louth, Lincolnshire.

**EPPS'S SELECTED PEAT.**—Forty sacks,  
25. 6d. per sack; 30 ditto, 25. 9d.; 20 ditto, 35. 6d.  
10 ditto, 45. 6d.; sacks, 6d. each. In trucks of 14 cubic yards,  
115. per yard. For Rhododendrons and common purposes,  
155. per ton, not less than four tons; sample sack, 22. 6d.  
LOAM, SAND, LEAF-MOULD, SPHAGNUM, &c.  
See Special List, also for the Trade. Ringwood, Hants.

### A GREAT SUCCESS.

## "JEYES' GARDENER'S FRIEND."

One Gallon of this Fluid, diluted with water according to  
directions, and applied with an ordinary watering-can,  
Effectually Removes all Weeds, Moss, Worms, and  
Insects on Gravel Walks, Lawns, &c.

Price, 3s. 6d. per Gallon, including drum; 40-gallon Casks,  
£4 10s. Carriage paid.

JEYES' SANITARY COMPOUNDS CO. (Limited),  
43, Cannon Street, London, E.C.

YOU CAN IMMEDIATELY

## Destroy all Insects

And PARASITES that infest Trees and Plants  
(whether at the roots or on the foliage) by using

# FIR TREE OIL INSECTICIDE (SOLUBLE IN WATER)

Green Fly From Garden, Greenhouse, Mealy Bug  
Black Fly Orchard, or Vine; these and Thrip  
Woolly Aphis all insect pests are speedily cleared by the use of Fir Tree  
Grubs Oil. Effectual, Economical, Caterpillars  
Ants and Safe. It does not injure and Mildew  
Worms Flowers, Foliage, or the bloom on Grapes, Stone Fruit, &c. Scale, &c.

**FIR TREE OIL** destroys Lice and Fleas on Animals; it  
will cure Ringworm and all Skin Diseases produced by  
Parasites, and is perfectly harmless to the Hands & Skin.  
Sold by Seedsmen and Chemists, 1/6, 2/6, and 4/6 a Bottle.  
Per post 3d. extra. Per gallon 12/6, or less in larger quantities.  
A Treatise on FIR TREE OIL, as an INSECTICIDE, its  
application to Plants and Animals, sent Post Free, on  
receipt of address, by the Manufacturer,

**E. GRIFFITHS HUGHES, Manchester.**  
Wholesale:—HOOPER & CO.; CORRY, SOPER, FOWLER  
AND CO.; C. E. OSMAN & CO.; and from all the London  
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New York:—ROLKER & SONS.

**GISHURST COMPOUND**, used by leading  
Gardeners since 1850 against Red Spider, Mildew,  
Thrips, Green Fly, and other Blight, 1 to 2 ounces to the  
gallon of soft water; 4 to 16 ounces as winter dressing for Vines  
and Orchard-house Trees; and in lather from the cake against  
American Blight. Has outlived many preparations intended to  
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Wholesale from PRICE'S PATENT CANDLE COMPANY  
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The best and strongest it is possible to obtain. 6 lb. 45. 6d.;  
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CLOTH, 6 lb., 2s. 6d.; 14 lb., 5s.; 28 lb. 10s. Carriage paid to  
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the pure essence of Tobacco only. Used in Royal Nurseries, the  
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Our celebrated Best ROLL TOBACCO PAPER, CLOTH,  
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2½ lb., 2s. 6d.; 4½ lb., 4s.; 6 lb., 5s.; 6½ lb., 5s. 6d.

Manufacturers—

**DARLINGTON BROS., CHATHAM.**  
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**SILVER SAND**, excellent coarse, 7s. and  
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rail by truckloads. In sacks at moderate prices.  
W. SHORT, Horticultural Company, Midhurst, Sussex.

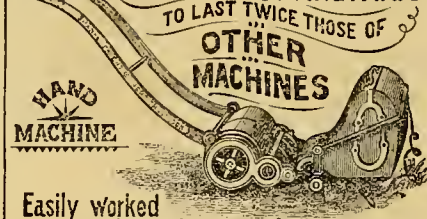
**ORCHID BASKETS, RAFTS, BOATS, &c.**  
including Copper Pits and Wires, 3 inches, 4s. 6d.;  
3½ inches, 5s.; 4 inches, 5s. 6d.; 4½ inches, 6s. 6d.; 5 inches,  
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14s. 6d.

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**CREOSOTED DEAL BOARDS** for Sale, in  
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Price ½d. per foot run, delivered free to any part of London.  
Terms cash. Apply to  
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**ROWLAND'S New Daisy CUTTER**, entirely  
supercedes the old Daisy Rake. Light, strong, cheap, and  
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**SHANKS'S PATENT  
Lawn Mower**  
THE ONLY LAWN MOWER FITTED WITH  
DOUBLE EDGED SOLE PLATE  
ENABLING THE CUTTING PARTS  
TO LAST TWICE THOSE OF  
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MACHINES



**HAND  
MACHINE**

Easily Worked  
Making the Lawn like Velvet  
Does not get out of order

PRICES.			
To CUT 10 INCHES WIDE,	£2 10 0	To CUT 19 INCHES WIDE,	£8 0 0
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## ALEX. SHANKS & SON DENS IRON WORKS ARBROATH & 27 LEADENHALL STREET LONDON, E.C.

A large Stock of Machines of all sizes always kept  
— AT 27 LEADENHALL STREET —  
— WHERE REPAIRS CAN ALSO BE EXECUTED —  
SMALL LAWN MOWERS  
6 INCH 25/-, 7 INCH 35/-, 8 INCH 45/-

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Patronised by  
**HER MAJESTY,**  
HIS ROYAL HIGHNESS THE PRINCE OF WALES,  
15,000 OF THE NOBILITY, GENTRY, AND CLERGY.  
Is extensively used for all kinds of  
**OUTDOOR WORK, CONSERVATORIES,  
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CAN BE LAID ON BY UNSKILLED LABOUR.  
1 Cwt., and Oil Mixture, Free to all Stations.  
Non-Poisonous Paints for Inside Work, Conservatories, &c.  
Prices, Patterns, and Testimonials, Post-free.

**CARSON'S,**  
LA BELLE SAUVAGE YARD, LUDGATE HILL,  
LONDON, E.C.;  
21 and 22, BACHELOR'S WALK, DUBLIN.  
Discount for Cash.

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



The above Labels are made of a White Metal, with RAISED  
BLACK FACED LETTERS.  
The *Gardeners' Magazine* says:—"We must give these the  
palm before all other plant labels, as the very first to merit."  
Samples and Price Lists free.  
J. SMITH, The Royal Label Factory, Stratford-on-Avon.

CULTURAL GLASS	14 X 12	20 X 15
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	16 X 14	20 X 18
	18 X 14	22 X 18
SHEET GLASS	20 X 14	24 X 18

21-OZ. Foreign of the above sizes, in 100 and 500 feet boxes,  
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A large stock of similar current sizes of 15-OZ. glass in  
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Propagating and Cucumber Glasses, and all Miscellaneous  
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Stock Lists and Prices on application. Quote Chronicle.

### Rosher's Garden Edging Tiles.



THE ABOVE and many other PATTERNS  
are made in materials of great durability. The  
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suited for KITCHEN  
GARDENS, as they har-  
bour no Slugs or Insects,  
take up little room, and,  
once put down, incur no  
further labour or expense,  
as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone,  
very durable and of superior finish, and in great variety of design.  
F. ROSHER AND CO., Manufacturers, Upper Ground  
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Agents for LOOKER'S PATENT "ACME" FRAMES,  
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Illustrate Price LISTS Free by Post. The Trade supplied.

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for Conservatories, Halls, Corridors, Balconies, &c.,  
from 3s. per square yard upwards. Pattern Sheet of Plain or  
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F. ROSHER AND CO., Brick and Tile Merchants.  
See Addresses above.

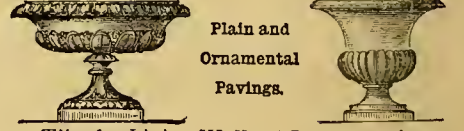
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fine or coarse grain as desired. Price, by post, per Ton  
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FLINTS and BRICK BURS for Rockeries or Ferneries.  
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## DOULTON & WATTS, LAMBETH POTTERY, LONDON, S.E.

VASES, PEDESTALS, FOUNTAINS,  
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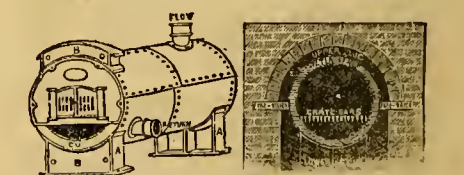
Tiles for Lining Walls of Conservatories.  
ART POTTERY, including JARDINIERES  
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Table Decorations, and Vases, Fountains, &c.,  
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DOULTON WARE, LAMBETH FAIENCE, AND THE  
NEW SILICON WARE.

Show Rooms, Albert Embankment, S.E.

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Recently Improved and Reduced in Price.  
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**HOT-WATER PIPES AND FITTINGS**  
of every description for Heating Apparatus.  
THE LARGEST STOCK IN THE KINGDOM.



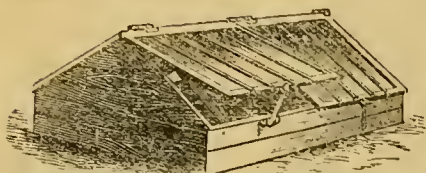
HIGH and LOW PRESSURE and HOT-AIR HEATING  
APPARATUS ERECTED and GUARANTEED.

**FRED. SILVESTER, Castle Hill Foundry,  
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Notices to Orchid Growers, &c.  
**TEAK-WOOD**, for Orchid Baskets; Teak-  
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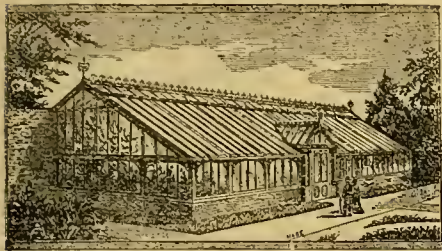
The above are without exception the most useful kind of Frame for Plant Growing, and every one with a garden should possess one. The sashes turn right over one on the other, and the boxes are put together with wedges, and can be taken apart in a few minutes. Sizes and prices, carriage paid to any station in England, ready glazed and painted:—

6 feet long, 4 feet wide, packing cases free	£2 15 0
12 feet long, 4 feet wide, " " "	4 15 0
6 feet long, 5 feet wide, " " "	3 15 0
12 feet long, 5 feet wide, " " "	6 10 0

The glass is nailed and puttied in.

**R. HALLIDAY & CO.,**  
Hothouse Builders and Engineers,  
ROYAL HORTICULTURAL WORKS, MIDDLETON,  
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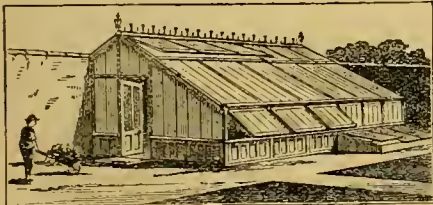


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Fixed in any part of the Kingdom with Hot-water Apparatus complete.

**W. RICHARDSON & CO.,**  
Numerous Medals. CATALOGUE free.  
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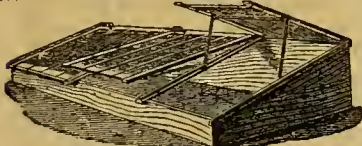
**C. G. FRAZER & CO.,**  
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THREE-QUARTER SPAN-ROOF GREENHOUSES made in lights, glazed with 21-oz. glass, and painted three coats of good oil colour. Tenants' Fixtures. 15 feet by 10 feet, £24 10s.; for Brickwork, £27.



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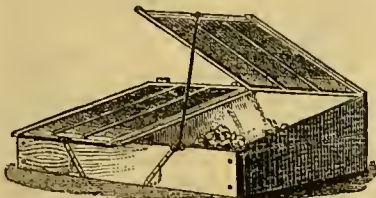
and (registered) Set-ops, as shown above, 8 feet by 4 feet, 10s. extra; and 12 feet by 4 feet, 15s. extra. Cases, 5s.



The Illustration shows the largest of the set of NEW "IMPROVED" HANDLIGHTS. Made diminishing sizes, cover 17 square feet; painted three coats, and glazed with 21-oz. glass; per set of six, £2 7s. 6d. Carriage paid to any Railway Station in England and Wales; also to Edinburgh, Glasgow, Dublin, and Belfast. Illustrated Catalogues, post-free, Two Penny Stamps.

## BOULTON &amp; PAUL, NORWICH.

SMALL, HANDY, LEAN-TO FRAMES.



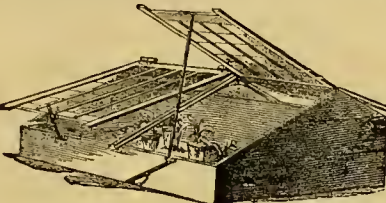
TWO-LIGHT FRAMES, 6 feet by 4 feet, painted three coats, and glazed with 21-oz. English glass. Carriage paid, price £2 2s.

If with hinges, set-ops and prop, as shown, price £2 10s. 6d. Packing 3s., allowed in full if returned.

THREE-LIGHT FRAME, largest size made, 9 feet by 4 feet, price £3.

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No. 74.—Three-quarter Span-roof Garden Frame.



REDUCED CASH PRICES, Carriage Paid.

No.	Size.	Length.	Width.	Price.	Packing Case.
No. 2	8 feet	6 feet	6 feet	£4 12 6	5s.
No. 3	12 feet	6 feet	6 feet	6 5 0	6s.
No. 4	16 feet	6 feet	6 feet	8 0 0	7s.

Height in front 21 inches, back 22 inches, centre 22 inches.

Lights made to turn over. Set-ops for ventilating.

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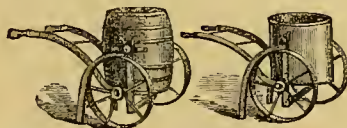
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**GLASSHOUSES & HEATING.**  
**B. W. WARHURST**  
31A, BEAUFORT STREET, CHELSEA, S.W.

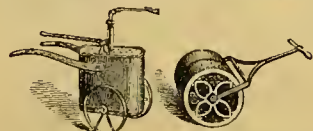
## R. HOLLIDAY,

HORTICULTURAL IRON AND WIRE WORKER,  
GARDEN IMPLEMENT MAKER.

SWING WATER BARROWS.



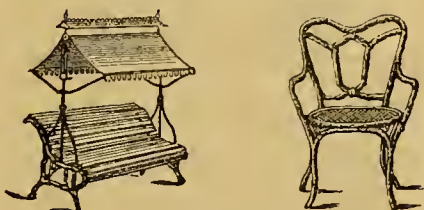
GARDEN ENGINES and ROLLERS.



GARDEN PLANT TRUCK and WHEELBARROW.



GARDEN SEATS and CHAIRS.



SEATS with Awning.  
CHAIRS with Spring Bottom and Back.  
CHAIRS in Rustic Iron Work.

A GREAT VARIETY ON SHOW TO SELECT FROM.

For GARDEN and CONSERVATORY WIRE WORK, see Illustrated Catalogue.

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**W. H. LASCELLES & CO.,**  
HORTICULTURAL BUILDERS,  
121, BUNHILL ROW, LONDON, E.O.

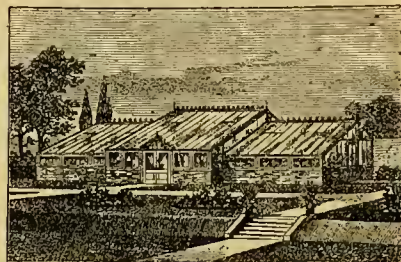


W. H. LASCELLES AND CO. will give estimates for every description of HORTICULTURAL WORK, free of charge, and send competent assistants when necessary.

LASCELLES' NEW ROCKWORK material in various colours. Samples can be seen and prices obtained at

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Illustrated Lists of Wooden Buildings, Greenhouses, and Conservatories, and Concrete Slabs for walls, paths, and stages, sent post-free on application.

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RANGE OF HOUSES.

No. 9.—A very useful range of three-quarter-span houses, divided into three parts, the centre part projecting a ft. more than the ends. It can be varied in form to almost any extent. Designs and estimates for ranges of Houses, including Conservatories, Peach-houses, Vineries, &c., prepared and furnished free.

ESTIMATES.—The prices given are for ERECTING COMPLETE, by our own men, within 15 miles of London Bridge, including building dwarf wall, 2 ft. high, in 9 in. brickwork, at front and ends, two divisions on 4 1/2-in. brickwork, and erecting, painting, and glazing in the best style.

HEATING APPARATUS.—No reliable price can be given for this off-hand, as the heat required in the different divisions varies so much, but estimates will be forwarded when information is obtained as to the purpose for which the various divisions are to be used.

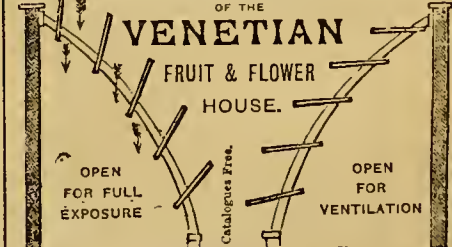
Length.	Width.	Width of Centre Part.	Price.
24 ft.	8 ft.	10 ft.	£43 10
30 ft.	10 ft.	12 ft.	55 10
36 ft.	12 ft.	14 ft.	67 10
48 ft.	12 ft.	14 ft.	83 10
60 ft.	12 ft.	14 ft.	100 0
72 ft.	12 ft.	14 ft.	118 0
84 ft.	12 ft.	14 ft.	135 0
96 ft.	12 ft.	14 ft.	151 0

PROPORTIONATE PRICES FOR OTHER SIZES, AND ERECTED IN ANY PART OF THE COUNTRY.

SURVEYS MADE IN ANY PART OF THE COUNTRY, FREE OF CHARGE. Ladies and Gentlemen waited upon at their Residences, and DESIGNS AND ESTIMATES for Conservatories, Greenhouses, and Horticultural Buildings of every description PREPARED AND FURNISHED FREE. ILLUSTRATED SHEETS of Conservatories, Greenhouses, &c., with Prices for Erecting and Heating, FREE ON APPLICATION.

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**SKINNER & BOARD, BRISTOL,**  
HORTICULTURAL BUILDERS & HOT-WATER ENGINEERS,  
PATENTEES  
OF THE



See House at INVENTIONS EXHIBITION, Kensington.  
Estimates for WARMING Churches, Conservatories, etc., etc.



"Gather Honey from Your Flowers."  
NEIGHBOUR'S Celebrated BEEHIVES.  
Silver and Bronze Medals awarded at the International Health Exhibition, 1884, to Geo. Neighbour & Sons.



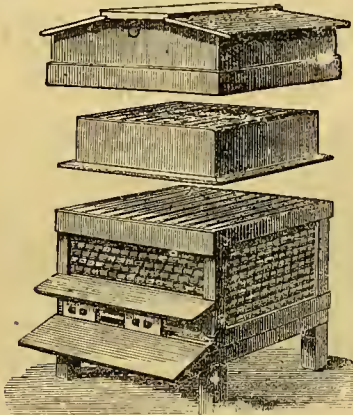
### NEIGHBOUR'S IMPROVED COTTAGE BEEHIVE,

as originally introduced by them, working three bell-glasses or a tray of sectional supers, is neatly and strongly made of straw; it has three windows in the lower Hive. This Hive will be found to possess many practical advantages, and is more easy of management than any other that has been introduced.

Price .. .. £1 15 0  
Stand for ditto 0 10 6

### NEIGHBOUR'S FIFTEEN SHILLING FRAME-HIVE.

This hive has been designed to supply a want long felt by those who desire a Hive at once tasteful in appearance and moderate in price. The walls are built of straw neatly bound with cane. Ample means for ventilation in summer, and sufficient warmth in winter are thus secured. Nine Frames, of the standard size, fitted with metal ends, and a dummy for reducing the Hive, are enclosed therein, a double quilt to place over the Frames, a case of American one-piece sections for supering, and a substantial



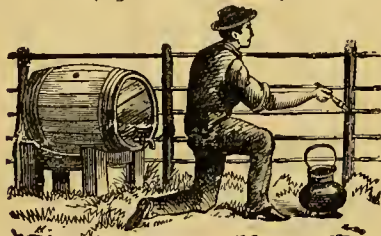
cover of wood, to protect from the weather, are also included. Price, complete, 15s.

Also BAR-FRAME HIVES, from 7s. 6d. to 42s. each.  
"THE APIARY," by ALFRED NEIGHBOUR.  
Price 5s., post-free.

CATALOGUE of Improved Beehives and Appliances may be had on application to

GEO. NEIGHBOUR & SONS,  
127, HIGH HOLBORN, LONDON, W.C.,  
and 149, REGENT STREET, LONDON, W.

Oil Paint no Longer Necessary.  
HILL AND SMITH'S BLACK VARNISH,  
for Preserving Ironwork, Wood, or Stone.  
(Registered Trade Mark.)



This VARNISH is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the Advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in Casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

#### UNSOLICITED TESTIMONIAL.

"Pierrefield Park, June 21, 1885.—Sir, I have this day forwarded from Chestow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Pierrefield Park, Chestow.—I am, Sirs, yours respectfully, WM. COX."

CAUTION.—HILL & SMITH would particularly warn their Customers against the various cheap Varnishes now so much advertised.

H. & S.'s Varnish has been an article of common use on most of the large estates in the Kingdom for upwards of thirty years; and their constantly increasing trade in it, and the numerous Testimonials they receive stamp it as a truly genuine article. Every cask is legibly marked with their name and Registered Trade Mark as above, without which none is genuine.

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HILL AND SMITH, Brierley Hill Ironworks, Staffordshire;  
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## HUGHES' APHICIDE

1/6  
Post  
Free  
1s. 8d.

Enables the operator to apply the Insecticide underneath the leaves, the superfluous liquid falling on the upper surface while descending.

One or two tablespoonful of the Fir Tree Oil to a pint of soft water will answer for all insects on plants. For further directions see label on bottle.

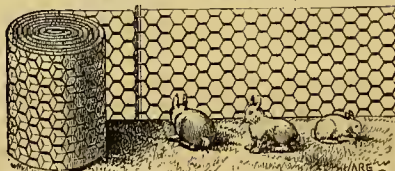
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JOHN SHAW AND CO., 31, Oxford Street,  
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1 yard wide, 1 1/2d. per yard; 4 yards wide, 3d. per yard; or 2 yards wide 10s. per 100; 4 yards wide, 20s. per 100 yards. NEW TWINE NETTING, 1 yard wide, 2d. per yard; 2 yards wide, 4d. per yard; 4 yards wide, 6d. per yard; 12 yards wide, 2s. per yard. COTTON NET, nine meshes to square inch, 1 1/2 yard wide, 7d. per yard run.  
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CATALOGUE Free. Please name this paper.

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1 yard wide .. 3/4d. per yard | 3 yards wide .. 2 1/2d. per yard.  
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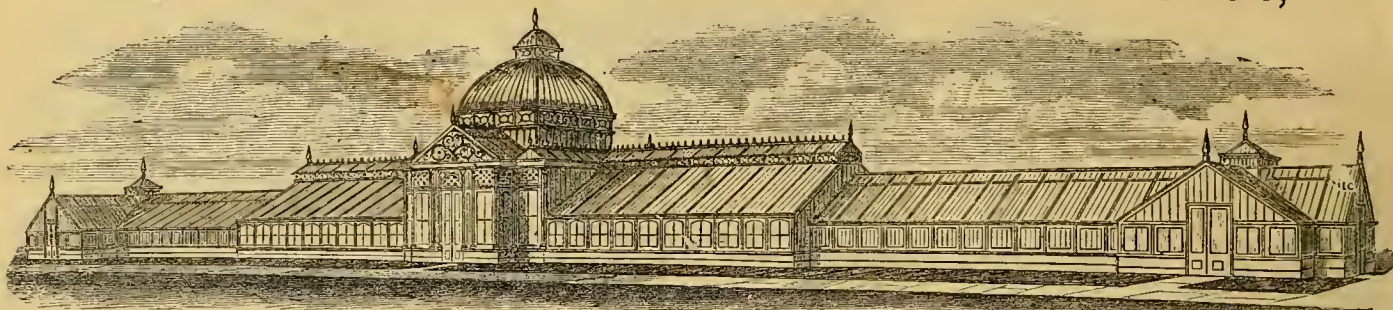
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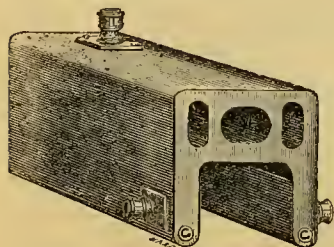
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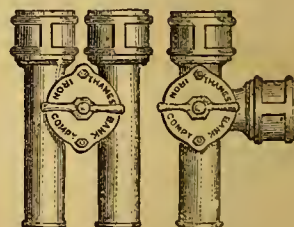
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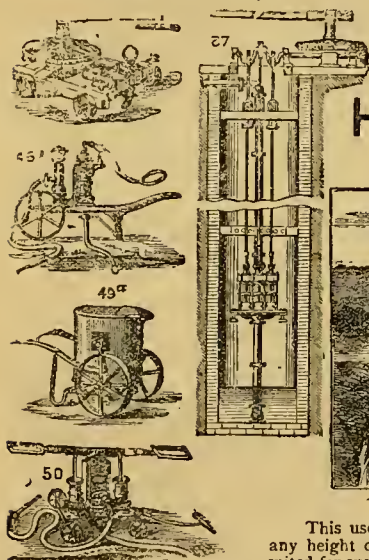
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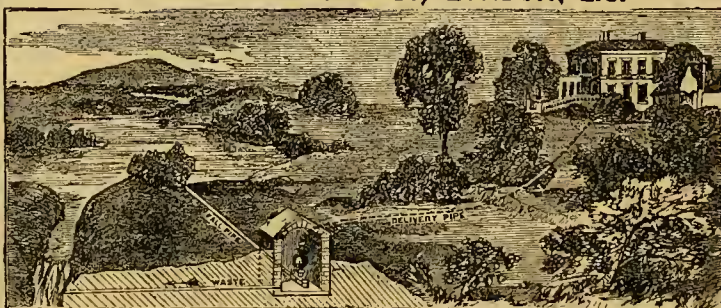
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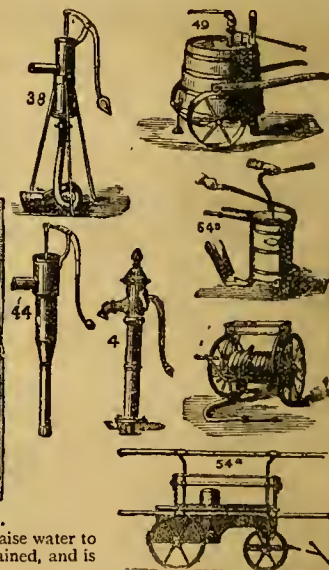


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